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CHAPTER 1
ORIENTATION

1.1 INTRODUCTION

Imagine a classroom where students could learn virtually anything they wanted; a classroom where students have the opportunity to pursue their own passions and natural learning desires. Imagine if school was more like the real world. In the world outside of the classroom, students can go home and learn whatever they desire. Why can't schools be more like that? Imagine a world where students joyfully go to class and actually learn what they are interested in. What if school, truly, become a place designed to embrace human curiosity? The aim of this research is to attempt to create an instructional framework for implementing genius hour into the classroom.

What is genius hour? "Genius hour is a movement that allows students to explore their own [educational] passions and encourages creativity in the classroom. It provides students a choice in what they learn during a set period of time during school" (Kesler, 2013:1). It is a movement designed to tap into the intrinsic motivations of learning; a movement aimed at creating heutagogical learners; a movement born in the concept of autonomy, bringing choice into the classroom experience; and a movement designed to engage student interest, passion, critical thinking and creativity (Kesler, 2013).

The concept of genius hour can revolutionise, modernise, and personalise the educational experience for students around the world. Solarz (2013:1) refers to genius hour time in his class as "Passion Time", a phrase that more accurately depicts why students benefit and enjoy genius hour. By allowing scheduled times to pursue passions, schools begin to engage student curiosity, increase motivation (LaVoie, 2008), invite critical thinking, enhance creative thinking (Michalko, 2006), and encourage students to become independent learners (November, 2012). Genius hour could also improve pass rates because most dropouts allude to lack of interest and motivation, not the difficulty of the academic challenge as the primary cause of their failure to graduate (Crotty, 2013). Philosophically, the genius hour movement encourages creativity, critical thinking, and technological innovation, which are in line with 21st century learning skills. The genius hour approach is examined in terms of how well it accentuates 21st century learning

skills (Maiers, 2008; Wagner, 2008a). The importance of student autonomy (McCombs, 2013; Roscorla, 2013; Tate, 2012) as it pertains to flow (Csikszentmihalyi, 2008) and cognitive psychology (Willingham, 2010) within education is examined through a genius hour perspective.

Genius hour, by its nature, is an educational passion-based, innovative pursuit; essentially, this passion is not only apparent from the perspective of the student engaged in a genius hour lesson, but also from an educator perspective engaged in the genius hour activity. My (the researcher's) passion for genius hour is rooted in a student-centred educational philosophy (Barnes, 2012; Godin, 2012). Barnes (2012:11) transformed his traditional educator-centred classroom to a "Results Only Learning Environment - a fascinating place where students strive to learn." Essentially, a student-centred educational approach is a philosophy where educators begin to create their lessons and curriculum with the student perspective in mind. Within this approach student are empowered to take more ownership of their learning; the classroom becomes their room opposed to the educator's room. Often education is comprised of required courses (math, science, language, history) and curriculum that does not connect with the passion and motivation of the students - forced to complete these required courses (Bennett & Kalish, 2006; Kreidel & McIntosh, 2013). Even elective courses in the United States of America (USA) (art, music, drama) do not cover the limitless possibilities of human curiosity and passion. Genius hour allows for students to learn what they are truly interested in; it does not fit into a curricular box; it personifies the true representation of educational curiosity manifested into academia. The world beyond the classroom is simply more complex than the standardised courses students are forced to complete, or allowed to select, in order to receive their high school diploma. Moreover, even the subjects that pique student interest are often so prescribed that students have remarkably little freedom to explore the subject with any personal ownership (Tate, 2010).

Since 2009, my middle school students have completed quarterly independent study projects. The premise of the project is remarkably simple: learn something new. Theriault (2012) has incorporated this same concept into his classroom; allowing academic freedom. Students spend one quarter of the school year researching whatever they have always wanted to learn. Over the years, my 12-14 year-old students have created

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remarkable projects: they have built computers from the ground up, designed applications, created video games, learned foreign languages, started their own businesses, and published their own books. My independent study project concept has inspired me to research genius hour, (an educational philosophy similar to the independent study concept), in terms of its applicability to the future of education.

Not every student is born to excel in the compliance-driven structure of modern-day academia (Robinson, 2001). Genius hour puts Benjamin Bloom's taxonomy of higher order learning skills, and the refined taxonomy to include learning skills such as evaluation, imagination, motivation, and creativity (Anderson, Krathwohl, Airasian, Cruikshank, Mayer, Pintrich, Raths & Wittrock, 2001) at the forefront of learning. A modern innovative philosophy within education is the maker movement. Martinez (2013), a genius hour educator, has argued for the pros and cons of genius hour, but also emphasises the power of learning by doing. The maker movement emphasises creating as a form of learning; likewise, genius hour emphasises the idea of building and creating above theory and postulation. Essentially, the maker movement is a movement that emphasises repurposing otherwise disposable items. Items such as wine corks, scrap metal, wood, rubber bands, and plastic bottles are used to create extraordinary products. Within education, the maker movement emphasises building, creating, and hands-on learning. Consequently, genius hour like the maker movement enables the student to learn through Bloom's highest order of learning: creation. During genius hour, students often build or create within the physical and virtual world, typically, publishing their learning to an online global audience (Jukes, McCain & Crockett, 2010; November, 2012). If educators want to engage interest and foster a generation of independent lifelong learners, then allow students to have autonomy over their learning.

The genius hour concept creates opportunities for students to explore individual passions for learning. Before genius hour, students typically began discovering their educational passions in university, but genius hour enables students to begin exploring their educational passions at a younger age. This ability to be challenged in an autonomous learning environment could allow students to decide on their future plans before reaching university.

Genius hour breaks down the metaphorical walls of the classroom, enabling the room to

become an innovative space of passion-driven learning. During genius hour time, students and educators are treated as shared learners within the classroom, their interests are valued, and they develop a platform to share their learning with the class and the world (November, 2012).

My motivation for creating an instructional framework for implementing genius hour in practice stems from a desire to help others implement the genius hour movement outside of my classroom. Experiencing the success of genius hour as an educator makes me empathise with students around the world who do not have the same opportunities to pursue genius hour. When students are presented with the genius hour concept for the first time, there is a general feeling of academic enthusiasm. That being said, there is also a general feeling of disappointment in that they had never previously experienced an academic scenario when they could truly pursue their own academic passions; passions encouraged through the genius hour movement. Additionally, upon experiencing genius hour in my classroom, students often comment that they are never afforded the freedom to pursue their own learning desires (November, 2012). The reality that far less than one percent of students worldwide has had the opportunity to participate in the genius hour experience is disheartening. As a student-centred educator, I want as many students as possible to enjoy the genius hour experience.

Educators might be hesitant to implement genius hour into their schools due to uncertainties regarding framework. By creating an instructional framework for implementing genius hour in the classroom, more educators might have access to a model for implementing genius hour into their own classrooms. This framework might reduce the anxiety associated with implementing innovations into own practices.

1.2 BACKGROUND TO THE RESEARCH

The genius hour concept originated in the business world. Since 1948, the company 3M encouraged employees to spend 15% of their contracted time pursuing their own projects. Google, borrowing the idea from the innovative company 3M, began in 2007 by allowing employees 20% of their working time pursuing projects that would benefit the company. Google actually coined the concept 'genius hour' to refer to time spent on innovative activities (Pink, 2011).

Since 2011, educators from around the globe have begun to implement genius hour into their classrooms, but within this implementation, there has not been an attempt to synthesize the results of genius hour into an educational framework for implementing genius hour in the classroom (November, 2012).

The genius hour Live Binder (Kirr, 2013) and the genius hour Wikispace serve as online communities for educators to share their experiences as they begin to launch or continue to implement genius hour initiatives at their schools. The information shared and discussed within these online communities is relied upon in this study. These platforms are spaces where educators can collaborate, ask questions, share successes, and receive advice to enhance their genius hour programmes. Additionally, educational platforms provided through twitter, #geniushour, and #20time also serve as researchable avenues for data collection.

These various platforms along with intensive individual research of genius hour initiatives in combination with research into behavioral psychology as it pertains to motivation within education (Deci & Ryan, 2000), and innovative research on the current trends in education serve as the basis of the research and synthesis within this study.

This study examined current genius hour initiatives with the intent of refining how to create and maintain a successful programme. Specific elements of genius hour programmes are reviewed in order to present educators with alternative ideas and methodologies (Edwards, 2012; Grinberg, 2014; Krebs, Kirr & Zvi, 2013; McDonald, 2013; Sherratt, 2013). The elements analysed in this research include the following: project examples, activating strategies, documented learning, instructional resources, rubrics, objectives, and presentations shared to a global audience. The publishing of genius hour projects to a global audience is an integral part of the movement; when projects are published, the world becomes the audience - not the educator.

While presenting an instructional framework for implementing genius hour in practice, this study examined alternative applications of this framework. Currently, genius hour is being applied to education in a variety of approaches. Methods used by educators and schools include genius hour as an: individual project, curricular accompaniment, school-wide project, elective class, and educational philosophy. This study presents the need

for creating an instructional framework for implementing genius hour in practice. The creation of this framework should consider how genius hour is implemented within these various methods.

By studying and analysing current genius hour initiatives, one realizes that a variety of methods and frameworks for successfully implementing genius hour have been introduced. The intention of this study was to combine the best practices of a variety of genius hour educators into one comprehensive instructional framework for implementing genius hour into education. In chess, when one is studying to become a grandmaster, the player must consider the best strategies of a great deal of grandmasters. Essentially, players naturally have a variety of different strengths. For example, Bobby Fisher is known as the game's greatest opening player, Garry Kasparov as the game's greatest attacker, and Akiba Rubinstein as the game's greatest end-game player. By combining Bobby Fisher's opening game with Garry Kasparov's attacking ability and Akiba Rubinstein's end game, one would create a superior player. Similarly, if the best practices from the most successful genius hour educators are combined into a singular framework, the opportunity to improve upon individual best practices becomes attainable.

Specifically, the framework for implementing genius hour in this research consisted of integrating the best practices of genius hour educators into one guideline. The framework focuses on how genius hour is structured in terms of time frames allotted to students, project possibilities, and maintaining student motivation and productivity throughout the process. The design concentrates on how the idea is presented to students, how students present their learning to an outside audience, and how students present their learning in class.

Basically, this study focuses on the information shared by experienced and successful genius hour educators like Krebs, et al. (2013) to create a basic structure for implementing genius hour. Since genius hour is a relatively new educational undertaking, and the possibility that throughout this study unforeseen genius hour educators might contribute to a document of best practices, this study continually sought out input from genius hour educators, collaborating and evaluating their classroom practices through #geniushour, genius hour's Wikispace, and the genius hour Live Binder (Kirr, 2013).

Although the majority of genius hour educators are currently working in the USA, Zvi (2013) has begun promoting the concept in British Columbia, Canada. Denise Krebs is also implementing the concept of genius hour in Bahrain. Thus, it seems probable that the educational movement of genius hour, with a synthesized framework for implementing genius hour in the classroom, could spread to a larger international audience.

Finally, the movement of genius hour, in terms of its impact on the current state of education around the world, is examined in order to present educators with an idea of the benefits of genius hour from the students' perspective.

1.3 THEORETICAL INSIGHTS

Theories are an important part of social research; essentially, they help people reinterpret events and help them ask new questions by presenting information in an unseen way (Gilbert, 2007). “A theory highlights and explains something that one would otherwise not see, or would find puzzling. Often, it is an answer to a ‘Why?’ question. For example, why are some people poor and others rich; why are so many people unemployed in Western capitalist societies, and so on. Thus, one characteristic of a theory is that it can be used as an explanation” (Gilbert, 2007:25).

A theoretical framework is a process of identifying a core set of connections. Within educational research, theoretical frameworks are guided by the qualitative research process (Ornek, 2008). The theoretical framework “has an implication for every decision made in the research process” (Mertens, 1998:3).

This study focuses on curriculum theorists such as Dewey and Bloom. According to Pinar (2004), curriculum theorists use ‘curriculum’ as a means of redefining the way people learn and process. One way of interpreting curriculum theory is as “the effort to understand curriculum as symbolic representation” (Pinar, 2004:14). Specifically, the theoretical framework of this study is concerned with relating how genius hour aligns with inquiry-based learning (Dewey) and higher order thinking (Bloom).

Educators need to understand the value of genius hour as an academic movement. One such method is to help educators discern the value of genius hour by connecting its

value within common educational terms. By using common, discernable, curriculum terminology such as: inquiry-based learning and higher order thinking skills, educators can understand the value of genius hour as it pertains to curriculum. The alignment of these terms helps communicate the value and importance of the genius hour movement. The theoretical framework is discussed in chapter two.

1.4 KEY TERMS AND CONCEPTS

In the following section key terms relative to implementing genius hour in education is defined.

1.4.1 20 percent time

20 percent time is a time management theory created by Google, following in the tradition of the company 3M, allowing employees 20 percent of their work time for pursuits that are not part of their job description (Brookhouser, 2014; Petty, 2013; Provenzano, 2014).

1.4.2 Common core

The common core is a common set of expectations and goals for American students to learn. It is based around knowledge and skills students need to know in order to succeed. The common core puts emphasis on deeper student learning (Gerwertz, 2015:2).

1.4.3 FedEx days

FedEx days are a time management theory coined in Daniel's book *Drive*, where employees use an all-day event to produce innovation for the company (Pink, 2011).

1.4.4 Flow

Flow, according to Csikszentmihalyi (2008), is completely focused motivation. It is an optimal, zone-like state of maximum concentration, creativity, and focus where time becomes paradoxically increased.

1.4.5 Genius hour

Genius hour is a movement where students are allowed choice over what they are learning during a certain period of time throughout the day. This theory emphasises and encourages: autonomy, creativity, critical thinking, independent learning, and passion-based learning (Kesler, 2013).

1.4.6 Maker movement

The maker movement is a movement that emphasises repurposing otherwise disposable items. Within education, the maker movement emphasises building, creating, and hands-on learning (Martinez & Stager, 2013b).

1.4.7 Passion time

Passion time is a term coined by Solarz (2013) to describe his take on genius hour in the classroom. The word ‘passion’ more accurately represents the feel of the movement, since the genius hour projects are born from student desire, curiosity, and interest.

1.5 PROBLEM STATEMENT AND RESEARCH QUESTIONS

Genius hour initiatives are implemented in selective classrooms around the globe, yet there is no overall documented framework for implementation of this innovation into practice. Educators interested in pursuing genius hour are often uncertain of how to proceed. This study thus provides a framework of best practices from genius hour educators, allowing educators interested in pursuing genius hour initiatives a framework design for implementing genius hour into the classroom. Moreover, educators currently pursuing genius hour can gleam ideas from other educators, whose best practices have been derived though survey inquiry, revealing a synthesized collective framework for implementing genius hour.

Additionally, educators contemplating initiating genius hour within their classrooms might be uncertain whether or not it is actually contributing towards student learning. Therefore, the synthesis of genius hour methodology, implementation, and assessment

of its success towards learning is analysed.

The main question of this research was: How can the recorded successes and failures of current genius hour programmes be synthesized into an instructional framework and design for the successful implementation of genius hour in the classroom?

Sub-questions that were addressed in this study were the following:

- How does genius hour benefit student learning and higher order thinking?
- How can the concept of genius hour be more successfully applied to education?

The most basic problem was the lack of awareness of genius hour as an educational instructional model, therefore raising the question as to how educators would discover this instructional framework for implementing genius hour if they were oblivious to the concept. Another foreseeable problem was how to share this instructional framework with as many genius educators as possible. Finally, to be successfully accepted this framework needed to be endorsed by the most prominent genius hour educators like: Kirr, Krebs, Maiers, McNair, and Zvi.

1.6 AIM AND OBJECTIVES

The recorded successes and failures of current genius hour programmes can be synthesized into an instructional framework for the successful implementation of genius hour in education.

The creation of an instructional framework for implementing genius hour in the classroom is the primary aim of this study. Additionally, this study examines and analyzes how the concept of genius hour is being applied to education around the world in order to synthesize information into one collective genius hour framework (Carroll, 2013; Juliani, 2013a; Kirr, 2013; Neumeyer, 2013; Stevens, 2013; Zvi, 2014).

The primary objectives of this study are to:

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- Determine how genius hour benefits student learning and higher order thinking
- Propose how the concept of genius hour be more successfully applied to education

Other considerations for this study include creating awareness related to instructional frameworks used within the genius hour community; promote the genius hour movement by analysing the value of genius hour and showing how it benefits student learning through higher order thinking and inquiry-based learning. Moreover, another thought of this study is to demonstrate how genius hour can be more successfully applied to education. When demonstrating the genius hour process, this study is attempting to demonstrate how genius hour benefits student learning.

1.7 RESEARCH METHODOLOGY

The following section addresses research design and research methods. Research paradigm, research approach, and research type is discussed under research design.

1.7.1 Research design

"The research design refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data" (Labaree, 2009:1).

1.7.1.1 Research paradigm

This study is approached from a constructivist perspective. Constructivism relies on the belief that students are actively involved in the learning process as opposed to receiving and regurgitating information (Gray, 2007; Neubert & Reich, 2002). The genius hour process requires learning by doing and active learning. Essentially, constructivism relies on creativity, critical thinking, engagement, and motivation. From a constructivist perspective, this study serves to demonstrate the effectiveness of genius hour programmes.

Critics of constructivism like Mayer (2004) point to the lack of evidence behind novice learner ability to learn by doing. Mayer (2004) suggests that constructivism approaches are not beneficial for every student. However, proponents of constructivism (Bruner, 1996) proclaim that authentic learning occurs when students are actively engaged in the learning process. Pink (2011) argues that the role of the instructor becomes that of the learner and facilitator, which is the essence of the educator's genius hour experience.

The research for this study is interpreted within the constructivist paradigm. Essentially, the research has been designed through a constructivist perspective, because constructivism emphasises 'learning by doing' which maintains an essential genius hour foundation. Ultimately, since people construct the realities they experience and interact with, constructivism assumes these experiences determine the meaning of their realities (Charmaz, 2006). According to Charmaz (2006:10), "(researchers) construct grounded theories through our past and present involvements and interactions with people, perspectives and research practices."

1.7.1.2 Research approach

"The situation today is less quantitative versus qualitative and more how research practices lie somewhere on a continuum between the two" (Creswell, 2003:4). A qualitative approach was preferred in this study more than a quantitative approach, because it is concerned with human behaviour, motivation, and the impact of increased autonomy within education.

Qualitative research tends to focus on using open-ended questions, allowing the participants to express their views with more specificity (Creswell, 2003). Likewise, the interview presented to the four participants was qualitative in nature, which allowed these educators to specifically express their genius hour procedures and methods. Specifically, phenomenological research was used because the work of the aforementioned participants was studied extensively to uncover patterns (Simon & Goes, 2011). A qualitative research approach should result in quality data collection and analysis when open-ended questions are used.

Qualitative research was used in this study in order to gain a better understanding of

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how genius hour impacts human behavior and motivation. In order to accurately create a collective framework for implementing genius hour into the classroom, it was essential for this study to consider how variables impact independent learning. By using this type of research, the participants and researcher developed a more thorough understanding of how to best create a collective genius hour framework.

1.7.1.3 Research type

Phenomenological research was used for this qualitative study. In this instance, the researcher used phenomenological research as a means of focusing on the participant educators within this study. The lived experiences of the educators implementing genius hour was the focus of this research. This research type in accordance with Simon and Goes (2011) involved qualitative methods such as observation, interviews, and content analysis.

1.7.2 Research methods

The following section states which educators were selected as primary participants. Moreover, research methods include how data was collected for the purposes of this study. Finally, this section describes how data was analysed within this study.

1.7.2.1 Selection of participant

Five primary participants were chosen based upon their success within the implementation of genius hour. Kirr, Krebs, Maiers, McNair and Zvi represent five educators who are on the front line of innovation concerning the classroom implementation of genius hour. The five aforementioned educators were purposely chosen because of their unique perspectives as prolific genius hour publishers and because of their success and contribution to the genius hour movement. Additionally, the possibility was left open for new genius hour educators to be identified and reviewed who had innovative philosophical designs or approaches. The study focused on educators currently publishing their genius hour results and impressions and benefited from interviewing them directly because of their expertise within the genius hour community.

Two additional educators were selected for classroom observations. Brookhouser and Selck are both experienced genius hour educators who have classrooms in California. Their proximity to the researcher and their years of experience implementing genius hour made them ideal candidates for this study. Genius hour can be used either with educators or as a school wide project (Browning,

2011; Hilt, 2010; Stumpenhorst, 2011; Weir, 2011). FedEx allowed their employees to have an entire day where they could innovate with total autonomy. Likewise, 'FedEx days' are essentially genius hour days. Within a FedEx day students have the entire school day to explore their desired genius hour project. An interview schedule was presented to the selected participants with the intention of refining an instructional framework for implementing genius hour as a school wide initiative.

In terms of research methods, the number of participants within the study were intentionally limited to five. The decision to focus primarily on the most published and experienced genius hour educators was based on the fact that genius hour is an extremely new educational movement; its inception began in 2011. During the duration of this study, new genius hour educators might have been identified who had more innovative philosophic or design approaches than Kirr, Krebs, Maiers, McNair or Zvi, in which case they might have been included in the research.

Therefore, the contribution of these educators was invaluable toward achieving the desired result of this study, which was the creation of an instructional framework and design for implementing genius hour within education.

1.7.2.2 Data collection

Data was collected by interviewing and analysing information from current genius hour educators in combination with my personal findings of incorporating genius hour into the classroom, consisting of six years of research. Since a percentage of this study was based upon the researcher's own experience with the genius hour programme, it was important to include a wide variety of methods from which information could be procured and analysed. The primary method of data collection within this study was through interviews with educators.

Essentially, this study concentrated on in-depth interviews, observation, and the review of documentation for data collection. In-depth interviews were conducted with the five primary participants; these interviews included open-ended and semi-structured questions. This semi-structured approach ensured that the participants would have the freedom to elaborate on areas of interest and feel comfortable within the interview format.

Currently, genius hour educators meet monthly on Twitter at #geniushour to discuss how genius hour is being used in the classroom. This study used the information provided through these discussions as a major source of data collection.

Genius hour related data was also collected through the genius hour Live Binder, the genius hour wiki, genius hour twitter channels, educator created genius hour blogs, along with various other articles related to the subject of genius hour.

The most relevant specific documentation required within this study consisted of the current frameworks educators were using to implement genius hour. Most notably, Zvi (2015) has created a framework for implementing genius hour in the classroom that served as a model for this study and the analysis of her document served as a primary method for data collection.

Vital questions that were addressed throughout the study included: How can genius hour be introduced to students in a way that creates passion and curiosity? How much time are students given to brainstorm their idea? What projects are considered not academic enough? How much time are students given to pursue their projects? How do students maintain a timeline and progression of goals and learning experiences? How do students present what they have learned?

1.7.2.3 Data analysis

Specifically, the primary purpose of data analysis within this qualitative research was to understand the different ways people understand and interpret events. This approach to analysis emphasised the meaning individuals make of their experiences. Basically, this

form of analysis was befitting of the genius hour experience, because the concept itself is about how the individual responds to the individual experience of learning; likewise, instructors and researchers are oftentimes interpreting data through idiosyncratic details and nuances. Phenomenology describes the researcher's experience and what the researcher experiences is all they can ever see (Ratcliff, 2015).

Data analysis might become challenging within this study because of the limited number of participants being analysed and interviewed in order to create a collective genius hour framework. Moreover, my own personal bias about how best to implement genius hour could also have contradicted the findings within this study. That being said, I will analyse data objectively allowing the participants words and experience to inform the study.

Data was analysed through a constructivist perspective. Since this study was concerned with the student perspective within the genius hour movement, it was important to understand how meaning was being constructed through the experience of pursuing the genius hour-related project.

1.8 MEASURES FOR TRUSTWORTHINESS

Qualitative research can be subjective, which can lead to issues of reliability. Additionally, factors such as intrinsic motivation and engagement may be difficult to quantify; henceforth, the amount of perceived engagement may not match the actually effort quantified through the participation in genius hour.

Issues of credibility and trustworthiness were not a matter of concern in this study because the genius hour educators questioned had nothing to gain by exaggerating findings. Basically, this study reviewed the authentic classrooms where genius hour within education originated.

Provisions of trustworthiness made within qualitative research were adhered to as per Guba's four criteria of trustworthiness found in Shenton (2004:73). The four criteria of trustworthiness within qualitative research include credibility, transferability, dependability, and confirmability. The criteria of credibility include: "peer scrutiny of project, negative case analysis, tactics to help ensure the honesty of informants,

debriefing sessions between researcher and superiors, and description of background and qualifications of the researcher" (Shenton, 2004:73). Transferability refers to the "provision of background data to establish context of study and detailed description of phenomenon in question to allow comparisons to be made. Dependability includes employment of ‘overlapping methods’ and in-depth methodological description to allow study to be repeated. Confirmability includes neutrality of data to reduce investigator bias, admission of researcher's beliefs and assumptions, recognition of shortcomings in study's methods and their potential effects, and in-depth methodological description to allow integrity of research results to be scrutinized" (Shenton, 2004:73).

1.9 ETHICAL CONSIDERATIONS

The researcher being an educator already instituting a genius hour initiative might lead to raising a concern of being biased towards the benefits of genius hour within education. Essentially, the researcher did not allow any preconceived notions about genius hour, gathered and observed through personal implementation, influence his findings in other genius hour programmes.

The sensitivity of this study adheres to the University of South Africa’s (UNISA) ethics policy. Additionally, this research follows the advice by Polonski (2004): (a) to behave according to appropriate ethical standards; (b) to consider how your research might negatively affect participants; and (c) to protect yourself, your supervisors/teachers, and your institution from being placed in situations in which individuals could make claims of inappropriate behavior, resulting in public criticism” (Polonski, 2004:53).

Educators who were asked to participate in this study were informed regarding the purpose of the study. Additionally, participants who were interviewed or observed gave permission for their name, opinions, and experience to be used for the purpose of conducting this study.

1.10 CHAPTERS DIVISION

Chapter 1 addressed the purpose and background of the study and how the research was conducted, including a literature overview containing theoretical and conceptual

frameworks. This chapter presented an introduction outlining why this research was being conducted, and the researcher's personal involvement and motivation for pursuing this study. The concept of genius hour, and other key terms, were explained and defined. This chapter introduced elements that are examined in future chapters such as: how genius hour is being applied to education, research design, methodology, and how data is collected.

Chapter 2 focuses on the theoretical framework for this study. The theoretical framework serves as a guide and an evaluation tool. Essentially, the theoretical framework helps readers interpret the knowledge and data presented in this study. The theoretical framework provides the purpose of the framework, which is essential for interpreting research findings.

Chapter 3 focuses on contextual and conceptual frameworks, focusing specifically on educational policy, influential theories, and the purpose of the framework. Additionally, it focuses on how the current literature on how genius hour is being applied to education in various avenues including: how genius hour is being used in the classroom, genius hour projects, genius hour as an integrated part of the curriculum, genius hour as a class, and genius hour as a school-wide initiative. Hilt (2010) demonstrates that genius hour can even be used by administrators to engage educator creativity. This chapter examines literature relevant to uncovering genius hour from the student perspective, specifically addressing which educational genius hour frameworks increase student engagement, creativity, motivation, and passion for learning. Finally, empirical investigation specific to findings within research and literature are analysed nationally and internationally.

Chapter 4 outlines the rationale for empirical research, specifically addressing the necessity and value of this study. Within this chapter, the research methodology of this study is presented. Furthermore, the research approach and methods used to obtain the results of this study are synthesized. Research design is paramount in this chapter. Research type, methods, strategy, selection of participants, and data collection are presented within this chapter.

Chapter 5 reports on the data collected in this study through the participants of genius

hour initiatives. Specifically, data is interpreted, including qualitative methods interviews, participants' responses and findings. This collected data from contributing genius hour educators is analysed through a conventional qualitative approach. Data interpretation connects empirical findings to the researcher's own personal experience. This chapter also proposes the instructional framework.

Chapter 6 presents a summary of the entire study, answers how/ why genius hour is being used in education, draws conclusions of the benefits and drawbacks of genius hour programmes, and makes recommendations towards the application of genius hour within education. Finally, this chapter presents avenues for further research, which could enhance the genius hour experience within the classroom.

1.11 SUMMARY

This chapter provided a background to the research. Moreover, it discussed theoretical insights, while defining key terms, which are pertinent to this study. The problem statement and sub problems within this study were defined alongside aims and objectives. Methods used for the research design of this study were also addressed.

The next chapter focuses on the theoretical framework.

CHAPTER 2

THE ASPECTS AND ROLE OF HIGHER ORDER THINKING SKILLS AND INQUIRY-BASED LEARNING – A THEORETICAL FRAMEWORK

2.1 INTRODUCTION

Within this chapter the theoretical framework is presented. The focus of this study is to determine how best to create an instructional framework for implementing genius hour in the classroom. In order to best create this collective framework, it is imperative that one understands the theoretical framework.

For this chapter, the theoretical framework presented is based on two educational principles. Essentially, these educational principles include emphasising higher order thinking and inquiry-based learning. Both of these theories are emphasised through the genius hour approach towards education. The theoretical framework of this study examines the importance of education tailoring towards higher order thinking skills and inquiry-based learning. Finally, this explains how genius hour learning experience, in fact, emphasises higher order thinking skills and inquiry- based learning.

Chapter two ends with a short synopsis of the chapter. This synopsis includes concluding remarks that accentuate key ideas mentioned within the chapter.

2.2 HISTORICAL, PHILOSOPHICAL, PSYCHOLOGICAL, PEDAGOGICAL, AND SOCIETAL ORIGINS

Within this study, the research is attempting to reveal a potential collective framework of genius hour for classroom implementation. A theoretical framework is a process of identifying a core set of connections (Grant & Osanloo, 2014). Metaphorically speaking, a theoretical framework can be thought of as a blueprint for constructing a custom built home. When planning the design and construction of a home, it is best to use the experience of other builders in order to best construct the perfect home. Likewise, within a theoretical framework it is optimal for researchers to rely on the research of others (Grant & Osanloo, 2014).

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A theoretical framework is a way to cross reference the research conducted within a study. Essentially, future researchers should be able to analyse this study through the theoretical framework knowing that the research conducted was not contrived through a framework designed to manipulate data or fulfill a personal assumption. “The theoretical framework provides a well-supported rationale to conduct your study, and helps the reader understand your perspective. A good theoretical framework assures the reader that the type of investigation you propose is not based solely on your personal instincts or guesses, but rather informed by established theory and empirical facts obtained from credible studies” (Simon & Goes, 2011:1). Trochim (2006) contends there are two domains in research -theory and observation. The importance of the theoretical framework goes beyond just the observation.

The purpose of a theoretical framework is that it serves as an epistemological guide or an appraisal/evaluation tool that helps to interpret the knowledge in a study. Research problems within this study include the following question: How can the recorded successes and failures of current genius hour programmes be synthesized into an instructional framework and design for the successful implementation of genius hour in the classroom?

In accordance with Ornek (2008), within educational research, theoretical frameworks are guided by the qualitative research process. Furthermore, within the theoretical research framework creation, researchers may want to describe behaviour, understand beliefs, or explain phenomena. In order to accomplish this, researchers must create goals and a purpose for their investigation.

The assumption of this theoretical framework is that genius hour aligns well with the American educational movement, the Common Core because the latter emphasises higher order thinking skills through inquiry-based learning. Fundamental discourse questions must be taken into consideration when constructing a framework for genius hour implementation, such as, "how do the things people say and do affect society at large, and how does society in turn affect people?" (Schneider, 2013:1).

It is important to understand that a theoretical framework is not always an isolated study or theory. The theoretical framework is a framework consisting of one or more theories.

The theoretical framework helps to guide the research by, essentially, creating a core set of connections within a topic. The theoretical framework "has an implication for every decision made in the research process" (Mertens, 1998:3). The framework of this study serves as a guide to help interpret the knowledge presented within this study. The theoretical framework for this study is based on the theories of higher order thinking skills and inquiry-based learning.

Inquiry-based learning began in 1910 with John Dewey. "Dewey considered that there was too much emphasis on facts without enough emphasis on science for thinking" (Barrow, 2006:266). Dewey encouraged a mind-shift, an attitude switches from *simply learning* academic information, to *truly understanding* through inquiry. Dewey's creation of the scientific method revolutionized education and his scientific method is still being used 100 years later. "Dewey encouraged K–12 teachers of science to use inquiry as a teaching strategy where the scientific method was rigid and consisted of the six steps: sensing perplexing situations, clarifying the problem, formulating a tentative hypothesis, testing the hypothesis, revising with rigorous tests, and acting on the solution" (Barrow, 2006:266). Dewey realized that the role of the educator was not to teach directly through explicit instruction, but, instead, to serve as a mentor or guide in the pursuit of inquiry through deeper learning. Likewise, the spirit of the genius hour movement is led by educators giving their students time to pursue learning passions. Educators are allowing students to pursue subjects they do not understand: the student is the learner and drives the inquiry, while the educator is the mentor.

Higher order thinking began in 1948 with Benjamin Bloom. Bloom's taxonomy is a pyramid-shaped triangle designed to illustrate the importance of higher order thinking.

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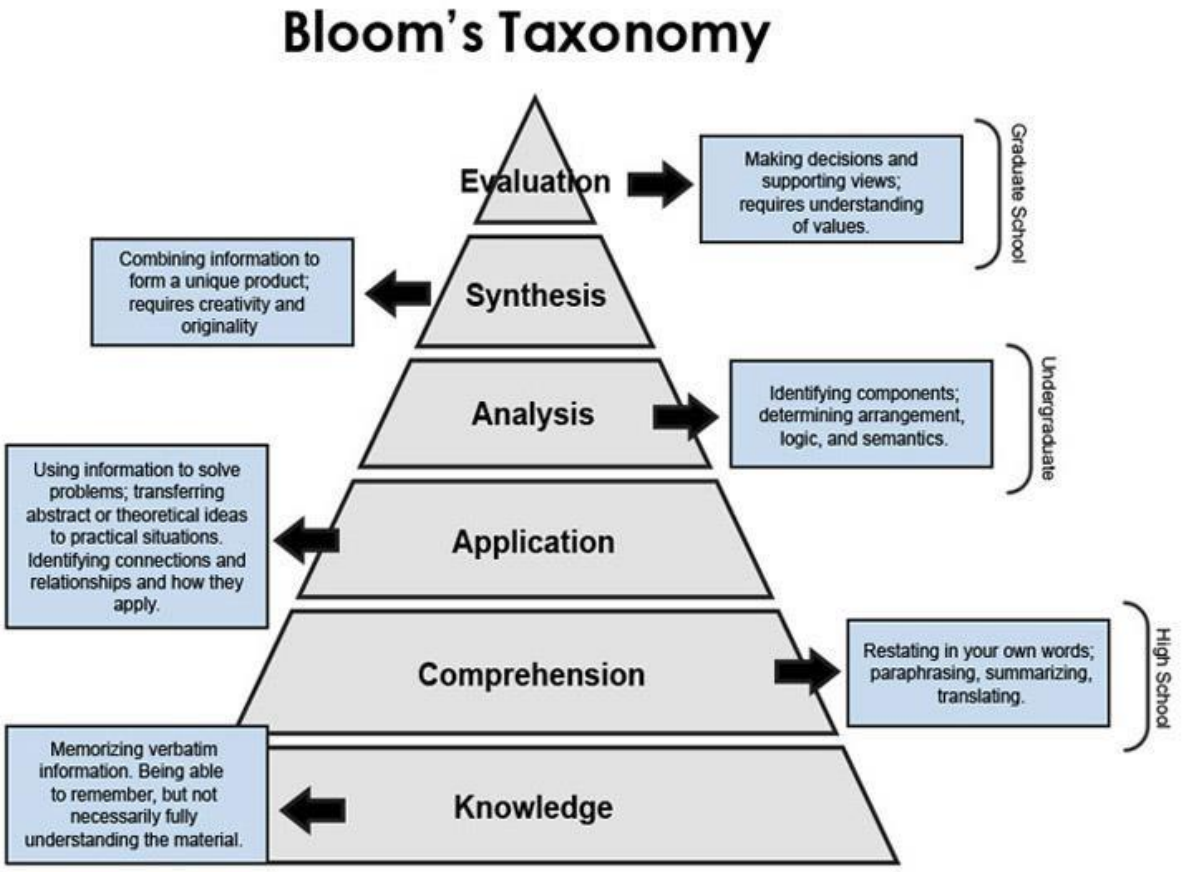

Figure 2.1: Taxonomy of educational objectives (Bloom, 1956)

"Bloom's taxonomy is differentiated between questions that required higher and lower levels of cognitive engagement to complete them successfully. The levels requiring higher engagement with the content - application, analysis, synthesis, and evaluation - are considered progressively higher order thinking" (Richland & Simms, 2015:4-5). Bloom places lower-level thinking skills at the bottom of the pyramid. Conversely, Bloom places higher order thinking skills at the top of the pyramid. The taxonomy according to Bloom has derived the greatest attention in relation to higher-order thinking (Richland & Simms, 2015:4-5). Bloom's taxonomy allows educators to measure the depth of their curriculum, allowing for adjustments according to the pyramid.

In Anderson, et al. (2001) the revised Bloom's taxonomy fit the more outcome-focused modern education objectives, including switching the names of the levels from nouns to

active verbs. Active verbs such as: create, judge, hypothesize, and invent are requisite the higher order thinking categories of synthesis and evaluation (Huitt, 2011). Educators use these active verbs as a method of weighing whether or not their assignments contain higher order thinking skills.

2.3 HIGHER ORDER THINKING

Higher order thinking began in 1956 with Benjamin Bloom as an attempt to classify levels of intellectual behaviour. One of the primary goals of higher order thinking skills is to promote learning, which is richer and more meaningful. In essence, higher order thinking is a branch of critical thinking. Critical thinking is not directly indicated within the pyramid of Bloom's taxonomy, yet critical thinking is often defined by the three highest levels on the pyramid (analysis, synthesis, and evaluation). One problem within Bloom's pyramid is that the levels themselves are not hierarchical, they are independent (Berger, 2018). Within this section the term 'critical' thinking is synonymous with higher order thinking skills because each term is essentially addressing the skills of analysis, synthesis, and evaluation.

Higher order thinking relates to Bloom's taxonomy regarding how certain types of learning require more processing. Essentially, higher order thinking is broken down into three specific types: "(1) those that define higher-order thinking in terms of *transfer*, (2) those that define it in terms of *critical thinking*, and (3) those that define it in terms of *problem solving*" (Brookhart, 2010:2). According to Anderson, et al. (2001), *transfer* refers to how the recalling of information can be transferred into other situations. Within *critical thinking*, students use their reasoning skills to *critique* and apply thoughtful discernment. Finally, *problem solving* is an important branch of higher order thinking because it addresses how well students are able to solve open-ended problems (Brookhart, 2010).

By emphasizing educational learning skills, such as creating, synthesising, and analysing, higher order thinking promotes critical thinking. "The assessment of abilities, too often neglected, is essential to assessment of critical thinking. Since these are the abilities implicit in the realistic use of thinking, no assessment tool that fails to assess a significant number of these abilities could justifiably be called an assessment of higher

order thinking skills" (Paul & Elder, 2010:102).

Entwistle (2014) theorizes that educators could implement higher order thinking skills through assignments that requires creating and analysing, yet the most important determinant factors in ensuring student success were based upon student intelligence, motivation, and effort. The hypothesis of the theoretical framework for this study is that genius hour is academically worthwhile because of its ability to emphasise essential educational skills, such as higher order thinking skills and inquiry-based learning.

According to Entwistle (2014) deep approaches to studying resulted in greater academic interest, understanding, and most importantly, students sought out meaning themselves. On the other hand, surface approaches resulted in negative learning outcomes such as coping, memorization, and fear of failure. Strategic approaches can result with either deep or surface results, depending on the educator's approach.

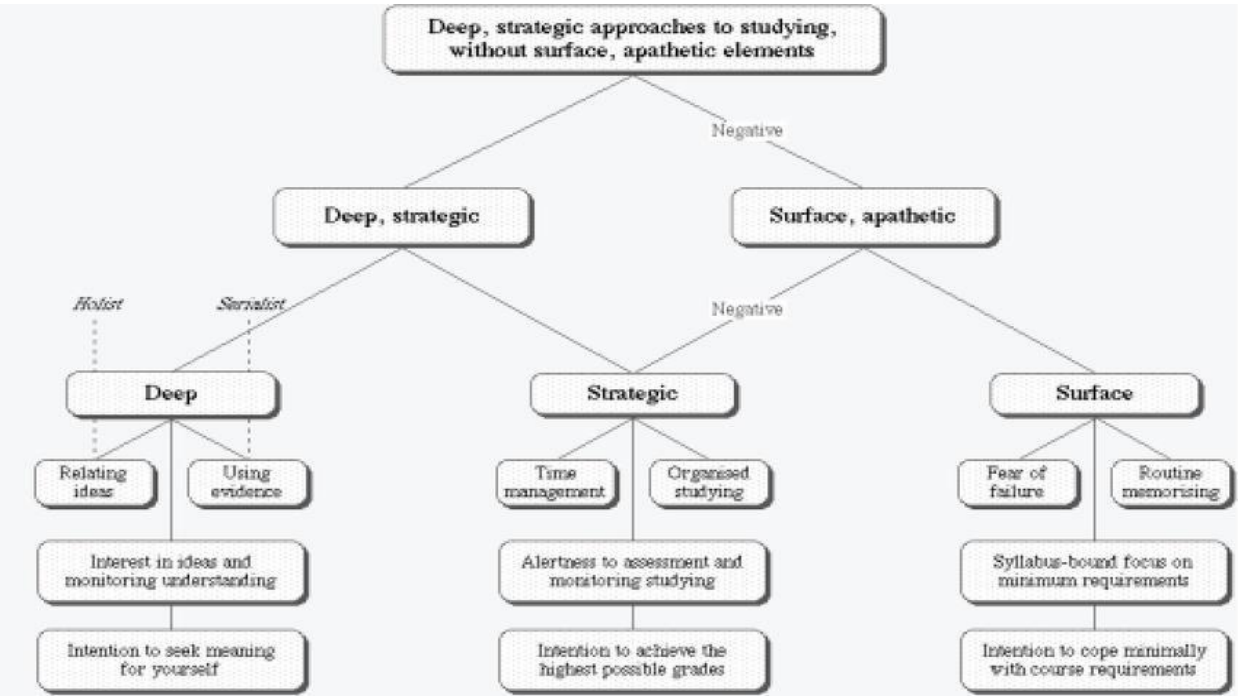

Figure 2.2: Promoting deep learning through teaching and assessment (Entwistle, 2014*)*

Entwistle (2014) emphasises deep approaches to learning above surface approaches to learning. These deep approaches towards learning emphasise higher order thinking skills.

Deep Approaches

- Intention to understand material for oneself
- Interacting vigorously and critically on content
- Relating ideas to previous knowledge/experience
- Using organizing principles to integrate ideas
- Relating evidence to conclusions
- Examining the logic of the argument

Surface Approach

- Intention simply to reproduce parts of the content
- Accepting ideas and information passively
- Concentrating only on assessment requirements
- Not reflecting on purpose or strategies in learning
- Memorizing facts and procedures routinely
- Failing to recognize guiding principles or patterns (Entwistle, McCune & Walker, 2000).

Deep approaches toward education have been more likely found in classrooms that have quality teaching and educational autonomy. Within deep approaches, active learning results from the intention to extract meaning (Entwistle, et al. 2000). The resulting active learning processes involve connecting ideas and identifying principles and patterns. It is also important within these instances to examine the opposing argument. The approach also involves monitoring the development of one's own understanding (Entwistle, et al. 2000). "In the surface approach, in contrast, the intention is just to cope with the task, which sees the course as unrelated bits of information which leads to much more restricted learning processes, in particular to routine memorization" (Entwistle, 2014:3). According to Bloom's taxonomy (1956), memorization is considered the lowest form of learning. Instead of emphasising memorization, educators can more fully enrich the educational experience of their students by approaching their subject matter with assignments that incorporate analysing, creating, synthesizing, and evaluating. "A deep strategic approach to studying is generally related to high levels of academic achievement, but only where the assessment procedures emphasize and reward

personal understanding" (Entwistle, 2014:4).

De Bono (1985) has an entirely different method of approaching higher order thinking skills. Instead of interspersing higher order or critical thinking skills into formative and summative assessments, de Bono deliberately teaches higher order thinking skills through a programme called CoRT. CoRT Thinking Lessons are universally available for all students, and present solutions to students within a wide range of ages and abilities. A two-week programme on CoRT Thinking Lessons are required by schools in Venezuela (de Bono, 1995). Within his programme, 11-18 year-old students, are taught how to think, which enables students to more readily draw upon Bloom's higher order thinking skills when they encounter academic and real world problems.

Above all academic skills, de Bono believes that teaching thinking is the key to incorporating the higher order skills within Bloom's taxonomy. "Thinking is the ultimate human resource. The quality of our future will depend entirely on the quality of our thinking. This applies on a personal level, a community level and on the world level. On the whole our thinking is rather poor, shortsighted and egocentric. We have come to believe that judgment and argument are sufficient. In a rapidly changing world we are finding that our thinking is inadequate to meet the demands put upon it" (de Bono, 1995:4).

De Bono (1985) created the Six Thinking Hats as a means of emphasising critical thinking for problem solving purposes. Each of these six hats represents various types of thinking: processing, factual, feelings, creativity, benefits, and cautions. These Thinking Hats enable students to better utilise higher order thinking due to the metacognitive benefits of wearing different hats. Essentially, by understanding how and when to apply the thinking hats, students can become more prominent thinkers, thus better optimizing higher order thinking skills.

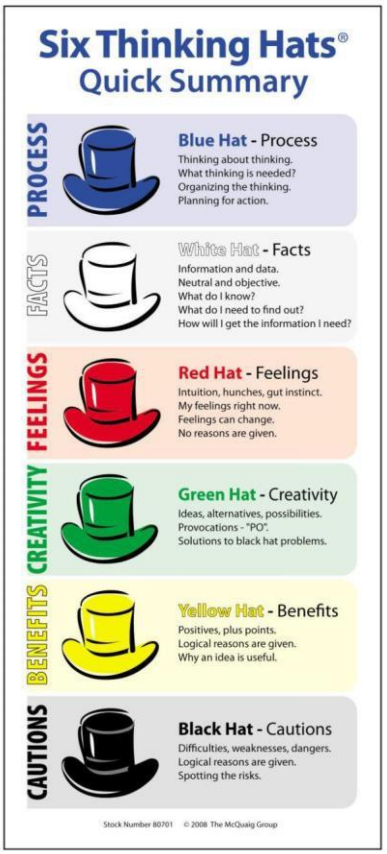

Figure 2.3: Six Thinking Hats (de Bono, 1985)

Each of the hats represents various thinking or problem solving skills. For example, the processing blue hat represents organizational thinking and metacognition. Next, the factual white hat is designed for generating data and problem solving. The red feeling hat is designed for expressing feelings and intuitions relative to a particular subject. The green creativity hat is designed for critical analysis and for decoding new problem solving methodologies. The yellow benefits hat is engineered to promote optimism; it presents how ideas and solutions could be possibly implemented. Finally, the cautious black hat is the pessimistic hat, which exists as a means of questioning what may be assumed to be correct, which may actually be a flawed solution.

Costa (2001) uses a system of higher level questioning in order to ensure that higher order thinking skills are addressed. He presents a list of active verbs, making it simpler for educators to decipher whether or not their assignments incorporate higher order thinking skills. Level three words represent the higher forms of Bloom's Taxonomy (1956); these words include evaluate, forecast, generalize, hypothesize, and imagine.

For Costa, level three is designed to go beyond the text, ask questions, and form opinions (Costa, 2001).

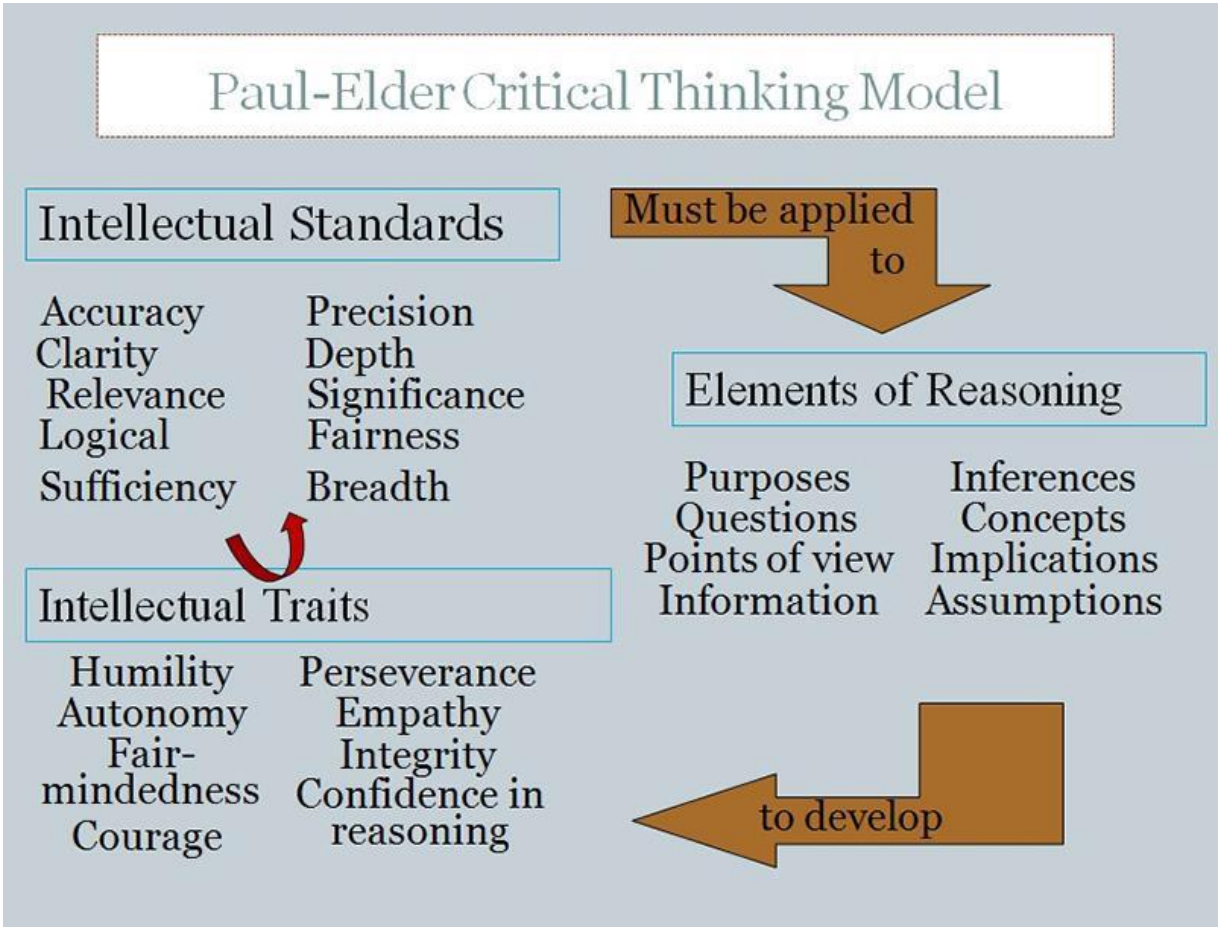

Figure 2.4: Paul-Elder's critical thinking model (Paul & Elder, 2001)

Paul and Elder (2001) define characteristics that should be present within a well-cultivated thinker. In accordance with Paul and Elder (2001), a well-cultivated thinker should be able to encompass the following abilities. "Raise vital questions and problems, formulating them clearly and precisely. Gather and assess relevant information, using abstract ideas to interpret it effectively. Come to well-reasoned conclusions and solutions, testing them against relevant criteria and standards. Think open-mindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences. Communicate effectively with others in figuring out solutions to complex problems" (Paul & Elder, 2001:2).

Genius hour is designed around students creating questions in order to solve problems. In order to participate within the exploration of a genius hour project, students use higher

order thinking skills to complete their objective. Genius hour students are at the top of the pyramid because students are creating something within their genius hour project. Moreover, genius hour students use deep strategic approaches. In accordance to Entwistle (2014), students intend to understand the material by interacting rigorously and critically with the content of their genius hour project.

2.4 INQUIRY-BASED LEARNING

Inquiry-based learning originated with John Dewey. The concept is based around the idea of the student *truly understanding* through inquiry. “Inquiry-based learning is more than asking a student what he or she wants to know. It’s about triggering curiosity. And activating a student’s curiosity is, I would argue, a far more important and complex goal than the objective of mere information delivery” (Wolpert-Gawron, 2016:1).

Inquiry-based learning is a pedagogical method that involves learning through inquiry. Instead of being presented with memorization or task-based instruction, inquiry-based learning attempts to capitalize on student motivation by positioning the student as the discoverer. “Inquiry-based learning, if front-loaded well, generates such excitement in students that neurons begin to fire, curiosity is triggered, and students can’t wait to become experts in answering their own questions” (Wolpert-Gawron, 2016:1). Inquiry-based learning is essentially a constructivist principle, since within inquiry-based learning students are constructing meaning through inquiry (McMillan & Schumacher, 2014).

The process of inquiry is multifaceted; it includes: collecting data, asking questions, and researching (National Institute for Health, 2005). Banchi and Bell (2008) outline four different levels of inquiry. These various levels of inquiry are specifically based upon levels of difficulty. Essentially, the first level is an intermediate level designed for younger students, or students with minimal experience undertaking inquiry- based learning. “At the first level, *confirmation inquiry*, students are provided with the question and procedure (method), and the results are known in advance. Confirmation inquiry is useful when an educator’s goal is to reinforce a previously introduced idea, to introduce students to the experience of conducting investigations, or to have students practice a specific inquiry skill, such as collecting and recording data” (Banchi & Bell, 2008:26).

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The second level of inquiry is more of a structured approach to inquiry. Within this stage, students collect data through research, and analyse their collected data. “At the next level, *structured inquiry,* the question and procedure are still provided by the teacher; however, students generate an explanation supported by the evidence they have collected” (Banchi & Bell, 2008:26).

The third stage is more of a guided inquiry approach. Within this stage, educators provide the questions and students figure out how best to answer these questions through inquiry-based learning. “At the third level, *guided inquiry,* the teacher provides students with only the research question, and students design the procedure (method) to test their question and the resulting explanations. Because this kind of inquiry is more involved than structured inquiry, it is most successful when students have had numerous opportunities to learn and practice different ways to plan experiments and record data” (Banchi & Bell, 2008:27).

The fourth and final level is designed for older students with more experience of undertaking the inquiry-based learning approach. This stage is closest to actual inquiry-based learning, because within this stage, students have to formulate their own essential questions and then, through inquiry, create solutions to these questions. “At the fourth and highest level of inquiry, open inquiry, students have the purest opportunities to act like scientists, deriving questions, designing and carrying out investigations, and communicating their results. This level requires the most scientific reasoning and greatest cognitive demand from students” (Banchi & Bell, 2008:27).

Dewey (1910) emphasised the need for open learning due to the educational requirements that required lower-level inquiry learning. He theorized that by developing critical thinking, the scientific method, and deeper levels of inquiry, that students would encounter richer and more profound learning experiences.

Neuroscience research also justifies the importance of inquiry-based learning. According to Kuhn, Black, Keselman and Kaplan (2000) inquiry requires a variety of essential cognitive processes. Their research demonstrated that students who were taught to use the inquiry-based method demonstrated advanced neuro-scientific development.

The educational genius hour movement is an inquiry-based approach towards

education. Students are presented with open-ended objectives such as:

- What do you want to learn?
- How can you change the world?
- What are you passionate about?

In order to solve these problems, students need to use inquiry. Educators do not use typical educational methods such as lectures and direct instruction. Instead, students are led through inquiry. The quest for knowledge, curiosity, and deep inquiry propel the genius hour project.

2.5 UNDERSTANDING TRAITS AND DISPOSITIONS OF THE HIGHER ORDER THINKER AND INQUIRY-BASED LEARNING

In accordance with Anderson, et al. (2001) the highest level of Bloom's taxonomy has been switched from *synthesis* to *create*. The idea of creating revolves around developing a new way of thinking, or asking students to create a new type of product or design (Tankersley, 2005). Higher order thinking assignments tend to share a set of traits and dispositions that are structured around active verbs. These active verbs direct the thinking to a place where students have to use the highest level of Bloom's revised taxonomy. "The following verbs signal the "create" level of thinking: choose, construct, create, design, develop, formulate, hypothesize, invent, make, make up, originate, organize, plan, produce, and role play" (Tankersley, 2005:2). The *create* level of thinking is considered superior to *synthesis*, because students need to synthesize in order to create.

Bloom (1956) classified cognitive skills and processes ranging from lower order (knowledge and comprehension) to higher order (synthesis and evaluation). This taxonomy has been particularly influential in helping educators to formulate questions that aim to encourage students to process information in a variety of ways, depending on the aim of the task (Educational Psychology, 2014). Within the time allotted for genius hour, educators can use questions as a means of driving the student towards deeper learning that emphasises higher-order thinking skills.

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Inquiry-based learning is based on the concept of developing a level of inquiry within a

supportive academic environment. Another key trait of inquiry-based learning is that the student is an active participant in the learning process (Abdullah, Bakar & Maboob, 2012). Within inquiry learning, there is a mind shift of the educator. The educator becomes a mentor or guide, while the student takes centre-stage, taking responsibility for his/her own learning experience (Dewey). The educator's disposition within inquiry-based learning is to become the facilitator of the learning.

Goldfinch (2015) outlines several specific traits of inquiry-based learning. These traits serve as a guideline to help educators create assignments that incorporate inquiry-based learning. She outlines the keys of creating inquiry-based learning through the following methods: asking questions, creating engagement, creating a real interest in learning more, creating choice, creating a need to know more, and finding out what students are interested in. Goldfinch uses interest-based learning (information that motivates or interest students) as a means of tapping into inquiry-based learning.

Genius hour aligns with the traits and dispositions of higher order thinking and inquiry-based learning. The very idea of genius hour is based upon finding out what students are truly interested in and creating a need for students to know more through inquiry. Moreover, for students to know more, they have to use higher order thinking skills such as synthesis and evaluation. Genius hour students are autonomous interested, engaged, and creative.

2.6 APPROACHES AND METHODS FOR EMBEDDING HIGHER ORDER THINKING AND INQUIRY-BASED LEARNING

Higher order thinking arises from deeper questioning from educators. "Higher order thinking skills include critical, logical, reflective, metacognitive, and creative thinking. They are activated when individuals encounter unfamiliar problems, uncertainties, questions, or dilemmas. Successful applications of the skills result in explanations, decisions, performances, and products that are valid within the context of available knowledge and experience and that promote continued growth in these and other intellectual skills" (King, Goodson & Rohani, 2000:1). Within the genius hour movements, students experience the learning first hand by creating the deeper questions themselves, so they learn to solve their own self-generated questions and problems.

Teachthought is an organization dedicated to professional development in schools through innovative means (Heick, 2014). Teachthought outlines six essential principles of a genius hour programme.

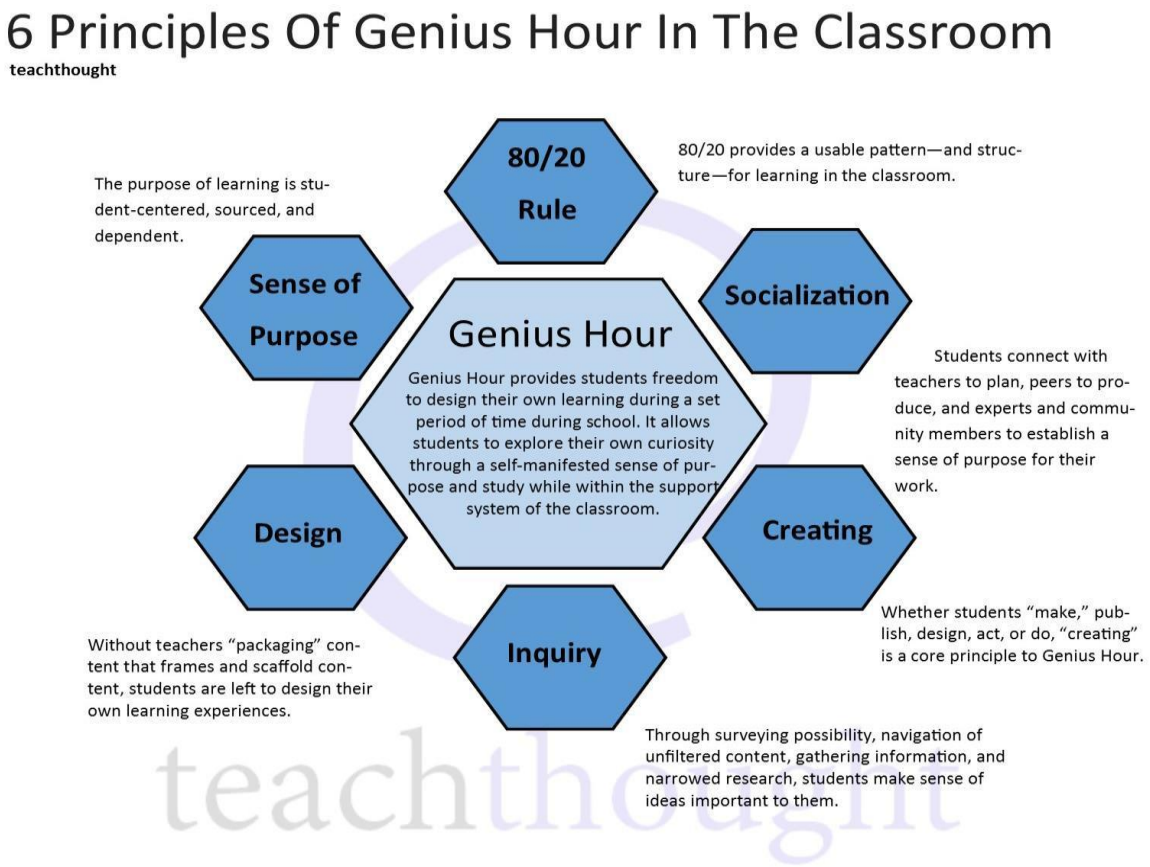

Figure 2.5: Six principles of genius hour (Heick, 2014)

Inquiry is one of their essential principles of genius hour. Students use inquiry to gather ideas, narrow research, and discern concepts that are important to them (Teachthought). The highest level of Bloom's taxonomy, as revised by Anderson, et al. (2001), is creating. Like inquiry, creating is also mentioned within their six essential principles. Within a genius hour initiative, students tend to create something related to their learning experience. The creation piece, oftentimes, is a required element within the genius hour framework. The act of creating helps students tap into the higher order learning skills that are essential for deeper learning and creating more meaningful learning experiences.

An essential element of "deeper learning" is critical thinking. Basically, critical thinking is emphasised through the inquiry-based approach dictated by the genius hour

framework. Inquiry-based learning is an instructional method designed to enhance student ability to solve problems and make decisions for learning purposes (Todd & Barr, 2016). One of the essential skills genius hour emphasises relating to inquiry-based learning is critical thinking. "From Facione's work, six critical thinking skills were identified: interpretation clarifying meaning, analysis examining arguments, evaluation assigning value to claims, inference drawing conclusions, explanation presenting arguments, and self-regulation self-examining biases" (Friedel, Irani, Rudd, Gallo, Eckhardt & Rickets, 2008:73). Likewise, these skills are important indicators of a successful genius hour initiative.

Inquiry-based learning or problem-based learning is a learning methodology where a driving question, problem, or scenario is posed to the students. In order to solve this question, problem, or scenario, students have to research larger topics and solve issues that arise during the problem solving process. “Inquiry-based learning is not a new technique - in fact, it goes back to education philosopher John Dewey, but it does stand in contrast to the more structured, curriculum-centered framework of today's schools Asking questions is at the heart of inquiry-based learning. The goal is not to ask just any questions, of course, but ones that kid’s honestly care about. Your role is to guide the kids in finding the answers themselves and encourage them to ask new questions along the way” (Intro to Inquiry Learning, 2012).

Figure 2.6: STEM inquiry-based learning (Chip, 2009)

Within inquiry-based learning educators typically adapt their traditional academic role within the classroom. Educators change from their traditional classroom role as subject experts and regurgitates of information to facilitators of learning. “Inquiry-based learning is a style particularly well-suited for out-of-school programmes because they have a freer hand to complement, enhance, and expand on the work children are doing in their K-12 classes. School-based educators may not want to go so far as to make inquiry- based learning the core of their classroom approach. It does, however, offer a powerful option for occasional projects and lab activities” (Intro to Inquiry Learning, 2012). The genius hour movement perfectly blends with the inquiry-based learning approach towards education because, within genius hour, students formulate their own driving questions and solve these questions through inquiry-based learning.

Stephenson (2015) outlines three practices for instituting inquiry-based learning:

- Students come to the classroom with preconceptions about the world. This means teaching practices must draw out and work with students’ preexisting understandings and make student ‘thinking’ visible and central to the learning.
- Competence in an area of study requires factual knowledge organized around conceptual frameworks to facilitate knowledge retrieval and application. Classroom activities should be designed to develop understanding through in-depth study of curriculum topics.
- Meta-cognition (thinking about thinking) helps students take control of their learning. Opportunities for students to define learning goals and monitor their own understanding need to be embedded into classroom tasks (Juliani, 2015b:1).

In this heutagogical approach, the students begin to construct meaning through experiential learning. In the heutagogical approach, students serve as the primary director of their own learning, which is a result of personal experience and interaction through the learning process (Hase & Kenyon, 2007:112). “Heutagogy applies a holistic approach to learner capabilities, with learning as an active and proactive process” (Blaschke, 2012:59). The heutagogical approach towards teaching focuses the learning on the determination of the student versus the determination of the educator. Likewise, this approach is more student-centred than educator-centred. Hase and Kenyon (2007) referred to the heutagogical approach towards education as knowledge sharing as opposed to knowledge hoarding.

This heutagogical approach towards education has been called by various names including discovery learning, problem-based learning, inquiry learning, experimental learning, and constructivist learning. Advocates of this approach believe in the hypothesis that people learn best in an unguided or minimally guided environment where they are primarily asked to mimic the problem-solving activities of experts and/or learn and discover collaboratively with others (Kirschner, 2004:3). Kirschner (2004) agrees with the fact that students construct meaning through experience and that they learn differently, but he argues with the fact that students learn best by only receiving partial information. “Quite the reverse is true. Learners must construct a mental representation or schema irrespective of whether they are given complete or partial information. Complete information will result in a more accurate representation that is more easily acquired” (Kirschner, 2004:12-13).

The student’s ability to construct meaning through experiential learning is at the core of the genius hour movement. Broadly, experiential learning is any learning that supports students in applying their knowledge and conceptual understanding to real-world problems or situations where the instructor only facilitates learning. The classroom, laboratory, or studio can serve as a setting for experiential learning through embedded activities such as case and problem-based studies, guided inquiry, simulations, experiments, or art projects (Wurdinger & Carlson, 2010). Essentially, the genius hour movement is concerned with creating independent learners and creative thinkers; by experiencing the learning directly, the students obtain a richer learning experience. Fortunately, there are tools to measure and assess higher order thinking skills, which are discussed in the next section.

2.7 TOOLS TO MEASURE AND ASSESS HIGHER ORDER THINKING SKILLS AND DISPOSITIONS

Brookhart (2010) outlines a series of ways educators can assess higher order thinking. He mentions that educators can analyse arguments, use self-assessment, use analogies, and think creatively.

Educators can incorporate higher order thinking skills by assigning their students to analyse arguments. By analysing arguments, students are forced to use inferential thinking in order to discern the tone of the text. Moreover, synthesis is needed in order

to understand a given argument (Brookhart, 2010).

Another tool the educators can use to measure and assess higher order thinking skills is the tool of self-assessment. By forcing students to assess themselves, students become involved in the assessment process. Educators can use a rubric or reflection questions geared to make the self-assessment a meaningful experience for students. In accordance with Falchikov (2005), self-assessment benefits student learning because it increases student autonomy by promoting lifelong learning skills that encourage learning transfer (Hernandez, 2010:2). Brookhart (2010) also mentions that self-assessment helps students develop an internal plan for future improvement and/or revision.

By incorporating the use of analogies educators can implement higher order thinking skills into their curriculum. An analogy is a comparison with the designed intent of forcing the student to draw correlations between what is being learning with prior knowledge. Brookhart (2010) maintains that the use of analogies helps clarify how the solution could be applied to other analogies.

Since 'creating' is the optimal skill within the higher order thinking pyramid, forcing students to think creatively is a worthwhile tool. This is the portion of a genius hour programme that would typically dictate that the student *creates something original* related to their learning experience. Genius hour educators can use the tool of self-assessment in order to dialogue about the concept, design, and execution of the original creation.

Creativity is certainly at the core of the genius hour movement. Creativity is the process of transforming ideas into a creative action or product (Robinson, 2009). Creativity is developed in genius hour, because the learning process requires an idea to be transformed into a physical product. Throughout the genius hour process, students have to discover solutions to complex real world problems. In order to solve their own essential questions, students engage in inquiry-based learning to arrive at creative solutions. Within the student process of creating a genius hour essential question, students have to think *creatively* in order to create this essential question. Basically, students have to attempt to solve a world issue through originality and creativity. Novelty is certainly an objective for students attempting a genius hour project; adding new information to the world is one of the foundational goals of the genius hour learning experience. That being

said, genius hour is not the only method of producing original discovery, but is encapsulates intrinsic motivation.

2.8 THEORIZED RELATIONSHIPS AND THE COMMON CORE

A theoretical framework relies on “an explicit statement of theoretical assumptions (and) permits the reader to evaluate them critically. The theoretical framework connects the researcher to existing knowledge. Guided by a relevant theory, you are given a basis for your hypotheses and choice of research methods” (Labaree, 2009:1). The theoretical assumption for this study was that a genius hour framework for classroom implementation includes a clear set of instructions including specifications regarding time management, opening activity to engage creative thinking and discovering individual passions, project creation types, reflection, research, and a presentation element.

The genius hour movement actually aligns with the Common Core policy, since it emphasises higher order thinking skills through inquiry-based learning. Inquiry is based on the process of learning, aimed at knowledge acquisition through in-depth understanding. Therefore, inquiry is not the traditional form of learning and teaching (Stephenson, 2015:2).

The genius hour movement is rooted in the constructivist and inquiry-based approach towards education. Meaning is constructed through research and experience; this inquiry-based approach allows students to construct meaning individually and purposefully. Essentially, students are placed in an environment where they are empowered to become independent learners.

Since genius hour is constructed within an educational environment of discovery where students pose driving questions that need to be solved, inquiry is at the core of the genius hour process. As students uncover the answers to their driving questions, higher order thinking skills become necessary in order to solve their genius hour related questions.

In order to emphasise inquiry-based learning and higher order thinking skills within a genius hour initiative, educators should practice the art of metacognition within their classrooms (Crowl, Kaminsky & Podell, 1997). Essentially, "the self-correcting nature of

thinking is called metacognition. Metacognition includes awareness of one's thinking processes, self-monitoring, and application of known heuristics and steps of thinking One's success with metacognition depends, in part, on a belief in one's ability to get smarter as well as the belief of others, such as teachers, in one's ability" (King, et al. 2000:11-12). The genius hour method empowers students to truly assume the role of learners, designers, and planners within the learning process. Students begin to use metacognition in order to properly execute their own genius hour related agenda.

2.9 CONCLUDING REMARKS

This chapter presented the theoretical framework for this study. Within this chapter, the theoretical framework presented was based around two educational principles, namely inquiry-based learning and higher order thinking. Within this theoretical framework, the concepts of inquiry-based learning and higher order thinking skills were highlighted in order to demonstrate the importance of genius hour as an educational movement. In terms of higher order thinking skills, tools to measure and assess how higher order thinking skills are integral to education were accentuated. Creativity is certainly a primary measure of whether or not higher order thinking skills and inquiry-based learning are, in fact, present. Self-assessment is a beneficial growth tool for students measuring their own use of inquiry-based learning and higher order thinking skills, especially if the self-assessment strategy is aligned with a useful rubric or reflection questions. Moreover, this chapter addressed traits and dispositions of higher order thinking and inquiry-based learning. Finally, this chapter addressed approaches and methods for embedding higher order thinking and inquiry-based learning. The next chapter addresses the contextual and conceptual frameworks.

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CHAPTER 3
CONTEXTUAL AND CONCEPTUAL FRAMEWORKS

3.1 INTRODUCTION

It is the aim of this study to realize an instructional collective genius hour framework for classroom implementation that benefits both educators and students. Essentially, this chapter focuses on the contextual framework for genius hour in the classroom. This section addresses policy measures, the typical school context, working applications of genius hour, the value of higher order thinking within 21st century learning, inquiry-based learning, and the Common Core. Later within this chapter, the conceptual framework for this study is presented. It sheds light on how higher order thinking and inquiry-based learning benefit from the genius hour concept. The conceptual framework is concerned with the genius hour experience and concept, from both the educator's and student's perspective, in relation to the foreseeable creation of an instructional collective genius hour framework for classroom implementation.

3.2 CONTEXTUAL FRAMEWORK

The contextual framework identifies the primary characteristics of education, and the provision of education in a particular era and locality. In particular, educational policy and practice in the context of genius hour is discussed within this section. For the purposes of this framework, the context refers to genius hour's correlation to the Common Core.

Genius hour is a worldwide educational movement, which is why research is being conducted with educators outside of the USA (Zvi, 2014). Yet, since genius hour is primarily an educational movement originating in the USA, the current educational policies regarding Common Core and standardization as used in the USA are provided in this section. Moreover, the contextual framework for this study outlines the typical school context in the USA modern day schools, and applications of higher order thinking skills in the broad curriculum, specifically with regard to how this context relates to genius hour classroom implementation, the working applications of genius hour, and how genius hour is applied to education. The implementation and integration of genius hour as an educational imperative is reviewed.

Schools in the USA are turning to Common Core as a means of competing within the global educational society. “The Common Core State Standards arose from a simple idea: that creating one set of challenging academic expectations for all students would improve achievement and college readiness” (Gewertz, 2015:1).

The idea of Common Core State Standards relates to deeper learning and less content focus; essentially depth over breadth. “The standards spell out, grade by grade, the reading and math skills that students should have as they go from kindergarten through high school. For example, a first-grade reader should be able to use a story's pictures and details to describe its characters and then in second grade, be able to compare and contrast two versions of a story like Cinderella. In Mathematics, a first-grade student should be able to add and subtract, and in third grade do multiplication and division. The Common Core is not a day-by-day curriculum that dictates teachers' lessons” (Thompson, 2013:1). Education in the USA, is attempting to provide long term retention and college readiness through a series of challenging higher order learning expectations for all students. More specifically, what skills are these standards attempting to address within the Common Core?

“Pure and simple, they (The Common Core Standards) are descriptions of the skills students should have at each grade level in English and math by the time they finish high school. They’re not a detailed, day-to-day curriculum; they’re a broad outline of learning expectations from which teachers or district leaders craft a curriculum” (Gerwertz, 2015:2). Common Core standardization allows educators more freedom to outline their text in order to achieve the learning goals mentioned within the Common Core. A question that arises for the purposes of deriving a contextual framework is: how does genius hour align with the Common Core State Standards?

Specifically, the correlation between genius hour and Common Core is drawn to demonstrate how both concepts emphasise higher order thinking skills. Genius hour is currently an educational movement in the USA but it has already expanded internationally to Canada and Bahrain. It is important to justify how genius hour aligns with the Common Core (Juliani, 2015a). The Common Core movement is attempt by the USA to compete with international countries that, through research of educational successes, have progressed at a faster rate. Asian countries such as Japan and Singapore have taken a lead in international education because they realize the link

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between education and the growth of the economy, and the stability of society. “Fortunately, the tide appears to be shifting toward a renewed American interest in learning from - and in collaboration with - high-performing and rapidly improving countries” (Singmaster & Jackson, 2016:1).

My passion for genius hour and the creation of a collective genius hour framework for classroom implementation; stems from a student-centred approach towards education. This approach is at the heart of the genius hour movement; without the purpose of inspiring creativity, passion, independent learning and motivation a genius hour initiative will fail. The framework cannot be considered without understanding how the framework will impact students; likewise, students cannot be considered independent of the framework.

This study is investigated on a macro level. Since the study is focused on creating an instructional collective framework for implementing genius hour in the classroom, a framework that is intended for educators, adaptable across the globe is proposed.

3.2.1 Policy measures

In the USA, the most prevalent educational policy is the Common Core (Cody, 2014). According to the Common Core's State Standards Initiative, it is defined as follows: “The Common Core is a set of high-quality academic standards in Mathematics and English/language arts/literacy. These learning goals outline what a student should know and be able to do at the end of each grade. The standards were created to ensure that all students graduate from high school with the skills and knowledge necessary to succeed in college, career, and life, regardless of where they live” (Core Standards, 2015:1).

Common Core is betting big on higher order thinking skills, even though leading educational countries around the globe clearly are not putting the same level of emphasis on them. “As a last step in their investigation, his team benchmarked the Common Core against international standards, and what they found will be surprising to many. The Common Core’s shift in emphasis to higher-level thinking skills is not consistent with curricular standards in countries that currently outshine the USA in international assessments – places like Finland, Japan, and Singapore don’t put nearly as much

emphasis on higher-order skills as does the Common Core" (Porter, McMaken, Hwang, & Yang, 2015:2). By emphasising higher order thinking skills, the USA is attempting to be one step ahead of their global counterparts in terms of educational innovation.

Genius hour and the Common Core are alike in the fact that both educational movements are designed around the concept of developing higher order thinking skills and inquiry-based learning. This essential philosophical commonality explains why genius hour aligns within the concept of the Common Core.

The standards of the Common Core are based around developing a deeper understanding of core concepts. "Deeper learning – the process of fusing content knowledge with real-world situations. Students *transfer* knowledge rather than just memorize it" (Towler, 2014:1). The standards are research and evidence-based in order to teach students necessary research skills; with technological advances, modern education is more about how to find the answer than knowing the answer. "Students who attend deeper learning schools were more likely to graduate from high school on time and low-achieving students were more likely to seek postsecondary education" (Towler, 2014:2).

Krebs (Genius Hour Testimonials, 2016), in her genius hour experience, sees the students as designers of their own learning through the Common Core standards. Essentially, students study the standards and discern how to meet these standards through their own learning design. "As a result of genius hour in my classrooms, school is becoming engaging, fun, independent and meaningful. My students know they are geniuses, and geniuses are lifelong learners who are productive and creative. It's not just that 1 hour every other week or once a month, but genius hour has enlightened all of us on a daily basis. We are looking with fresh eyes at the Common Core standards. My students are learning for themselves what the standards say and making decisions on how to master them. School has become student-centered for us this year, and we are all much happier about it" (Genius Hour Testimonials, 2016).

Within the 21st century classroom where the answers are at the fingertips of students, educators need to create questions that are not Googleable. Kyritsis (2015) has her students use design thinking during genius hour time. While the students are designing their genius hour essential question, "we are looking to create questions that are 'Non-

Googleable' so therefore require students to deepen their understanding of the topic through inquiry" (Kyritsis, 2015:1).

Figure 3.1: Googleable vs non-Googleable (Kyritsis, 2015)

More importantly, educators need to empower students to be independent learners; learners who know how to find the answer. In order to accomplish this, educators need to re-examine their role within the classroom; philosophically shifting their role from *sage on a stage* to a *guide on the side*. Part of this transformative process, which is essential to building research skills and upholds the essence of genius hour and the Common Core, is the educator's insistence in not answering Googleable questions, driving students to become independent learners.

Within this transformation, educators need to become skilled at the art of asking questions and providing feedback in order to facilitate higher order thinking skills within inquiry-based learning. "Planning the questions in advance of actual learning time helps assure questions go beyond simple recall of information. Recalling the steps in a major procedure or skill may be useful, but memorization of steps does not help the learner understand why or how the steps should be used, nor does it help the learner apply the steps in a problem situation" (King et al., 2000:8). Researched successful strategies that educators can undertake in order to elicit higher order thinking, which is the aim of both genius hour and the Common Core, include asking questions of all students equally and calling on non-volunteers as well as volunteers (Kauchak & Eggen, 1998). Another

technique to stimulate curiosity or to demand problem solving is to ask questions about paradoxes, dilemmas, and novel problems and approaches (Crowl, et al. 1997; Kauchak & Eggen, 1998). Moreover, having students generate their own questions about topics gives students time to personalize and internalize the information to be processed (Crowl, et al. 1997). Starting with lower-order questions, remediating as needed, is another strategy that can lead up to higher-order questions (Kauchak & Eggen, 1998). Finally, providing wait time after a question because students differ in the rate at which they respond engages higher order thinking (Crowl, et al. 1997; Kauchak & Eggen, 1998).

Learning is demonstrated in clear, understandable, and consistent ways is another standard of the Common Core. Moreover, the Common Core dictates that curriculum should be aligned with university and career expectations. Also, the Common Core is based on rigorous content and application of knowledge through higher order thinking skills. The Common Core builds upon the strengths and lessons of current standards in order to achieve mastery of desired learning skills and outcomes. Finally, the Common Core is informed by other top performing countries, in order to prepare all students for success in our global economy and society (Core Standards, 2015).

One of the five objectives included within the Common Core states that it is "inclusive of rigorous content and applications of knowledge through higher-order skills, so that all students are prepared for the 21st century" (Core Standards, 2015:1). The emphasis of the Common Core on higher-order skills relates to genius hour in a profound way. Educators are being challenged to emphasise skills rather than content knowledge. The genius hour movement can be adapted into the class as a means of applying knowledge into higher-order learning skills.

In Juliani's blog, Connections to the Common Core Standards (Juliani, 2015a), he connects a variety of Common Core standards to inquiry-based learning. Juliani, an advocate and proponent of genius hour, specifically points to the wording of the Common Core standards and how they connect to inquiry-based learning. He connects five reading/researching standards with inquiry, four standards addressing analysing and applying to inquiry, eight standards dealing with writing and presenting with inquiry, and six standards that connect creating and evaluating with inquiry.

Within a genius hour programme, students consistently need to evaluate informational texts in order to analyse their own essential questions and projects. This Common Core standard occurs naturally within the genius hour progress, because the project itself creates a need to know which elucidates deeper synthesis.

This study was concerned with investigating and interpreting research findings that lead to features and parameters of a framework. Within the research findings of this study, the creation of a collective framework for implementing genius hour in the classroom is discernible through the research findings, yet in order for educators to implement this framework into action, they have to first be willing to insert genius hour into their curriculum. By demonstrating that genius hour aligns with Common Core, more potential genius hour educators may consider implementing this framework in their curriculum.

3.2.2 The typical school context

When investigating and interpreting research findings of Zvi (2013) and McNair (2015) that lead to features and parameters that may lead to the creation of a collective genius hour framework, this study considers varying perspectives concerning genius hour implementation. Major variables to be considered within this study include the total allotment of time given to students within a genius hour project, the choice of project creation, the purpose of the genius hour project, the links specific to prior learning, the publishing of genius hour projects to a global audience, and intrinsic versus extrinsic motivation of genius hour projects tied to assessment. By fine-tuning these variables into a specific set of instructions demonstrated within a collective genius hour framework, students become more focused and organised on their genius hour project.

The typical context for genius hour implementation within schools in the USA tends to occur within private, charter, and independent schools. “Private schools provide an alternative for parents who are dissatisfied with public schools or have other reasons for wanting their children to attend a private school. Within the private sector, parents can choose among a range of religiously affiliated and nonsectarian schools (as long as they can afford the tuition charged or receive financial aid)” (Public and Private Schools: How do they differ? 1997:3). Private schools are typically considered superior to public schools in the USA due to safety, financial flexibility, and smaller class sizes. “Parents of students in grades 3-12 who attended private schools were more likely than their

public school counterparts to be very satisfied with their children's school overall and with its specific aspects, such as the teachers, academic standards, and discipline. Within the public sector, parents whose children attended a chosen public school were generally more satisfied than those whose children were in an assigned school" (Public and Private Schools: How do they differ? 1997:3). In the USA, most students are assigned schools based upon the proximity of the student's living residence and the location of the school in accordance to stipulated school boundaries.

Due to the fact that education in the USA is strictly standardized within the public school system, the typical context for genius hour initiatives tends to exist outside of the public school environment. "Creativity will not help you do well on standardized testing and, lamentably, that's where the focus is right now (in the US, at least)" (Burchett, 2012:1). Public school educators often lack the freedom to implement genius hour due to the strict standardization guidelines and emphasis on standardized testing. According to *The Atlantic* (Robelen, 2016:1), "Eighty-one percent believe their students spend too much time taking tests mandated by their state or district, according to the study by the Center on Education Policy, based at George Washington University." The drill-and-kill approach, which accompanies standardized testing leaves less educational opportunity for creative-based or passion-based pursuits like genius hour. "It is sincerely difficult to encourage creativity in 32 different students who all learn in different ways" (Burchett, 2012:1). Genius hour helps meet the creative and passion-based needs of students who learn in profoundly different ways.

Even though the genius hour movement aligns with the Common Core, educators are limited in terms of their innovation making it more difficult to launch genius hour initiatives within the public sector. Charter schools provide alternative educational options. Charter schools are schools that are ran independently by teachers, parents, and the local community. On the other hand, private, independent, and charter schools offer educators more freedom over their curricular choices; this academic autonomy has led to a typical context for genius hour initiatives existing within the non- public sector of education. Also, primary schools, ages 5-11, tend to implement genius hour due to the amount of time primary school educators have with their students. Primary school educators have about six hours a day with their students, whereas secondary school educators, ages 12-18, have only one hour a day. Eleni Kyritsis (2015), a primary school educator, understands the importance of genius hour. "As educators it so important that we are teaching

students how to learn not what to learn. Our students need to become lifelong learners. Genius Hour promotes this thought process in our students" (Kyritsis, 2015:1).

As mentioned before genius hour initiatives tend to exist within the non-public sector of education. In terms of specific school situations where one might expect to find genius hour initiatives, typically, genius hour is conducted within elementary classrooms. Since elementary educators within the education system of the USA have the advantage in terms of time with their respective students, the typical situation for a genius hour initiative is within an elementary classroom at a private, independent, or charter school (Krebs, 2016).

Some public school educators are embracing the genius hour concept due to how well the concept fits into the idea of inquiry-based learning. Public school educators can use the language of the Common Core standards in order to standardize the concept of genius hour. "Since I ran a 20%-time project in my class three years ago teachers in my school district have embraced the idea of inquiry-based learning. We've had various teachers present to our staff on the benefits of this type of learning opportunity. And as a district we wrote "Genius Hour" into our 9th Grade Common Core Language Arts curriculum" (Juliani, 2015a).

If one commonality exists within the typical school context for possible genius hour initiatives to arise, that trait would be philosophic opposed to demographic or contextual. The type of like-minded educators interested in creating a radical student-centred approach towards education are the types of individuals that tend to pursue genius hour initiatives. Educators focused on innovation, educators who are not stuck in the mindset of *that's the way I've always done it,* and educators willing to try something new, are the type of educators that tend to launch and pursue genius hour implementation.

Wideen (2014) chose to abandon the genius hour concept, but has since re-evaluated her decision. Wideen (2014) decided to reinstitute the concept of genius hour because of how well the concept develops inquiry-based learning. Thus, Wideen (2014) decided to give genius hour another attempt, but with modifications. Wideen's situation is a typical classroom for genius hour implementation because it's an elementary classroom where an individual educator has the same students for an extended period of time every day. In the case of her genius hour implementation, she concluded that budget,

range of projects, and cost of materials, were her primary reasons for abandoning genius hour. “These were all minor issues, my major issue was that my students did not know how to properly research and I as their teacher did not effectively model this. I let my students basically do whatever they wanted and helped as much as I could to direct them to resources in the library and online. My students craved Genius Hour and I dreaded it. It was me running around like a chicken with its head cut off. Think of 40 students, 2 teachers and as many people that I could rope into to help out during that hour and a half of time. There was glue, paint, flour, sugar, yarn, knitting needles, magic wands and pizza dough flying around the classroom” (Wideen, 2014:1).

She needed to rethink her approach to genius hour, front loading students with the necessary skills to self-manage and direct their projects. “I needed a better plan, I needed to be better prepared and I needed my students to have the skills needed to research an idea or topic, produce not only a product but also be able to share the information they learned from researching the topic” (Wideen, 2014:1). Her solution was to teach her students how to ask deeper questions, how to use inquiry-based learning to enhance their exploration of a topic, and how to research reliable information relative to their project.

Part of the allure of the genius hour movement exists within the simplicity of implementation and the benefits of instituting a genius hour initiative. For educators who have the freedom, passion, and desire to be innovative, genius hour is a tremendous academic tool. Educators can use genius hour in a variety of ways respective to their academic goals. For example, an educator focusing on a particular novel could allot a genius hour for students to demonstrate their thoughts on a particular chapter. During this hour students could create visuals, write poetry, and perform a skit, anything that demonstrates their thoughts on the chapter. The genius hour approach engages student interest and creativity. As opposed to a traditional method of instruction, which might require students to write a response or take a quiz, the genius hour approach accentuates higher order thinking skills. Students can approach the task from a perspective that demonstrates their academic strengths, creativity, and interests.

Essentially, genius hour corresponds to all subjects, schools, and grade levels. Discernibly, one of most vital questions an educator has to contemplate before implementing genius hour in their curriculum is whether or not they are able to relinquish

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absolute control over the learning processes and learning outcomes within their classroom. Genius hour is a leap into the unknown, but the benefits of this leap are palpable.

Furthermore, the amount of time per day an educator has with his or her students' factors into the adoption of genius hour. Primary educators have the educational advantage of instructing the same set of students throughout the entire day for the entire academic year, whereas secondary educators tend to instruct several classes of students throughout the day, making genius hour more difficult to schedule due to time limitations.

3.2.3 Working applications of genius hour and benefits

Carter (2014) emphasises six benefits within the working applications of genius hour. His six advantageous categories of dissemination include the dual educator's role, learning about students, creating a culture of collaboration, creating an interactive learning environment, building flexible pacing with structure, and creating authentic assessments.

The educator's role within a genius hour setting is not based upon implementing direct instruction. Instead, the educator's educational role changes from facilitator of knowledge into the classroom learning coach. "Your job is to coach and advise them through the learning process. While some students won't need much interference from you, others will need more intense coaching" (Carter, 2014:1). By instituting genius hour into the curriculum educators have more opportunities to develop relationships with their students, relationships that are essential for student engagement, success, and creative exploration.

"As a result of genius hour in my classrooms, school is becoming engaging, fun, independent and meaningful. My students know they are geniuses, and geniuses are lifelong learners who are productive and creative. It's not just that one hour every other week or once a month, but genius hour has enlightened all of us on a daily basis. We are looking with fresh eyes at the Common Core standards. My students are learning for themselves what the standards say and making decisions on how to master them. School has become student-centered for us this year, and we are all much happier about it" (Krebs, 2013a, cited in Genius Hour Testimonials, 2016).

“Sometimes it’s not enough to just know your students’ names. To be an effective teacher you’ve got to know *what they’re into*” (Sunskis & Jarvis, 2007:67). Carter accentuates the idea that genius hour is a prime time to form relationships with students because of the dynamic shift in the educator’s role within the classroom. “You'll learn more than you ever thought possible by watching your students go through this process. They are picking what they're passionate about, so the topics will be quite varied. Through this process, you'll also learn who is intrinsically motivated by their topic and skills, and who will need help. If you can learn a little about your students before jumping in (their developmental levels, what type of workers/learners they are, their prior knowledge on the topic), the better off you'll be in your dual role as coach and adviser” (Carter, 2014:1).

Another important aspect of applying genius hour into the classroom is creating a culture of collaboration. Educators will learn more than they could possibly realise by observing their students participating within the genius hour process. As the students go through the process, they begin to discover their passions. Since passions tend to be inherently personal, educators will find that the topics will be quite varied. This will help because you find out who is intrinsically motivated regarding topic choice, which will also help you determine which students may need additional assistance regarding their topic choice before jumping into genius hour (Carter, 2014:2). Genius hour guides students away from relying on their educators as the experts, moving instead towards collaborating with professionals within their field of study.

“International Society for Technology in Education’s *Learning & Leading Magazine* featured Australian schools working with modular furniture to cultivate digital-age learning environments. While I couldn’t afford a ton of new furniture, I noticed that a lot of the pieces in this article were small stools that the students could manipulate for different styles of learning” (Carter, 2014:2). The arrangement of the classroom adds to the philosophy and essence of the genius hour movement. An open-spaced classroom inspires students to be creative and autonomous within their learning experience. “Open classrooms focus on students’ learning by doing’ resonated with those who believed that the USA’s formal, teacher-led classrooms were crushing students’ creativity” (Cuban, 2004:1).

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Genius hour lends itself to presentation skills, videography, and other vital 21st century

learning skills. “The students' year-end [Teacher, Education, Design] TED-talks on their chosen topics created a performance assessment requiring them to show their passion to their peers. They were extremely excited about sharing out what they learned” (Carter, 2014:2). Aside from building student relationships, the one-on-one time afforded through the genius hour student-centred process of learning allows educators to assess orally throughout the project. “They also were reflecting throughout the project, which allowed me to assess their progress regularly. And through our face-to-face time, I could naturally assess their progress. I found that my students covered at least 15 different Common Core standards during this project” (Carter, 2014:2).

One of the advantages of genius hour is its ability to transcend learning beyond the typical constraints of rote standardization. The autonomy and the ability to engage student interest and participation increased significantly during genius hour time. That's an 80-minute period every Monday during which Emily, a genius hour student, and her classmates work on projects entirely of their choice. Over months of study, Emily and her friends have spent their time researching running shoes - what people prefer and why. "It's definitely the highlight of my week," says Emily, 12. "It's not a project a teacher assigned, it's something that actually interests you, and it gets you learning in different ways from what we do the rest of the day at school” (Grinberg, 2014:1).

3.2.4 21st century learning and higher order thinking

The value of higher order thinking within 21st century learning is paramount. In fact, Collins (2014) cannot even fathom that educators could have possibly *not* considered how important higher order thinking is to 21st century learning. “It is hard to imagine a teacher or school leader who is not aware of the importance of teaching higher-order thinking skills to prepare young men and women to live in the 21st Century” (Collins, 2014:1).

21st century learning skills are utilised and encompassed through the genius hour movement. “The term ‘21st-century skills’ is generally used to refer to certain core competencies such as collaboration, digital literacy, critical thinking, and problem- solving that advocates believe schools need to teach to help students thrive in today's world” (Allington, 2010:1). The appeal of genius hour within the field of education is its applicability to the field. Educators across the nation are attempting to equip their

students with the necessary skills to survive within a 21st century learning environment (Kesler, 2013).

The following chart represents questions that correspond to the words: know, what, how, learned, action, and questions. These words are represented within the acronym KWHLAQ.

Figure 3.2: KWHLAQ chart (Tolisano, 2011)

Genius hour relies heavily on technology and real world 21st century deeper learning skills through research, video tutorials, online courses such as iTunesU, and presentation creation applications such as Keynote, Doceri and iMovie, and global communication software such as blogs, websites and Skype). “Common core and state standards include technology integration as a skill that students should learn and possess. Although technology is not required for genius hour, I have found that many students choose to create their final projects with technology that is not taught in the classroom. They are almost all using technology to research their project as well. Genius hour is a huge opportunity to introduce new technology skills to the students. The students also teach me technology that I may not know about during this time also. It’s a win-win for both of us” (Kesler, 2013:1).

The 21st century learning environment is dictating a new set of skills which have become, arguably, more important than the academic content itself. Rather than focusing on educational content, experts emphasise which academic skills students need to survive and thrive outside of the classroom environment. The seven survival skills are: critical thinking and problem solving, collaboration across networks and leading by influence, agility and adaptability, initiative and entrepreneurship, effective oral and written communication, accessing and analysing information, and curiosity and imagination (Wagner, 2008b:1-2). Genius hour breaks the traditional classroom norms by allowing students to explore their learning through a variety of methods. All of the methods outlined by Wagner are integral towards the implementation of a successful genius hour initiative.

A major aspect of 21st century learning is empowering students to become independent learners. Through the independence presented through the genius hour learning experience, students become more capable of self-management learning skills requisite of the 21st century culture. Kirr, an esteemed genius hour educator for age 12-13 year-old students, asserts that the genius hour experience encapsulates the idea that the students are at the centre of the learning process and learning experience. “It was difficult to begin in the middle of the school year - I had prepared for it, but it was so different from anything my 7th graders had done. Some thought it was too unstructured – ‘Where's the rubric? When is this due? What will we do when we're done?’ It took a while to understand this was a process. What has come out of it has been profound, and we've only done a little! One student presented on cancer, one on bullying and its effects on victim and bully, one on the history of animation...We are getting to know each other better, and trust each other to be teachers. Who owns the learning? The students! Who's working harder, and enjoying it? The students” (Genius Hour Testimonials, 2016:1).

Within the ever-changing global economy, educators need to prepare students for what the future economy dictates. "While all educators want to help students be successful in the future, the world is shrinking quickly, and our society is becoming more global in nature. Reading, writing, mathematics and knowledge of the other core subject areas will remain an important component of each person's education. What have been termed "the four C's" — critical thinking, collaboration, communication and creativity — are increasingly important skills for all students. Teaching these skills effectively in the classroom has been a topic of discussion among educators for years" (Herrmann,

2015:1).

Genius hour, due to its emphasis on individualized creation and publication, highly emphasises essential 21st century learning skills. Watson and Young (1986 cited in Herrmann, 2015) found that approximately 80 percent of the questions educators asked were at the knowledge or comprehension level. John Hattie's (2006 cited in Hermann, 2015) research showed that approximately 60 percent of questions were recall questions, and another 20 percent were procedural in nature. These statistics show that over the course of 20 years, the incorporation of higher-level thinking questions and activities changed little" (Herrmann, 2015:1). Clearly, classrooms are not emphasizing higher order thinking skills; genius hour is one solution to this problem. The skills educators are assessing need to be re-examined in order to emphasize higher order thinking skills. "The Seven Survival Skills can and must be tested through a combination of locally developed assessments and new nationally-normed, online tests such as the College and Work Readiness Assessment, which measures students' analytic reasoning, critical thinking, problem-solving, and writing skills" (Wagner, 2008b:4).

One of the challenges faced by educators is their inability to predict what skills are absolutely vital to excelling within the 21st century work environment. That being said, one integral learning skill educators seem to agree on is the skill of communication. Most genius hour initiatives include an element of publication as an element of the genius hour project. By including this element, students begin to publish their creations for a global audience. By publishing their work online, students become part of the global publishing and global communication network, which becomes essential towards succeeding within the 21st century economy.

Because of the importance placed on autonomy, passion, and creativity, genius hour promotes lifelong learning. According to Toffler (in Prasad, 2009:1), "The illiterate of the 21st century will not be those who cannot read and write, but those that cannot learn, unlearn, and relearn." Within a genius hour classroom, students have the freedom to pursue individual passions, solve global issues; essentially, during genius hour students can finally pursue learning that interests them. Piquing interest is at the core of learning, and genius hour accomplishes this by empowering students to be in control of their educational experience.

Since genius hour enlists the student participant as author, researcher, and publisher, students are forced to solve problems and think critically. The role of the student, as the learner and expert, plays a pivotal role in the process of learning. Typically, the educator acts as the expert within the classroom-learning scenario, but within genius hour, the student becomes the expert on his or her topic or essential question. Moreover, because students are assuming the position of expert, they have to use critical thinking during learning, writing, and publishing processes.

Within the working application of genius hour arises one unexpected benefit: the student-educator relationship. Since genius hour allows students to become the expert on a given subject, educators experience a role reversal. With the students as the expert and the educator as the learner, students begin to feel empowered and treat their educators with a newfound sense of understanding. As an educator engaging and learning from one's students, a new relationship emerges based on a connection through a student-inspired passion.

Understanding the contextual framework only provides a partial discernment of a study. In order to fully comprehend a given study, it is imperative to understand the conceptual framework as well.

3.3 CONCEPTUAL FRAMEWORK

Conceptual frameworks are analytical tools that make it easier for readers to remember and understand the information presented. '"In order to inform the research, a conceptual framework needs to be present. The conceptual framework includes assumptions and expectations for the study. A conceptual framework could be a visual or written product, one that "explains, either graphically or in narrative form, the main things to be studied - the key factors, concepts, or variables - and the presumed relationships among them" (Maxwell, 2004:39).

Genius hour is based upon the business principle of Google's workplace structure, which allowed employees one hour per day to work on independent projects that would benefit the company. During these times employees were allowed to work independently, or collaborate with other staff members on a shared project. It is estimated that 50% of Google's productivity emerged during this time of independence, creativity, and

autonomy known as genius hour.

Educators have borrowed the concept from Google's workplace structure in order to capture student drive, passion, autonomy, and engagement within the process of learning. Genius hour targets higher order learning concepts such as creativity, critical thinking, and communication. The focus of genius hour is to prepare students for workplace skills and challenges that may be faced with during 21st century workplace scenarios.

Creating a collective genius hour framework for classroom implementation is intended to benefit future educators. The synthesis of an instructional framework for implementing genius hour in the classroom is the primary aim of this study. Additionally, this study examines and analyses how the concept of genius hour is being applied to education around the world in order to synthesize information into one collective genius hour framework. The study claims that the concept of genius hour benefits the Common Core and inquiry-based learning (Juliani, 2015c).

3.3.1 Purpose and benefits of the conceptual framework

The conceptual framework creates focus for the study, while creating a link between the literature study and the data obtained through qualitative research. This study is attempting to collate educators' approaches towards genius hour into one collective framework. The educational genius hour movement is gaining momentum throughout the world, yet there has not been an attempt to create an instructional framework for implementing genius hour in the classroom. This collective instructional framework for implementing genius hour in the classroom enables educators to have an accessible researched document that analyses the collective work of educators attempting to implement genius hour in the classroom. This research serves as a valuable addition to the genius hour movement. By creating an understandable and effective framework, it becomes easier for educators to apply genius hour in their classrooms.

Originality in terms of contributing new information to the field of education as described by Hart (1998) is executed within this study. Currently, there has not been an attempt to qualify or quantify what has been successfully or unsuccessfully attempted in terms of implementing genius hour in the classroom. Moreover, there has not been an attempt

to undertake doctoral research on the educational subject of genius hour; thus, this is the first step to conduct a thorough investigation of genius hour as an educational curriculum accompaniment. The construction of this particular framework enables current and future educators interested in pursuing genius hour implementation to have their initiatives benefit from the research of this study. Essentially, this collective framework allows educators to access a researched framework for implementing genius hour within the classroom. Therefore, by creating this instructional framework for implementing genius hour in the classroom, this study sheds new light on the genius hour movement.

In Lev Vygotsky's discussions of method (1930) he states, "The result of development will be neither a purely psychological structure such as descriptive psychology considers it to be, nor a simple sum of elementary processes such as associationistic psychology saw it, but a qualitatively new form that appears in the process of development" (Vygotsky, 1930:58). Relating to Vygotsky, this study considers ongoing processes of qualitative data assessment. As the data begins to accumulate, this study factors information qualitatively in order to accurately create the collective framework.

This conceptual framework specifically studies implementation strategies used by genius hour educators. In order to create a collective framework for implementing genius hour in the classroom, educator implementation strategies are studied. Basically, this study measures the effectiveness of educator strategies which include the following variables: time allotted towards project creation, creating a driving question, entry event, assessment, rubrics, changing project ideas, publishing, and presenting genius hour projects. These strategies are studied under the idea that students construct meaning through experiential learning.

3.3.2 Models, concepts, and presumed relationships

In this section, attention is given to the relationship of the principles of genius hour in a model concept. By focusing on the model concept created by Zvi (2014), educators have a starting point from which they can begin to tailor their own creative curriculum designs. Her model was selected for this study as a building block for educators because it provides a clear step-by-step easy to follow comprehensive outline for implementing the concept into the classroom. Additionally, Andi McNair's genius hour framework, the 6

P's, presents an accessible model for genius hour educators to begin implementation (2017).

One of the major concepts to be considered within this study, which is concerned with the creation of a collective framework for classroom implementation, is how well the concept incorporates inquiry-based learning. A presumed relationship between the concept of genius hour and inquiry-based learning is outlined in the "Six Principles of Genius Hour" (See Figure 2.5) (Heick, 2014). Creating inquiry-based learning and developing higher order thinking skills are essential elements of a genius hour programme. Teachthought outlines six essential principles of a genius hour programme (Heick, 2014). Since this study is concerned with how inquiry-based learning and higher order thinking skills are incorporated into the genius hour concept, this model helps outline how genius hour achieves these concepts.

Zvi (2014) has created the most comprehensive model for implementing genius hour in the form of an instructional timeline. By breaking down specific benchmarks and activities by dates within the structure of a mapped unit, educators can easily replicate her formula for implementing genius hour into the classroom. Within her model, Zvi begins her genius hour time with two days of activities designed to stimulate intellectual curiosity, while challenging students, 5-11, to find their inner genius through self-reflection of individual passions. Days 3-5 include time to brainstorm and choose three potential topics before finally honing in on one driving question and research topic that should drive the learning and research over the next 11 days. During those 11 days of research, students use blogging as a tool to demonstrate and share their learning.

Zvi's aforementioned genius hour model for classroom implementation serves as a guide for educators interested in instituting a genius hour initiative. Moreover, her work could serve as a model or template for educators interested in creating their own genius hour framework for classroom implementation.

3.3.3 The future of genius hour

This study presumes that genius hour programmes have a plethora of implementation variables, which could lead to varying genius hour strategies. One relationship genius hour educators have in common is the spirit of the genius hour movement, which

emphasises giving students autonomy, time, and control of their educational journey. One key factor, which impacts the ability to create a collective genius hour implementation framework, is the factoring in of the varying student age groups that are attempting genius hour. Will one collective framework suffice both a class of five year-olds and a class of sixteen year-olds? What are the relationships between genius hour programmes aimed at five year-olds and sixteen year-olds? These relationships are analysed in order to create a collective framework that works for every genius hour classroom.

“As many great thinkers have argued, all students are born naturally creative, full of curiosities and questions. The difference between those who continue to be creative in careers as leading scientists, inventors, historical figures, artists, and philosophers and those that do not is all in how they are nurtured. The more children are encouraged to keep asking those questions and pursuing their curiosities, the more likely that creative spark will remain - and there could not be anything more important in today’s increasingly competitive knowledge-based economy” (Whittle, 2015:1).

Taking into consideration the thoughts of Ken Robinson, “My contention is that creativity now is as important as literacy, and we should treat it with the same status” (Lattier,2015:1). As education evolves to meet the needs of society and technological advances, educators must reconsider which learning methods need to evolve. Currently, modern educational trends are increasingly rendering knowledge less than valuable than access to information. Genius hour’s ability to emphasise higher order thinking and learning skills and highlighting creativity should keep the movement relevant within the future of education. November (2015) argues that technology is not enough to create meaningful learning. Moreover, education needs to factor in technological advances by adhering to the following criteria deemed the *transformational six* in order to create deeper learning. “Did the assignment build capacity for critical thinking on the web? Did the assignment develop new lines of inquiry? Are there opportunities for students to make their thinking visible? Are there opportunities to broaden the perspective of the conversation with authentic audiences from around the world? Is there an opportunity for students to create a contribution (purposeful work)? Does the assignment demo “best in the world” examples of content and skill?” (November, 2015:1).

3.4 CLOSING REMARKS

Chapter 3 has discussed how educators may have understood the importance of contextual and conceptual frameworks for this study - specifically, how contextual and conceptual frameworks relate to the concepts of higher order thinking, inquiry-based learning and the Common Core. Policy measures within the Common Core strive for deeper learning experiences. Higher order thinking and inquiry-based learning have become more commonplace in schools in the USA since the adoption of Common Core policies.

The conceptual framework creates focus for the study, while creating a link between the literature study and the data obtained through qualitative research, which follows in the next chapter. Within chapter three, the conceptual framework for this study was articulated in order to make the concept of this research easier for educators to understand.

From this chapter, educators may have ascertained the benefits of genius hour as an educational accompaniment. The benefits of genius hour were outlined from both student and educator perspectives, superimposed with the creation of a collective genius hour framework for classroom implementation. Additionally, educators in the USA concerned with Common Core, and global educators concerned with deeper learning (inquiry-based learning) were able to conceptualize how genius hour benefits both Common Core and inquiry-based learning.

Also from chapter 3, the necessity of creating a genius hour framework for classroom implementation was analysed. The information presented within the chapter demonstrated why creating a genius hour framework would benefit students and educators. In chapter two, it became apparent that the purpose of this research was not to create the collective genius hour framework itself. Instead, the information presented demonstrated the need for a collective genius hour framework. Chapter 4 discusses the rationale for empirical research, the research design of the study and the research methods.

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CHAPTER 4
RESEARCH METHODOLOGY

4.1 INTRODUCTION

From section 1.4, the application of the genius hour framework towards education was discussed. This study aims to create a framework for how the concept of genius hour can be applied in education. Essentially, this study presents educators with an instructional framework and design for how to implement the genius hour concept in education. This framework provides educators interested in implementing genius hour initiatives with a researched instructional design. While exploring these research questions, the purpose and value of this study towards the field of education and the genius hour educational movement is articulated in this chapter.

Within section 1.4, the challenges of creating a framework for how to implement genius hour in the classroom was addressed. Specifically, the methods, rubrics, and various approaches used by educators were described in the chapter. A challenge is taking account of the variety of collected data.

From section 2.2, educators may have ascertained the benefits of genius hour as an educational accompaniment. The educator's role within a genius hour setting is decidedly different. Basically, the instructor is no longer the facilitator of knowledge. Instead, the educator transforms into the classroom learning coach (Fowler, 2015). The benefits of genius hour were outlined from both student and educator perspectives, superimposed with how the data was to be gathered in order to ensure the creation of a genius hour framework for classroom implementation. Additionally, educators in the USA are concerned with Common Core, and global educators concerned with deeper learning (inquiry-based learning) were able to conceptualize how genius hour benefits Common Core and inquiry-based learning.

Also from section 2.2, the necessity of creating a genius hour framework for classroom implementation was analysed. One of the essential components of genius hour is how it incorporates 21st century learning. Educators across the nation are attempting to equip their students with the necessary skills to survive within a 21st century learning environment (Kesler, 2013). The information presented within the chapter demonstrated

why creating a genius hour framework would benefit students and educators. In chapter two, it became apparent that the purpose of this research was not to create the collective genius hour framework itself, but rather demonstrated the need for data in order for educators to create their own frameworks.

In chapter 3, section 3.2, the contextual framework for this study was identified. Within this section, the contextual framework uses the USA's educational implementation of Common Core to measure the genius hour educational movement. Moreover, in chapter 3, section 3.3, the conceptual framework for this study was realized. Conceptually, this study is based upon the conceptual framework findings of Zvi's 11 days of genius hour framework (2014) and the work of Heick's six principles of genius hour (2014).

Within section 4.3, research design and research approaches are discussed. The first factor to consider in a research design is to "identify the research problem clearly and justify its selection, particularly in relation to any valid alternative designs that could have been used" (University of Southern California, 2015:1). In terms of research methods, section 4.4 this study analysed the perspective within this study, and aims to understand how different types of people (educators and students) experience, conceptualize, and perceive the genius hour experience.

The research for this study is presented in this chapter. This design specifically considers research paradigm, approach and research strategy. A multiple case study consisting of six individual cases was used for this study. Each case study participant was individually interviewed and observed. These interviews were scheduled, semi-structured, and open ended in order to allow the participants to share their philosophies or perspectives. Research methods are also addressed within this chapter. These methods include the selection of participants, data collection and data analysis of relevant genius hour-related information. Lastly, this chapter addresses measures of trustworthiness and ethical considerations relevant to the study.

4.2 RATIONALE FOR EMPIRICAL RESEARCH

Empirical research is a method of research where knowledge is obtained through observation, induction, deduction, testing, and evaluation (Carrol, 2018). Empirical research is typically acquired by experimentation or observation (Bradford, 2017). Time,

cost, and access to relevant information are three of the major drawbacks of empirical research (Gagnon, 1982). Data is gathered through the analysis of the written genius hour experiences and opinions of the five educator participants within this study. Data is directly collected from five educators. The data is collected through semi-structured telephonic interviews, via FaceTime, Skype, and telephone interviews. Semi-structured interviews were conducted with the selected case studies within this study in order to obtain valuable information from genius hour educators. These semi-structured interviews conducted with genius hour educators were essential to the creation of the collective genius hour framework for classroom implementation.

Additionally, data was gathered through conducting observations of genius hour classrooms. Two separate classrooms were observed and analysed in accordance with the observation guide (see Appendix C). These observations yield data specific to how genius hour is successfully applied to education. Moreover, these observations offer valuable data related to starting a genius hour initiative, organising genius hour methods, organising the framework, considering the student perspective, analysing personal experience from experienced educators, learning from fellow educators, and gaining advice from fellow genius hour educators related to this study.

Empirical research was necessary within this study because it allowed the researcher to observe genius hour initiatives outside of my own classroom experience of implementing genius hour. Viewing the video recorded genius hour classrooms from fellow genius hour educators enabled me to witness the specifics regarding genius hour implementation. The value of observing genius hour initiatives from another point of view is that this observation allows the researcher to actualize the challenges and strategies used by other educators attempting to implement genius hour into their curriculum. This research serves as a call to create a collective genius hour framework for classroom implementation. The framework creation would benefit current genius hour educators, future genius hour educators, and the entire genius hour movement. A researched collective genius hour framework for classroom implementation would improve the genius hour experience for students and educators alike.

To determine whether or not the information gathered within this study would make the creation of a collective genius hour framework for classroom implementation conceivable, the data gathered within this research had to be sufficient enough for this

purpose.

By gathering data from the most preeminent genius hour educators, future educators may be able to better create an instructional collective framework for implementing genius hour in their respective classrooms.

Within the next section, the research design for the study is discussed.

4.3 RESEARCH DESIGN

When creating a research design for a study, “the researcher not only selects qualitative, quantitative, or mixed methods study to conduct; the inquirer also decides on a type of study within these three choices” (Creswell, 2014:12). This inquirer is focusing on a qualitative study in this research design. “Research designs are types of inquiry within qualitative, quantitative, and mixed methods approaches that provide specific directions for procedures in research design” (Creswell, 2014:12).

Within the research design of the study it is essential for the researcher to know what questions he is attempting to address. By properly articulating the purpose and intention of a study, the study is less likely to be compromised. The key question for this research stems from the idea of creating an instructional framework. How can the successes and failures of current genius hour programmes be synthesized into an instructional framework and design for the successful implementation of genius hour in education?

The research design of a study is created in order to address the research problem for a study. Within this study, the research design deals with the research problem. “The research design refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data” (Labaree, 2009:1).

The first factor to consider in a research design is to “identify the research problem clearly and justify its selection, particularly in relation to any valid alternative designs that could have been used” (University of Southern California, 2015:1). The research problem is that there is no collective genius hour framework for classroom

implementation, as seen in section 1.4. This study collected data within the field of genius hour in order to create a successful genius hour framework for classroom implementation.

Other factors to be taken into consideration for the purposes of creating a research design according to the University of Southern California (2015) include: “Reviewing and synthesizing previously published literature associated with the problem.” This research is considering the findings of genius hour educators as published through online books and blogs. The problem with these findings is that very few educators are attempting to collate their experience as a genius hour educator into a collective framework for implementing genius hour in the classroom, which represents the purpose of this research.

According to Singh (2010), there are eight requisite steps within planning a research design:

- The problem
- The objective of a study
- Nature of the study
- Data sources
- Techniques of data collection
- Social cultural context
- Geographical limit
- Basis of selection

By planning in accordance to Singh (2010), this researcher has a more informed perspective on the nature of the research design itself. Similarly, the University of South Africa uses an approach that is representative of Singh’s planning design. Within this research design, there exist six similar steps within the research process.

- Defining the problem
- Planning a research design
- Planning a sample/Selection of participants
- Gathering the data
- Processing and analysing the data

- Conducting and reporting

When a researcher is planning a research design for their study they must select which type of study they are interested in pursuing. The study may be qualitative, quantitative, or mixed methods, yet the inquirer must plan which research method to pursue (Creswell, 2014:12).

The plan and strategy used to understand this central research problem are outlined within the sub-sections of this chapter. The specific following sub-sections address the research, research paradigm, research approach, and research strategy.

4.3.1 Research paradigm

The research paradigm for this study is constructivism. The concept of genius hour is concerned with constructing meaning through interest-driven experiential learning; therefore, analysing this study through a constructivist lens is sensible.

According to Macleod (2009) one's worldview shapes one's methodology in terms of paradigms in research. In my worldview, constructivism represents the way I view the world. Humans are constantly constructing meaning through the combination of their perspectives, philosophies, and experiences. "Reality is subjective and experiential: that thing over there that looks like a table is actually being used as a chair. My particular construction of reality might be shared with many other people, but other people could construct the same reality in quite different ways" (Macleod, 2009:1).

Since the spirit and purpose of genius hour stems from capturing intrinsic motivation, learning by doing, and autonomy, optimally, this study is best analysed through a constructivist point of view. Charmaz (2006) alludes to the importance of the researcher's role within constructivist research, due to the fact that the researcher is constructing interpretations of the experience. The information gathered within this study is linked to constructivism and empirical facts in order to eliminate researcher bias. Constructivists proclaim that students are more engaged within learning when they are actively participating in the learning process. It is the goal of genius hour to minimize traditional classroom instruction time and allow students to spend the entire educational timeframe actively participating in their learning rather than sitting back passively receiving

information. “For many qualitative researchers it is their general framework or paradigm that is most important to them. If they are devoted to a particular research method, it is often because that method is an expression of their paradigm” (Willis, 2007:147).

Constructivism is used as a design point of view in order to qualitatively interpret how higher order thinking skills are utilised through genius hour implementation. For Bruner (1966), constructivist theory is a general framework for instruction based upon the study of cognition.

4.3.2 Qualitative research approach

Another aspect of research design is the research approach for this particular study. Qualitative research is based upon creating explanations of social phenomena. Essentially, the aim of qualitative research is to assist in understanding the social world in order to understand why events happen the way they happen. Within qualitative research, questions are formed regarding human behaviour, how attitudes and opinions are formed, how events impact people, and how/why particular cultural practices have developed (Hancock, Ockleford & Windridge, 2009:6).

According to Eisner’s features of qualitative inquiry (Eisner, 1997:32-40), all qualitative inquiry tends to contain specific aspects. Following the research of Eisner, qualitative research tends to be field focused, contains the researcher as a major instrument of the research, is interpretive, is presented in an expressive voice while including the researcher’s personal thoughts, and attends to particulars. Staying within the tradition of Eisner’s features, the personal voice of the researcher is present within this study. As an experienced genius hour educator, personal voice is beneficial to the study in terms of discerning direct and indirect analysis of collected data.

A qualitative approach is used in this study in order to best understand the connection between the educator, student, and genius hour framework. This study aims to understand the connections between educators, students, inquiry- based learning, and higher order thinking skills within the implementation of genius hour in order to understand how best to create a collective genius hour framework.

This study aims to understand how different types of people (educators and students) experience, conceptualize, and perceive (Marton, 1986 cited in Khan, 2005) the genius hour experience. Moreover, since this study is concerned with the theoretical creation of a genius hour framework for classroom implementation, a multiple case study is used to consider the relationship between student, educator, and framework. In this case, the explored phenomenon of the collective genius hour framework in relationship to the student and educator perspective is investigated in order to ascertain underlying meaning.

This research considered the findings of genius hour educators as published through online books and blogs. The purpose was to present what is being done within genius hour initiatives, presenting that information, and thus enabling readers to use this study as a means to creative a collective genius hour framework for classroom implementation.

This particular study focuses on qualitative research methods. “Qualitative research builds its premises on inductive, rather than deductive reasoning. It is from the observational elements that pose questions that the researcher attempts to explain. The strong correlation between the observer and the data is a marked difference from quantitative research, where the researcher is strictly outside of the phenomena being investigated” (Williams, 2007:67).

4.3.3 Research strategy

A research strategy is a plan that enables a researcher to answer his or her research questions in a strategic way. “A research strategy is a step-by-step plan of action that gives direction to your thoughts and efforts, enabling you to conduct research systematically and on schedule to produce quality results and detailed reporting. This enables one to stay focused, reduce frustration, enhance quality and most importantly, save time and resources. The research strategy is the nuts and bolts of your application, describing the rationale for your research and the experiments you will do to accomplish your desired goals” (Dinnen, 2014:1).

Essentially, the research strategy is the overall plan that the researcher deploys in order to understand the research questions (Saunders et al., 2009:90). Within this study, a multiple case study is deployed which involves interviews and analysis through collected

videos of genius hour educators implementing genius hour within their classrooms.

A multiple case study is used in this study in order to understand the connection between the educator, student, and framework. Each educator serves as a separate case for the purposes of this study. Since each of the educators interviewed for this study collaborates and mentors, members of the genius hour community, their responses are representative of an individual case study. Essentially, this section aims to address the purpose of conducting research within a multiple case study while analysing the impact of how the genius hour framework impacts the student and, likewise, how student learning should impact the framework creation.

Thomas (2011) describes a case study as a means of using various methods in order to analyse a system. The case study method "explores a real-life, contemporary bounded system, a case, or multiple bounded systems, cases, over time, through detailed, in-depth data collection involving multiple sources of information…and reports a case description and case themes" (Creswell, 2013:97).

Multiple case studies are more advantageous than singular case studies. Yet, according to Baxter and Jack (2008), multiple case studies are more difficult due to factors of time and financial cost. For this study, there was no additional cost due to the nature of the telephonic interview process. Each case study was conducted within an open-ended semi-structured interview. Multiple case studies offer the advantage of exploring research questions in a deeper capacity (Eisenhardt & Graebner, 2007). This study focuses on multiple case studies in order to gather information, experience, and opinions from a variety of sources with the purpose of achieving in-depth analysis.

Multiple case studies are used in this study as a qualitative research type. "Case Studies combine a variety of data collection methods such as interviews, questionnaires, observation, archives. Data which are qualitative (such as words) or quantitative (such as numbers) or both are generated" (Vohra, 2014:55). For the purposes of data collection, this study focused on interviews as the primary data acquisition method.

Yin (2009) asserts that multiple case studies enable the researchers to possess the advantage of being able to analyse data across various situations, whereas in a single case study researchers are limited within the area of data analysis. The various case

studies allow for an increased amount of potential data analysis. Within this study, the case study consists of the information procured from the participants in the semi-structured interviews, the direct observation through the observation of genius hour classroom implementation, and the document analysis. For this study, each interviewed participant represents an individual case study due to the amount of collected information from each participant. All of these individual five case studies comprise one multiple case study. A “case study is the best plan for answering the research questions; its strengths outweigh its limitations. The case study offers a means of investigating complex social units consisting of multiple variables of potential importance in understanding the phenomenon. Anchored in real-life situations, the case study results in a rich and holistic account of a phenomenon. It offers insights and illuminates meanings that expand its readers' experiences” (Reis, 2006:1).

In accordance with Engle (2009) problems should be defined within the form of a question. According to Bryman (2007), most researchers confirm that defining the problem statement is essential for the entire research process. For this study, the essential research question is defined in the form of a question. This question represents the basis and purpose for this study (1.5).

Methods tend to vary regarding defining the problem within research. In accordance with Alvesson and Sandberg (2011), the most outstanding method of defining a problem is noting the research gaps that exist within a study. Creating a framework for how to successfully implement genius hour in the classroom is a challenge, therefore gaps are present within this defined research problem. Gaps are present within the methods, rubrics, and approaches used by genius hour educators because of the variety of ages and classroom settings for genius hour. Moreover, methods that might work in a classroom of six year-old students may prove less successful in a classroom of 16 year-olds, due to a variety of factors. Henceforth, it may be problematic for educators to gauge which aspects of their genius hour framework would best suit all genius hour initiatives regardless of age or academic ability of the students undertaking the classroom experience.

In the next section, the research methods relevant to this study are discussed.

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4.4 RESEARCH METHODS

"Research methods are the various procedures, schemes and algorithms used in research. All the methods used by a researcher during a research study are termed as research methods. They are essentially planned, scientific and value-neutral" (Rajasekar, Philominathan & Chinnathambi, 2013:5). Research methods involve collecting data in order to create a solution to a problem.

The stages in the research methods include defining the problem, planning a research design, selection of participants, gathering the data, processing and analysing the data, concluding and reporting (Khan, 2005:7).

Within the following sub-sections, the selection of participants, data collection, and data analysis are addressed.

4.4.1 Selection of participants

Creswell (1998) suggests that researchers should ideally examine no more than four cases in order to ensure that individual cases are adequately explored. Aligning with Creswell (1998) this research focused specifically on five prolific genius hour educators.

The participants were purposefully chosen based upon the criteria of their experience as genius hour educators. The demographics of the participants focused primarily USA-based educators (60% of the chosen participants) because, currently, the genius hour movement is largely based in the USA. The two participants outside of the USA were from Canada and Bahrain. Participants within this study were intentionally chosen with significant teaching experience (at least five years of experience within education), with expertise in the genius hour movement (widely published and respected), and fluency with technology integration.

In qualitative research, there can never be any quantitative thoughts about participants. Whether it is one or five of 15 participants, they were selected on the grounds of the research criteria and expertise. In this multiple case study (five cases) participants were chosen purposively on the grounds of their specialised knowledge and application of the genius hour approach

Kirr (2017), Krebs and Zvi (2015), Maiers (2017), and McNair (2017), were selected for this study based upon their contributions to the genius hour movement. These five educators are five of the most prolific publishers of genius hour-related content. Moreover, all of these educators, mentor and collaborate with other genius hour educators making them ideal interview candidates for this study.

The five educators selected within this study gave their consent that they would not remain anonymous. All of these educators represent participants within this multiple case study. Denise Krebs and Gallit Zvi collaborated on the first book dedicated to genius hour-related content *The Genius Hour Guidebook: Fostering Passion, Wonder, and Inquiry in the Classroom* (2015). Andi McNair wrote the genius hour-related book *Passion Projects that Ignite Innovation and Student Inquiry (*2017). Angela Maiers is the author of the book *Genius Matters: A Framework for Epic Transformation* (2017), in which she addresses genius hour and passion-based learning. Joy Kirr started the genius hour Live Binder, an interactive website where genius hour educators share their experiences implementing genius hour within the classroom.

Table 4.1: Interviewed research participants

Name	Gender	Location	Educational Position	Age Group of
Joy Kirr	Female	Illinois, USA	English 7	12 - 13
Denise Krebs	Female	Bahrain	Certified educator	10-11
Angela Maiers	Female	Iowa, USA	Consultant	5 - 18
Andi McNair	Female	Texas, USA	Technology Innovation Specialist	5 - 18
Gallit Zvi	Female	Surrey, British Columbia, Canada	Vice Principal	5 - 11

Additionally, what makes them unique as educators is the spirit found within these participants. Within their websites, blogs, and publications (Kirr, 2017), they give credit to what other educators are doing with their genius hour initiatives. This community-based approach used by these educators enables the data obtained through them to be

representative of more than just their personal opinions. This community approach captures the perspectives and ideas of a virtual collaboration of educators currently publishing and pursuing the genius hour movement.

This decision to use somewhat experienced and technologically affluent individuals was based upon the type of educators who begin to implement genius hour initiatives. Within my research there existed a discernible connection between technologically affluent individuals and the integration of genius hour initiatives.

Biographical data is presented above (Table 4.1) from all of the participants selected for the semi-structured interviews. Table 4.1 provides the name, gender, location, educational position, and age group of students for each participant.

4.4.2 Data collection

For the purposes of data collection, this study aligns with the work of Stake (1995). Stake's research is still relevant today, and is consistently used by researchers for data collection. "I feel like Stake just gave me a golden ticket; he gave me the freedom as a researcher to make decisions about my research. In this chapter, I feel like he recognized the professionalism of researchers in their knowledge and skill set to make appropriate decisions that would preserve the validity of their data while they search for meaning without enabling them to become lost in the data trenches" (Burns, 2018:1). In his research, Stake declares that within the stage of data collection researchers should adhere to the following practices:

- Make observations, interview, and debrief informants.
- Keep records of inquiry arrangements and activities. Select vignettes, special testimonies, illustrations, classify raw data; begin interpretations.
- Redefine issues, case boundaries, renegotiate arrangements with hosts, as needed.
- Gather additional data, replicating or triangulating, to validate key observations (Stake, 1995:53).

Within qualitative research, regardless of the perspective of the researcher or the methodological approach, there is always a large amount of data collection. "In addition

to the variety of study methodologies available, there are also different ways of making a record of what is said and done during an interview or focus group, such as taking handwritten notes or video-recording" (Sutton & Austin, 2015:227). Within video or audio recordings, all of the words presented within the recording must be transcribed verbatim.

A crucial element within the data collection includes "effectively describing the data" (University of Southern California, 2015:1). In this research, data was obtained through observation of genius hour initiatives. Data was also obtained through semi-structured interviews with multiple participants. Each case consists of separate genius hour educators who have contributed paramount research and insight into the genius hour movement. These educators were interviewed in order to gather data related to the creation of a genius hour framework for classroom implementation. Observation was lso used in this study by physically observing genius hour lessons. Two classroom genius hour observations were conducted for the purposes of this study. Ashley Selck's genius hour classroom and Kevin Brookhouser's genius hour classroom was observed for the purpose of data collection and were not part of the interview process. Aside from the classroom observations, data was also collected from the interviews conducted with the participants Kirr (2017), Krebs (2015), Maiers (2017), McNair (2017), and Zvi (2015).

4.4.2.1 Data collected through interviews

The interview questions (see Appendix A) within this study were arranged in a manner of descending complexity and depth. Initially, questions are more straightforward, allowing the participants to become comfortable with the questions before addressing more cognitively complex questions. Forty-five (45) minute semi-structured interviews were conducted with the five participants.

Open-ended questions were used for the participants within this study. "The advantages of the open-ended questions include the possibility of discovering the responses that individuals give spontaneously, and thus avoiding the bias that may result from suggesting responses to individuals, a bias which may occur in the case of close-ended questions" (Reja, Manfreda, Hlebec & Vehovar, 2003:161). The open-ended question format allowed for increased freedom within the responses towards the presented questions of the interview.

By allowing the genius hour educators to respond to questions without constraint, educators can freely express their opinions based upon their classroom experience. According to Kelley, Clark, Brown, and Sitzia, (2003), conducting research through interviews provide a low cost alternative solution to gathering information through direct observation. Moreover, data can be collected quickly, which benefits researchers attempting to collect data in a finite time period.

Semi-structured interviews were conducted for the participants who were observed within this study. The semi-structured format gave the participants optimal opportunities to express their genius hour opinions, philosophies, and experiences. Within a semi-structured interview “predetermined questions (are asked), but order can be modified based upon the interviewer's perception of what seems most appropriate. Question wording can be changed and explanations given; inappropriate questions for a particular interviewee can be omitted, or additional ones included” (Teijlingen, 2014:17). The data capture procedure for this study was voice capture. The application Temi captures voice commands and stores the voice commands. This application is also used for video recorded forms of communication. The application stores all of the recorded information for future reference and converts the speech into readable text.

4.4.2.2 Data collected through observation

Data collection within the study includes the practices outlined by Stake (1995). Observation of two California-based educators with at least three years of experience implementing genius hour were undertaken.

Genius hour classroom observations are conducted through two classroom observations. The experience of observing genius hour classrooms, are also used for data analysis purposes within this study. According to Cousin (2013), it is important for a researcher to acknowledge their position related to the study as a component of data collection.

Data was also collected through video recorded sessions. The video recorded sessions demonstrate the implementation of genius hour in the classroom. The participants within this study are presenting video recorded sessions of their classrooms. Within these classrooms, genius hour lessons are shown in order to demonstrate what genius hour

looks like in action. An observation guide was used to measure learner engagement throughout the genius hour learning process (see Appendix C).

The observations gathered through my own classroom experience of implementation provided a basis for a more thorough understanding of the data than directly observing other genius hour educators. Since 2009, I have implemented genius hour in my classroom. This first-hand chronicle of genius hour implementation, delivered by way of a reflective narrative, enables educators interested in creating a collective genius hour framework to use my account as a reference. Through personal experience implementing genius hour, the data gathered from genius hour educators regarding curriculum and frameworks for classroom implementation are put into practice. The personal connection with genius hour represents a method of cross-referencing the information obtained through this research.

Additionally, observation was procured by observing another genius hour class in action. The observations were used for data collection in order for me to better understand how participants structure their genius hour classroom learning experience. Records were kept in order to insure optimal data collection for this study. Research records tend to contain more than research data. Within these research records, protocols are discussed alongside data manipulations and analysis procedures (Schreier, Wilson, & Resnik, 2006:42). Selecting vignettes, special testimonies, and illustrations (Stake, 1995) are also essential to the creation of a collective framework.

Since the primary purpose of this study was to present data for the purpose of an eventual creation of a genius hour framework created by me for classroom implementation, it was essential to rely upon noteworthy procedures of data collection.

4.4.3 Data analysis

Data analysis involves assuring the veracity of the data by identifying emerging ideas. These ideas need to be reiterated, then questioned; essentially researchers need to understand where the emerging questions and ideas are leading them (Girbich, 2004).

In accordance with Lacey and Luff (2007:19-25), qualitative data analysis consists of five stages. These five stages of data analysis include transcription, organising your

data, familiarization, coding, and identifying themes. This study supports the qualitative data analysis findings of Lacey and Luff (2007) by using their five stahes for data analysis.

4.4.3.1 Organising data analysis

Data was organised by analysing information from current genius hour educators. The analysis consisted of measuring the interpretations of the participants regarding the research questions for the study. Additionally, the empirical research for this study was analysed in terms of the participant responses regarding the assumptions, which relate to the need to create a collective genius hour framework for this study. Finally, how genius hour impacts inquiry-based learning and higher order thinking was analysed in the collected data. Also, my personal experience of incorporating genius hour into the classroom, which has consisted of nine years of research, was considered. I collected data objectively and without bias. I used my experience as a tool to dialogue more effectively during the semi-structured interviews.

Data collected through the observation of genius hour educators was analysed in accordance with the aforementioned methods of Stake (1995). Conclusions were drawn through raw data collection and emerging patterns. “Although science attempts to protect its inquiries from the common pitfalls in ordinary inquiry, accurately observing and understanding reality can be difficult” (Rubin & Babbie, 2009:14). By attempting to disconfirm findings, researchers are less likely to experience the pitfalls of traditional data analysis.

Also, by collecting data through semi-structured interviews, bias is minimized, which lends credibility to the study. Bowen (2009) contends that document analysis is a process that reviews and evaluates documentation. This study yielded document analysis in the form of literature.

Personally transcribing the interviews is an integral portion of document analysis because it enables the researcher to be attuned with the presented information. After reading the transcription from Temi, I began editing, making notes, discovering patterns, and identifying themes from the participant interviews. This allowed me to better interpret the philosophies and theories of the participants.

This observation guide focuses on specific signals of observation. Specifically, the educator-based observations were focused on higher order thinking skills, inquiry-based learning, framework, project variance, and authentic engagement.

4.4.3.2 Interpreting data analysis

The collected data was analysed qualitatively. Problems within data analysis can emerge in various settings. Examples of this include attempts to code or compartmentalize data. By breaking down data into segments, researchers can misconstrue the essence of the philosophy of the issue being analysed through data analysis. The data analysis used within this study was qualitative analysis. All of the semi-structured interviews conducted in 2018 with the five participants of Kirr, Krebs Maiers, McNair and Zvi were audiotaped and transcribed. Within this transcription, key words, phrases, and segments from the reviews were indicated. Attending to the precise words of the genius hour educators, specific thematic findings and commonalities amongst participants were grouped accordingly to demonstrate the significance of the reoccurring themes. These commonalities were organised under specific headings to illustrate the significance of the interview findings. The classroom observation notes were analysed into themes and categories in accordance with the observation guide (see Appendix C).

Critical analysis of essential data procured through the interview process is provided in the following chapter.

4.5 MEASURES FOR TRUSTWORTHINESS

Measures for trustworthiness are adhered to within this study. Within this section, credibility, transferability, dependability, and confirmability are discussed. These four aforementioned elements of trustworthiness ensure that the study adheres to required measures of trustworthiness within a research study.

4.5.1 Credibility

This study concurs with Lincoln and Guba's (1985) measures of trustworthiness in terms of establishing reliability through the author's credibility as an academic with nine years of experience implementing genius hour in the classroom (Pillay, 2014). "Validity in

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qualitative research means ‘appropriateness’ of the tools, processes, and data. Whether the research question is valid for the desired outcome, the choice of methodology is appropriate for answering the research question, the design is valid for the methodology, the sampling and data analysis is appropriate, and finally the results and conclusions are valid for the sample and context. In assessing validity of qualitative research, the challenge can start from the ontology and epistemology of the issue being studied, e.g. the concept of “individual” is seen differently between humanistic and positive psychologists due to differing philosophical perspectives” (Leung, 2015:326). In addressing credibility, investigators attempt to demonstrate that a true picture of the phenomenon under scrutiny is being presented.

Credibility within qualitative research depends upon the rigorous techniques for gathering data, the credibility of the researchers themselves, and the philosophical belief in the nature of qualitative inquiry (Patton, 1999:1190). Rigorous techniques were used for gathering data in the study through interviews with genius hour educators and video recordings of genius hour classrooms in action.

Researcher credibility was established through my 15 years of experience as an educator, alongside my personal pursuit of genius hour since 2009. Additionally, my educational goals for this research were not self-promoting. The goal of this framework was to benefit future genius hour educators through creating a potential genius hour framework for classroom implementation. The philosophical belief in the benefits of qualitative inquiry was assured within the research methods of data collection. The researcher intentionally relied on the works of others to drive the inquiry process through the potential creation of a collective genius hour framework.

The interview questions were selected purposefully in order to connect the theoretical framework for this study with the interview questions. Trochim (2006) contends there are two domains in research - theory and observation. The importance of the theoretical framework goes beyond just the observation. The theoretical framework is the blueprint that comes before constructing a house. In this metaphor, the blueprint is the research questions. The interview questions with the educator participants were selected with the intention of best suiting the purpose of addressing the research questions.

4.5.2 Transferability

In accordance with Anney (2014), transferability refers to how the findings of one study can be applied to other situations. That being stated, Erlandson, Skipper, Harris and Allen (1993) contest that since qualitative request tends to represent the relatively small percentage of individuals within the larger scope, it may be impossible for the study to be applicable to other situations. Within this study, transferability exists in terms of applying the research across a variety of genius hour initiatives. To allow transferability, they provide sufficient detail of the context of the fieldwork for a reader to be able to decide whether the prevailing environment is similar to another situation with which he or she is familiar and whether the findings can justifiably be applied to the other setting. The variability of genius hour initiatives is extreme due to factors such as: student age, student aptitude, educator experience, and location of the genius hour initiative. The collected data for this study was intended to be transferable despite these challenging situations.

4.5.3 Dependability

In order for a study to be dependable, a researcher should consider the replicability of a study. Unfortunately, in the case of a qualitative study, exact replicability is impossible. “In quantitative research, reliability refers to exact replicability of the processes and the results. In qualitative research with diverse paradigms, such definition of reliability is challenging and epistemologically counter-intuitive. Hence, the essence of reliability for qualitative research lies with consistency” (Leung, 2015:326). Since this is a qualitative study, it is impossible to be completely reliable, yet the consistent opening interview questions make the study more trustworthy. Within this study, validity is considered within the contemplation of the created research question. Careful attention was given to the creation of the research questions within this study in order to maintain a high level of validity and trustworthiness. Additionally, the methodological choice for answering the research question has been carefully considered. The meeting of the dependability criterion is difficult in qualitative work, although researchers should at least strive to enable a future investigator to repeat the study.

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4.5.4 Confirmability

Within this qualitative study, confirmability is essential. Confirmability refers to the ability for a study to be duplicated, confirmed, or corroborated by others. Confirmability exists in order to prove that the data collection is more informed by participants than by a qualitative researcher's own personal biases. Within this study, confirmability exists through the transcription of the testimonies conducted with the participants. In order to ensure a confirmable study, another researcher could confirm the findings of this study by reading the transcriptions of the conducted interviews and video recordings. In accordance with Pannucci and Wilkins (2010), it is challenging for researchers to remain objective because of the inherent fact that researcher bias is always present. Therefore, researchers should admit their own predispositions in order for the study to acknowledge these predetermined biases. My own predispositions and biases for this study are based upon the need to create a genius hour framework in order to better implement genius hour in the classroom. This predisposition was the driving force for this research, and does not interfere with the confirmability of this study. According to Shenton (2004), it is essential that educators use a methodological description which allows the research to be scrutinized. This methodological description exists within the transcription of the conducted participant interviews. "To achieve confirmability, researchers must take steps to demonstrate that findings emerge from the data and not their own predispositions" (Shenton, 2004:63).

4.6 ETHICAL MEASURES

In accordance with Marianna (2011) the four most important ethical issues when conducting research include informed consent, beneficence (not causing harm), respect for anonymity and confidentiality, and respect for privacy. In accordance with Armiger (1997), informing consent refers to participants knowingly and intelligently giving their consent for a given purpose. For this study, participants were informed via letters of consent - see Appendix D (educators), Appendix E (principals), Appendix F (students) and Appendix G (parents). In terms of beneficence, the principle of beneficence is based upon a need for the researchers to provide strong research to better serve their constituents (Beauchamp & Childres, 2001). The researcher needs to protect confidentiality at all times even if they cannot protect anonymity (Nieswiadomy, 2007).

The educators within this study received a written document debriefing them in accordance with UNISA's data collection provisions that outline the purpose of this study and how their contributions benefit this research. Ethical measures have been cleared through UNISA's ethical clearance department (University of South Africa Policy on Research Ethics, 2013). This study adheres to the policies and ethical requirements stipulated by UNISA. Moreover, it maintains the strict moral guidelines within the rights and responsibilities of researchers at UNISA. The participants within the study have their privacy protected and are subject to anonymity under these governing ethical principles. The participants within this study were informed before participating within this study that their participation within the study was completely voluntary (see Appendix B). Additionally, the participants were informed that they could withdraw from the study at any point (Denizen & Lincoln, 2005).

This study was running through anti-plagiarism protection software to ensure credibility and reliability.

The research conducted within this study was intended to benefit genius hour educators and contribute new information to the genius hour movement. Within UNISA's guidelines, it states that, "researchers should undertake only such research that, in their view, will contribute to knowledge on the subject. They are advised to use resources judiciously and to avoid unnecessary duplication of research" (University of South Africa Policy on Research Ethics, 2013:4). In my view, the potential creation of a collective genius hour framework for classroom implementation benefits the genius hour movement from both the student and educator perspectives alike. This study also spent money judiciously, and did not exploit university funding by conducting interviews via Skype, FaceTime, or by telephone.

In accordance with UNISA's ethical policies regarding relationships among researchers, this study was conducted in a professional and ethical manner. It did not engage in discriminatory practices or harassment. Moreover, it did not seek any economic gain. The information presented is meant to benefit educators and students participating within the genius hour movement (University of South Africa Policy on Research Ethics, 2013:5).

4.7 CLOSING REMARKS

Within this chapter of the study, the rationale for the empirical investigation in terms of observational methods was presented. The research design for this study was included in this chapter; this design specifically considered the research approach, research type and research strategy. Concerning research methods, research participants were purposely selected based upon their expertise within the genius hour movement.

Additionally, information was presented relevant to data collection and data analysis. The data was collected from observation and semi-structured interviews relevant to genius hour-related information. Semi-structured interviews were conducted, making use of open-ended questions for the five participants within this study. Physical observations from genius hour classrooms were also important to this research. Within the data interpretation section, research aims, framework findings, and empirical findings were addressed.

Chapter five focuses on data analysis and interpretation.

CHAPTER 5
DATA ANALYSIS AND INTERPRETATION

5.1 INTRODUCTION

As seen from chapter 1, section 1.5, the main problem of this research is that genius hour developed rapidly as an educational movement, but research has not been conducted regarding how best to create an essential framework for implementing genius hour in the classroom. The essential research question from section 1.5 was: How can the recorded successes and failures of current genius hour programmes be synthesized into an instructional framework and design for the successful implementation of genius hour in the classroom?

Sub-problems and research questions from chapter 1, section 1.5, that were addressed in this study included the following: How does genius hour benefit student learning and higher order thinking? How can the concept of genius hour be more successfully applied to education?

In chapter 2, sections 2.2 and 2.3, the literature framework for this study is based on information taken from theories on higher order thinking skills and inquiry-based learning.

In chapter 3, section 3.2, the benefits of genius hour were outlined including how genius hour enhances 21st century learning skills and higher order thinking (3.2.4).

The research design for this study is a qualitative study emphasising constructivism as a research paradigm, as described in chapter 4 (4.3.1). In chapter 4, section 4.4, the research methods regarding data collection purposes for this study were based around interviews and observation with the participants. Also in chapter 4, section 4.5, measures of trustworthiness were based around credibility, transferability, dependability, and confirmability.

Within chapter 5, section 5.2, the research process specifically pertaining to data collection, is discussed. This research process includes a brief report on the collected

data. Within this section, everything that took place during the data collection process is discussed. Also included within section 5.2 are the various aspects of the data collection that worked exceedingly well. This section also informs on areas of the research process that did not go as planned. The research process challenges are noted and explained within section 5.2. If anything did not go according to plan, it is discussed within this section. Finally, the trustworthiness of the data is included within this section.

Furthermore, within section 5.3, the data analysis for this study is presented. This section addresses specifically what the data states. In order to accomplish this, the results of the data analysis must be communicated. The results of the data analysis are presented in section 5.3. Critical analysis of findings related to the essential data are reported individually on all data sources. This study focused on qualitative analysis; therefore, all interviews are transcribed. One participant's interview was selected and included as Appendix I in order to demonstrate an example of the conducted interviews. Section 5.3 also includes biographical data, interview data, lesson observation data, documentary data, and themes and categories pertaining to data analysis.

Section 5.4 includes how the data for the study was interpreted. Data interpretation relates directly to understanding the meaning of the research data. Essentially, data is presented with important information regarding the meaning of the data. Empirical research findings are discussed in section 5.4 too alongside the researchers own personal experience related to the data findings. Aspects that contradict the research framework are discussed within section 5.4 as well. Any evidence from the empirical findings are mentioned and cross-referenced with the research aims.

5.2 RESEARCH PROCESS

This section is dedicated to reporting on the research process. A multiple case study approach was used for this study. Essentially, the research process is concerned with data gathered from the semi-structured interviews with the participants and data collected from the classroom observations of genius hour educators.

Data collection was obtained through semi-structured interviews with the participants. Before commencing the interview process, I applied through UNISA and received ethical

clearance to conduct the research. The participants were contacted with the letter to the participants (see Appendix B). The letter outlined the purpose of the study, and defined the role the participants would fill within the research. Once the participants agreed to be part of the study, they received the interview schedule (see Appendix A). This document outlined the aim of the study, and informed the participants regarding which questions they might be asked during the semi-structured interview.

Throughout the interview process, I used the questions within the interview schedule (see Appendix A). I used a semi-structured approach in order for the participants to allow the conversation to flow naturally in the direction of the philosophies and opinions of the participants. Therefore, not all of the questions within the interview guide were used within every interview.

After the interviews were conducted, I began observing genius hour classrooms in action. The observations were analysed in accordance with the observation guide (see Appendix C). The observation guide was helpful, in that it gave me focus regarding information to be analysed.

In general, the research went as planned with minimal challenges throughout the process.

5.2.1 Planning a research design

Within planning the research design for a study, it is imperative for the researcher to know what questions he is attempting to understand (Cozby, 2011). In order to address this concern, this study presented an interview schedule, which was used for each individual participant interview (see Appendix A). The intentional articulation of a study enables the study to be less likely compromised.

During the fieldwork, the process of contacting the participants was a minor challenge. One of the six planned participants did not respond after several varied attempts; therefore, the study was conducted with five participants instead of six.

5.2.2 Semi-structured interviews

The semi-structured interviews went as planned. The participants were experts in their field, and provided a breadth of knowledge and experience. Moreover, the participants are passionate about genius hour, and their excitement contributed to the study.

Each of the educators interviewed for this study represent a separate case as part of a multiple case study. Arrangements were made with each individual educator in terms of dates and times in order to arrange an interview that would accommodate the time restraints of the interviewees. Since the educators were interviewed individually, no physical arrangements were needed in order to interview educators collectively. The multiple case study interviews went smoothly, with everything functioning as anticipated.

Consent was obtained from all the participants before commencing the interview process (see Appendix B). Before committing to participate within the study, the participants were assured that their participation was voluntary and that they were able to withdraw, without penalty, at any time.

Since the participants lived in various locations across three countries, telephonic interviews were used in order to save time and money. The semi-structured interviews were conducted by telephone after consent was obtained. The interviews were prescribed for 60 minutes, but the majority of the interviews took between 30-45 minutes. The use of the voice-to-text application Temi allowed me to focus on the interview, as opposed to having to focus on the note-taking process throughout the interview. The Temi application occasionally posed a problem due to the inaccuracy of capturing exact phrasing word-for-word. In order to minimize the inefficiencies of the Temi application, at the end of each interview, I personally reviewed the transcription and made edits to the best of my ability in accordance with my memory of the interview.

5.2.3 Classroom observations

The observation portion of the study was primarily based upon observing classrooms implementing genius hour. Since this study began in 2013, these educators were pioneers in the early days of implementing genius hour. Their success implementing

genius hour has led to additional academic opportunities to lecture, publish, administer, and mentor.

This study focused on classroom observations of genius hour implementation, focusing on two educators and two classrooms of genius hour implementation. For the observation portion of this study, two genius hour classrooms were observed and analysed. The classroom observations provided opportunities to analyse educators implementing genius hour. Moreover, the classroom observations made it possible to analyse students within a genius hour setting. The consented students were observed in accordance with the observation guide (see Appendix C).

5.2.4 Researcher as instrument

For the purposes of data collection, I was the primary instrument used within this study. Throughout the interviews, I recorded notes as the participants were interviewed. After the interviews were conducted, I read through the transcriptions and determined themes, categories, quotes, and important findings. My personal analysis and interpretation of data served as the primary method of data collection within this qualitative study.

My own personal experience as an educator since 2002, and genius hour educator since 2009, is an aspect of this research that should be noted. As an experienced genius hour educator I brought into the research several preconceived notions which may have impacted this study. One of my primary preconceived notions is argued within the essential thesis of this research. Since this research is concerned with the creation of a collective genius hour framework for classroom implementation, my own assertion that a genius hour framework is requisite may have skewed the findings of this study.

The questions I generated for this study were constructed with intention. My objective was to force the genius hour educators interviewed for this study to contemplate the genius hour process from conception to conclusion. These questions may have biased interviewees into foreseeing the value of a potential genius hour framework. I did not, however, intentionally pose questions with any intention to skew the findings of the collected data. The data collection process went as planned.

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5.2.5 Trustworthiness of collected data

Measures of trustworthiness were established within this research in accordance with four factors (4.5). The four measures of trustworthiness used for this study were credibility, transferability, dependability, and confirmability. These four measures of trustworthiness were established within chapter 4. Moreover, I assured that this study aligns in terms of research questions and research design. The differing and varied data collection methods helped to maintain trustworthiness through the use of constant comparative methods, which allowed interplay between the data and the theoretical framework. Permission was granted to use the names of the participants. I attempted to build genuine rapport and trust between myself and the interviewees to allow for open and relaxed discussions by responding to the participant comments while demonstrating empathy, humour, compassion, and understanding.

5.3 DATA ANALYSIS

According to Lacey and Luff (2007:19-25), qualitative data analysis consists of five stages. These five stages include transcription, organising your data, familiarization, coding, and identifying themes. This study supported the qualitative data analysis findings of Lacey and Luff (2007) by using their five themes for data analysis.

The data analysis takes into account organising and interpreting data from chapter 4. The data analysis for this study also considers the interviews and the observation guide (Appendix C). Within the observation guide, higher-order thinking skills, inquiry-based learning, framework, project variance and depth, and authentic engagement were taken into consideration for data analysis.

5.3.1 Biographical data

In Table 5.1 biographical data is provided for the participants within this study. Each genius hour educator who participated within this study is referenced with biographical information in order to inform regarding their personal experience and expertise within the genius hour educational movement.

Table 5.1: Biographical data of educator participants

Name	Gender	Location	Position	Age Group of
Kevin Brookhouser	Male	Monterey, CA USA	Innovation and technology specialist	14-18
Joy Kirr	Female	Illinois, USA	English educator	12-13
Denise Krebs	Female	Bahrain	Certified educator	10-11
Angela Maiers	Female	Iowa, USA	Educational consultant	5-18
Andi McNair	Female	Texas, USA	Technology innovation specialist	5-18
Ashley Selck	Female	Watsonville, CA, USA	Humanities educator	13-14
Gallit Zvi	Female	Surrey, British Columbia, Canada	Vice principal	5-11

Joy Kirr spent seven years as a reading specialist before becoming an ELA educator. Kirr has a master's degree, and is the author of the book *Shift This: How to Implement Gradual Changes for Massive Impact in Your Classroom.* "Joy Kirr is a middle school teacher, author, and speaker. Her 7th grade ELA (English Language Arts) classes are working to improve their lives through student-directed learning - without marks throughout the year" (Kirr, 2018:1). Kirr started the genius hour Live Binder, which is a website that allows for genius hour related educator collaboration.

Denise Krebs along with Gallit Zvi are co-writers of the book *The Genius Hour Guidebook*, in which they provide a collection of genius hour related resources that would be beneficial for any genius hour instructor. Their *Genius Hour Guidebook* features lessons, resources, and tips to developing inquiry, which drives passionate research

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and exploration. Currently, Krebs is teaching at a traditional international school in Bahrain. In this school, Krebs has implemented genius hour with students from a variety of age groups (kindergarten – 5th grade).

Denise Krebs has been in education since the 1980s. At her school, Krebs is launching a genius hour initiative with the entire staff. “In my 23rd year of teaching, I’ve been lucky enough to be in a variety of settings from Kindergarten through grade 8 and college pre-service teachers, as well. I’ve been in Arizona, California, Michigan, Iowa and now the small island country of Bahrain. I’ve taught in public and private schools, community recreation programmes and universities. Currently I am teaching fifth grade in a bilingual school where native Arabic speakers learn in English and Arabic” (Krebs, 2018:1). Along with Gallit Zvi, Krebs co-wrote the book *The Genius Hour Guidebook: Fostering, Passion, Wonder, and Inquiry in the Classroom* (Krebs, 2013b).

“Angela Maiers is an award-winning educator, speaker, consultant and professional trainer known for her work in education, enterprise, leadership and global communications. She is the Founder of Choose2Matter, a global movement that focuses on mattering to ignite the genius in every individual. She is a recognized worldwide speaker greatly impacting leadership through not only the education field, but the international business community as well. Challenging educational philosophies and business ethics, Angela seeks to transform rather than simply inspire. She is an alumnus of The University of Iowa with a Master’s degree in Educational Supervision and Reading. She has spent 30 years working in Elementary, Middle and University settings as a classroom teacher, reading specialist, coach, special programs facilitator, and University Professor” (Maiers, 2018:1).

After interviewing 75 companies with innovative environments, Angela Maiers gave birth to the genius hour educational movement in her book *The Passion-Driven Classroom: A Framework for Teaching and Learning*. Angela was motivated by 3M and Google and their 20% time models, but mostly she wanted to recreate the culture that breeds innovation and bring that culture into education.

Andi McNair is the author of the book *Genius Hour: Passion Projects that Ignite Innovation and Student Inquiry*. In 2016, Andi McNair was named by the Academy of

Education Arts and Sciences as one of the top people to watch in education. She currently works as a digital technology specialist in Waco, Texas. Before working as a digital technology specialist, McNair worked as a $4^{th}/5^{th}$ grade teacher for ten years, and worked with gifted and talented students. McNair is passionate about integrating technology, incorporating genius hour, and finding innovative methods to procure student engagement (McNair, 2018:1).

Along with Denise Krebs, Gallit Zvi co-wrote the book *The Genius Hour Guidebook: Fostering, Passion, Wonder, and Inquiry in the Classroom.* From Gallit Zvi's education blog she describes her philosophy of education: "I love teaching and I love technology, and I am on a mission to integrate the two so that my students (and their students) are getting the best learning experience possible! Technology evolves so quickly though, so I am finding myself in a new position: that of learner alongside of all my young learners. I am realizing that I am no longer required to be the expert in the room, but rather the facilitator, building relationships with my students and encouraging them to figure things out for themselves...to be, like me, a lifelong learner" (Zvi, 2018:1).

5.3.2 Interview data

The following section indicates the data of the conducted interviews with the participants. The questions indicated on the interview schedule were followed in presenting the data. Refer to Appendix A for the questions asked within this study.

Semi-structured interviews were conducted with each of the participants within this study. For the purposes of this research, each participant was treated as an individual case as part of this multiple case study. All of the participants within this study provided consent to be audio-recorded (see Appendix B). As such, the semi-structured interviews were audio-recorded and transcribed. Once the interview data was transcribed through the text-to-voice application Temi, I reviewed these transcriptions. Since voice-to-text transcriptions do not interpret the text with absolute precision, I reviewed the transcription immediately following each interview and made the essential modifications in order to perfect the transcription to the best of my ability. Furthermore, once the transcriptions were edited, I took detailed notes pertaining to common themes, and tried to capture the details and essence of the semi-structured interviews. After recording detailed notes, I

transcribed the interviews into a collective narrative for optimal clarity. The content analysis for the study was based on the questions listed in the interview schedule (see Appendix A). Aside from the motivation of the interview schedule, content analysis was derived from the emerging themes from the semi-structured interviews.

5.3.2.1 Starting the genius hour initiative

Joy Kirr believes an essential component of any genius hour initiative is time. She argues that it takes students time to explore and internalise their genius hour concept. The extra time leads to less stress, which is essential when exploring a passion-based endeavour.

Angela Maiers believes that educators need to spend time teaching the students the purpose behind genius hour. She referred to her new book: *Genius Matters: A Framework for Epic Transformation*, mentioned in the interview, she focuses more on the philosophy of genius hour implementation. Maiers articulated the importance of front-loading, “Spending time on the why, why this matters, understanding what the purpose of the work is, understanding is essential before any human being commits to emotional labor, which requires vulnerability, risk, courage, and bravery in challenging not only themselves, but others.”

Andi McNair focuses her genius hour implementation on getting students passionate about learning. McNair declared, “Every student deserves an opportunity to pursue their passions during the school day.”

Gallit Zvi emphasised the importance of building relationships with the students before launching a genius hour initiative. Zvi explains, “I think the best way is not too start at the beginning of the school year, so wait a couple of months until you’ve created a sense of community in your classroom.” She stressed that a genius hour programme should not happen towards the beginning of the school year, because at that time in the school year, educators and students have not yet developed a relationship built on mutual trust and respect. Zvi maintains that time needs to be built into the exploration of passions, and that genius hour educators should understand that inspiration takes time, so plan accordingly.

5.3.2.2 Organization and methodologies

Joy Kirr believes an essential component of any genius hour initiative is time. She argues that it takes students time to explore and internalise their genius hour concept. The extra time leads to less stress, which is essential when exploring a passion-based endeavour. Kirr is opposed to the idea of requiring a student-created essential question because the question might not align with a specific project objective. Kirr stated, “There was no need to turn that into a question and so I think that coming up with essential questions can be helpful, but it can also hinder some of the students who have an idea. So I can see it as a good way to organize, but then not to force it.”

With her kindergarten students, Denise Krebs believes the genius hour framework should be kept simple. She elicits that the educator can create straightforward driving questions such as: What interests you? What are you interested in learning? This open-ended approach helps drive the authentic creativity of kindergarten students.

Andi McNair also believes in the 21st century learning skill of collaboration. McNair pairs students with minimal educational passion with overly zealous students in order to create partnerships where passion prevails. Thematically, McNair also promotes the idea of collaboration within genius hour projects.

Gallit Zvi believes that the creation of inquiry-based questions drives the learning to deeper levels. She argues, “I want it to be formed like a question, what are you wondering about, or what’s your inquiry question, but it would be really great if you’re really passionate about it. It’s a passion, not a hobby.”

5.3.2.3 Your genius hour framework

Angela Maiers acknowledges that genius hour is not about the product, and that the process can sometimes be untidy. By messy, Maiers understands that results can vary, and the idea of managing ten or more projects simultaneously can be physically messy or organizationally imprecise. She feels that genius hour is a biological condition for students to thrive and that educators need to create this environment. Maiers states, “this [genius hour] is not an ideology, it’s a biological condition that inevitably ignites people

to step up. People feel like they're part of something bigger when people are treated like they matter, it's like their presence matters."

Andi McNair uses a genius hour framework that would be an excellent resource for educators beginning a genius hour initiative. McNair (2015:1) calls her genius hour framework the 6 P's, which represent passion, pitch, plan, project, product, and presentation. McNair finds that her framework for genius hour implementation is especially helpful for elementary students because of the clarity and simplicity the framework provides. McNair stated, "I came up with a framework for genius hour for my students, because I taught elementary genius hour with a really big class. So what was happening was my kids were coming up to me and saying things like, hey, you know what, we don't know, I'm lost in the process, and I don't know, I just did this. What do I do next? Or they would just get lost in a big ride. And it was so broad and everybody had a different project. For me, it was very hard to manage and it wasn't really meaningful because they were getting frustrated. So I came up with the 6 P's passion, pitch, plan, project, product, and presentation. And so that was kind of our framework. Kids started with what they're passionate about, and then they pitched that." Moreover, she also believes that the framework creates clear expectations making genius hour more meaningful for students and educators alike. According to McNair, the easy to manage nature of the framework makes for a more successful genius hour programme.

5.3.2.4 Considering the student perspective

Joy Kirr emphasises the importance of the educator's role as mentor throughout the genius hour process. She believes educators should make time to work alongside students one-on-one on a bi-weekly basis. Kirr insisted, "So check with everybody all the time and make sure you're conferring with the student. This isn't a time to sit back and let them work. It isn't time to check your email." This close attention to individual projects maintains a level of involvement that benefits student learning. Kirr finds that spending a lot of time in the beginning educating students regarding genius hour is essential because students typically have never been taught this way before.

While mentoring a genius hour classroom, Angela Maiers believes educators need to encourage their students to "dream audaciously and wonderfully, to see the world put

clean, to not only take action but to activate others around them, to take action."

Andi McNair believes in messy learning, where it is okay to make mistakes, and that educators should attempt to relinquish control and surrender some of the educational reigns to their students. She also mentioned that educators should attempt to be less judgmental regarding the choice of student passions. Essentially, educators should not frown upon passionate exploration that they may be biased against, instead attempt to build students up through words of encouragement and inquiry.

5.3.2.5 Personal experience

Angela Maiers notes that genius hour requires students to be vulnerable, to take risks, and to be courageous. In order to accomplish this, she encourages educators to spend time to build the educational mind-set by nurturing students and establishing a trustworthy and innovative culture. Maiers philosophizes, "We're just opening up the space, telling kids to go create, go innovate without the attendant-sensing presence and the number one condition that must be present is the individual potential. Also, kids know who truly believes in them, and someone who doesn't trust them should have the competence to get out of their way. It is not in control and conformity and power. It's not something that you have to try for; it's something that will self-regulate. If you give people the autonomy, you give the autonomy to be thriving in a community of practice, and that's a fundamentally different shift in the entire culture of the school."

Once regimented in her genius hour framework approach, Gallit Zvi is now more flexible in her philosophical approach towards the genius hour framework. She says, "Over time, I let the kids have more freedom with how long they were going to take to do their projects, and if students finished up their projects really quickly I would let them present early." Initially, Zvi prescribed weekly benchmarks for student preparation, progress, and presentations, but she finds that educators need to be flexible and organised. She believes every group of students is different, and that educators need to adapt their frameworks according to their students. Now an administrator, Zvi favours a more structured approach with her educators, but encourages educators to offer autonomy and encourage passion-based learning with their students.

5.3.2.6 Learning from fellow genius hour educators

Joy Kirr believes in learning from failure. She declared, “Now from what they learned, when they fail the next time, and then that leads into it, which could lead into a genius hour project.” Genius hour should be an exploration, an adventure into the unknown where the results are not always being perfect, but students can learn from their mistakes.

5.3.2.7 Advice for genius hour educators

Joy Kirr is opposed to group work, because groups can lead to students leaching off of the passions of others, and is opposed to creating authentically individualised passion projects. According to Kirr, “I feel like they should be working on it because they want to, not because another student is doing their project.”

Denise Krebs felt that educators need to be determined to implement genius hour because, oftentimes, the educational requirements, via standards or limitations, do not allow for creative explorations. She emphasises that educators should make use of whatever time they have to implement genius hour. Moreover, cultural shifts in educational philosophy take time. Therefore, genius hour educators need to be patient, and continue to strengthen the genius hour movement through continued time, effort, and perseverance.

Andi McNair believes educators get hung up on the idea that genius hour has to be one-hour long. McNair reasoned, “I think, unfortunately, within having the name genius hour, people get wrapped up in the idea that it has to be an hour, an hour a week, or an hour a day. Genius hour can be one day every six weeks. It can be an hour a week, it can be 30 minutes a day, whatever.” Instead, educators should find whatever time they can spare to promote passion and educational ownership among their students. Themes and categories of observation data; discussed in the next section.

5.3.3 Observation data

Two classrooms were physically observed for the collection of observable data. The observations of these classrooms were measured against the observation guide (see

Appendix C). In the observation guide, five different themes were determined. These themes include higher-order thinking skills, inquiry-based learning, the genius hour framework, project variance and depth, and authentic engagement. For this section, the aforementioned themes are analysed regarding the genius hour classroom observations. The observable data was in line with the literature review in chapter two. Essentially, the observation data demonstrated that genius hour emphasises higher-order thinking skills and inquiry-based learning

The classroom observations varied within the amount of time allocated towards genius hour. The students who were presented with more time were able to achieve greater project depth within their genius hour explorations. Despite not having as much time, the other genius hour class still demonstrated inquiry-based learning. The observations also varied in terms of collaboration. One genius hour classroom consisted of collaborative genius hour teams with a focus on depth, authentic audience, technology integration, and purpose, whereas the other genius hour class focused on individual passions, creativity, and personalised engagement.

5.3.3.1 Higher-order thinking skills

Higher-order thinking skills were demonstrated throughout most of the projects. Analysing and creating were all evident throughout the genius hour process. According to Anderson, et al.'s (2001) revised version of Bloom's taxonomy, analysis, evaluation, and creation are the three highest attributes to observe while attempting to determine the use of higher-order thinking skills. According to the observation guide, Appendix C, observation of higher order thinking skills was based on educators using probing questions in order to drive higher order thinking skills. This aspect of higher order thinking was observed within the genius hour classrooms. Educators moved around the classroom, asking probing questions, which drove higher-level thinking.

Another aspect from the observation guide, related to the genius hour projects clearly exemplifying the use of higher order thinking skills. Approximately 70% of the projects seemed to be passion-based projects (art, music, design, etc.), which did not require higher-order thinking skills in order to complete their genius hour projects. Self-evaluation was also not particularly evident. Often at times, students do not evaluate until their

project is perceived finished, which begins the revision process. Considering the fact that the projects were at an early stage, observed evaluation was minimal.

5.3.3.2 Inquiry-based learning

According to the observation guide, the signals of observation for inquiry- based learning were based upon the educator promoting the use of inquiry within the genius hour learning experience and the educators communicating with their students through inquiry-based dialogue. During the genius hour classroom observations, educators were observed promoting inquiry by refusing to answer questions that could be answered through an internet-based search. Educators answered questions with further questions that promoted deeper inquiry. Educators consistently walked around the classroom, using inquiry-based dialogue, especially with quieter students in order to promote inquiry.

Inquiry-based learning was apparent within the implementation of genius hour. Students were clearly self-regulating, independently working, and solving problems through inquiry. Students had project autonomy according to Kirr, Krebs, Maiers, McNair, and Zvi, and it was evident that students selected projects that they were curious about and interested in learning more about, which in turn created a high level of student engagement. The data of the study confirms the findings from the theoretical framework in terms of how genius hour benefits creativity.

5.3.3.3 Framework

According to the observation guide, the observable signals for the project framework included witnessing a genius hour learning experience that is clearly organised and students that are actively participating due to the clarity of the expectations. The expectations were student-driven in nature. The genius hour classroom created a culture of inquiry-based learning and students were directing their own learning and creating from passion and project needs. It was evident that students had experience working within the presented genius hour framework. This evidence was derived from the fact that students walked into class and began working. The genius hour students did not wait for explicit instructions; instead they began gathering physical tools, research tools, and gathering supplies. This autonomous educational display demonstrated that the students

were well-versed in the genius hour framework.

The genius hour classrooms were well organised and students understood the expectations of their projects. The organised framework enabled students to focus on their genius hour projects without being distracted by lack of organisation or unclear expectations.

5.3.3.4 Project variance and depth

Project variance was evident throughout the observed projects. Students seemed to choose projects that were interesting to them; in some cases, students chose to collaborate because of a shared interest in a project. Students were collaborating based on project-interest, not lack of ideas or individualism. This was evident because students were collaborating together with equal interest and project ownership. There was no observable quality that represented lacking engagement due to lack of student buy in through insufficient individual ideas. The majority of the projects without sufficient time lacked significant depth, which is directly related to the amount of time students had to work on their projects. If students were observed after more time had been dedicated towards their project, more depth would have been observable. The classrooms with greater time were able to produce results with greater depth. One group even built a sleep pod, complete with soothing music, privacy, and a timer. These students interviewed their classmates and asking what was needed on campus. Since many of the students spent long hours studying on campus, the idea for the creation of a sleep pod was born. Essentially, the project was based upon something the school saw as a need, and the genius hour students fulfilled the need with their project.

According to the observation guide, signals of observation were based upon project depth and variety and also time was clearly allotted to develop inquiry, conduct research, and personalize the genius hour project based upon individual passions. Within the observable genius hour classrooms, there existed a large variety of project variance. Of the 40 observed students representing both classes, 18 different genius hour projects were represented.

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5.3.3.5 Authentic engagement

Authentic engagement was present within the observable genius hour classrooms. Students were engaged throughout the class time, working attentively and independently. Moreover, students seemed to enjoy their projects, and were open and excited while discussing their passionate pursuits.

In accordance with the observation guide, authentic engagement was based upon the educator's ability to create a learning environment that demonstrates continuous activity, and one where students are concentrating, on-task, creative, and persistent throughout the majority of the observed period. The observed educators did an excellent job promoting a learning culture where students were consistently on-task and creative throughout the genius hour process. The learning culture was built by establishing inquiry-based learning that was based upon higher order thinking skills.

As mentioned within the aforementioned project variance and depth category, the classrooms that allowed more time also focused their time on an authentic audience. The genius hour educator summed up the importance of an authentic audience as, "it's purpose versus passion". This statement emphasises the importance of using student passion in order to accomplish something meaningful.

5.3.4 Themes and categories

As the data collection instrument, I was aware of my role within breaking down the raw data into thematic categories related to the goals of the research. After transcribing the data, editing the transcriptions, and writing a narrative detailing the interview, I reviewed the text in order to determine themes. In accordance with Lacey and Luff (2007:25), "With a framework approach, it would be likely that some of the themes emerging from the data would also be the identified issues with which you began your research. Your data would confirm their importance, in this case, and enable you to explore them further." Themes and categories were arrived at in accordance with the aforementioned procedure.

From the data analysis, five primary themes were identified. These themes are listed in

Table 5.2.

Table 5.2: Genius hour themes

THEMES	CATEGORIES	CODES
Front loading	Establishing culture and purpose	Coaching; Educational philosophy, teaching the *why*
Learning from failure	Taking risks	Messy; assessment; adaptation
Developing passion	Engaging student interest	Time; trust
Mentoring	Reshaping the educator's role	Working one-on-one; relinquish control; building relationships
Framework model	Beginning with a workable model	Clarity for educators and students; manageability

One primary theme that emerged from the semi-structured interviews was front loading. Front loading is an educational strategy where students receive a large amount of information, inspiration, and purpose before diving into a particular endeavour (Dukowitz, 2013). This strategy helps bring clarity to a new objective, because students understand the purpose behind the endeavour. Front loading is especially helpful when undertaking an unfamiliar objective. Since genius hour is a decidedly divergent approach to education, front loading is extremely effective. Essentially, the philosophy behind front loading is that of the first Roman Empire leader Augustus, "You go slow in order to go fast."

The next section of this study deals with data interpretation.

5.4 DATA INTERPRETATION

The following themes listed within this section encompass major themes recognised from the collected data. As such, the following themes are not meant to be realised exclusively. Appendix I provides an example of the conducted interviews for this study.

The data interpretation section is focused on the five themes mentioned in sub-section 5.3.1.5. Essentially, this section identifies the themes of front loading, learning from failure, developing passion, mentoring, and the framework model. The findings of the empirical research did not contradict the framework for this study because the genius hour framework is based on the empirical findings of the participant interviews and classroom observations.

5.4.1 Theme 1: Front-loading

Front loading is a helpful educational tool when introducing a different educational approach or project. For the sake of creating a genius hour framework for classroom implementation, the importance of front loading genius hour cannot be overstated. Without even being promoted from the interview schedule (see Appendix A), the majority of the interviewed genius hour educators illustrated the importance of front loading genius hour.

Educators stated several elements that should be considered before launching the genius hour event. Despite the importance of what I presumed about initial genius hour activities, which included entry events and the posing of essential questions, the genius hour educator participants were more concerned with the students understanding the purpose behind genius hour. In order to accomplish the objective of genius hour, educators should promote a philosophical mind-shift amongst their students. This mind-shift is integral because, without it, students do not understand the purpose of why they are participating within a genius hour initiative and they may not envision the value in it.

Additionally, genius hour educators emphasised the importance of allotting excessive time to their students before launching the genius hour initiative. This excessive time is used to explore what students are truly interested in, to internalise what they truly want to accomplish, and to free students of stress under an impending deadline. Genius hour requires students to be vulnerable, take risks, and be courageous. In order to develop these traits, educators need to allow their students the space to feel comfortable. This level of comfort is accomplished through establishing a culture of innovation and trust, where ideas and passions are valued.

From chapter 1 (1.6), the primary aim of this study was to create an instructional framework for how to implement genius hour in the classroom. Within a genius hour initiative front-loading is essential. Based on the empirical findings of the participant interviews and observations, front-loading is an essential part of a genius hour framework.

From chapter 2 (2.3), Entwistle (2014) theorizes that educators could implement higher order thinking skills through assignments that required creating and analysing. In order to implement these skills, educators need to model what constitutes creativity and deep analysis. These higher order thinking skills lead to what Entwistle calls deep learning. Likewise, in genius hour, front loading enables students to have a thorough understanding of the expectations within a genius hour initiative.

Front-loading, alongside the other themes that emerged from the empirical research, is used to create the essential framework.

5.4.2 Theme 2: Learning from failure

Another idea repeatedly echoed throughout the semi-structured interviews was the theme of learning from failure. The idea of learning from failure is representative from both students and educators alike. Essentially, students should learn from the revision process, and develop more educational grit and resilience by continually modifying and improving their genius hour projects. Educators should learn from the failures of each genius hour initiative and every failed student project in order to continually modify their genius hour framework to make the learning experience as rewarding and meaningful as possible for their students.

One motif within the theme of learning from failure is risk-taking. The idea of risk-taking within a genius hour initiative is integral for both students and educators. By taking academic risks, students may be more likely to fail, yet if they are not afraid of failure, this newly formed pattern of risk-taking should pay off as an academic skill working towards innovation and originality. Likewise, educators typically begin genius hour initiatives because they foresee the value of innovation. That being said, genius hour initiatives can become stagnant if the educators are not pushing the students to untold

heights.

When assessing genius hour, educators should be more concerned with the process and less concerned with the end product. The assessment should exemplify the effort and passion attributed towards the objective; not the end result. Educators and students should realize that genius hour is messy. It rarely goes according to plan and that adaptation is paramount. Tony Wagner's (2008a) academic survival skill of adaptability should be reinforced within genius hour. Based on the empirical findings of this study, learning from failure should be included within the genius hour framework.

The literature findings for this study are based on the academic contributions of the participants. Kirr, Krebs, Maiers, McNair and Zvi have all published genius hour-related articles and books discussing their findings. In their publications, the importance of learning from failure was a consistent theme. This theme of learning from failure was also apparent during the semi-structured interviews with the participants. The empirical findings of this study support the theme of learning from failure. Based on the empirical findings of this study, learning from failure should be included within the genius hour framework.

5.4.3 Theme 3: Developing passion

Developing student passion can be an overwhelming process for any educator. The interviewed educators all argued that passion was a necessity within a genius hour initiative. The development of passion seems to be linked to an environment of trust. Students do not feel comfortable sharing their passions, because of the personal nature of passions, unless educators create a culture of trust. Another key ingredient in cultivating passion is time. Time is required because oftentimes students do not initially know what they are passionate about. Discovering their passion takes hours of inner-contemplation and soul-searching. Genius hour frameworks should incorporate extra time to develop student passion. Educators should not assume that students can immediately articulate their passions (Juliani, 2013b).

Another element of developing passion requires engaging student interest. The reason the interviewed educators were so adamant about the front loading process of genius

hour implementation relates to building student relationships.

Educators might make the assumption that their students are inherently passionate about something. This assumption might cause them to skip an integral step in the genius hour process. Building passion is vital to the aim of this study. In Angela Maiers' book *The Passion-based Classroom: A Framework for Teaching and Learning*, Maiers demonstrates the importance of passion in education. Moreover, the empirical findings of this study support the need for passion-based genius hour.

5.4.4 Theme 4: Mentoring

In order to nourish student passion, educators need to spend time building relationships with their students. Strong student-educator relationships are the foundation of trust, risk-taking, and motivation. That being said, students may not feel comfortable revealing their passions without the mutual respect and admiration of their educator.

Educators need to spend time re-evaluating their educational role within a genius hour scenario. There needs to be a definitive shift from "sage on the stage" to "guide on the side". The educator needs to mentor their students individually, focusing not only on the project, but on building relationships, and keeping the passion alive. Moreover, educators need to relinquish the impulse to control their student projects. Educators tend to be excellent problem solvers, but in a genius hour scenario educators should attempt to mentor students by asking probing questions that invite inquiry. Educators need to work one-on-one with their student's frequently in order to keep the student focused, acknowledged, and passionate. These one-on-one interviews are an optimal environment to build relationships with students; these relationships lead to increased passion and connectivity.

Within a genius hour initiative, students become the experts in their particular field of study because of the excessive research a project may entail. This role-reversal where the student becomes the educator and the educator becomes the learner is empowering for students. Educators should use this role-reversal as an opportunity to build student confidence while offering words of encouragement and affirmation.

In my experience, the mentoring process may be the most important stage in the genius hour framework. By working one-on-one with students and individually providing quality feedback, genius hour projects are improved. By taking the time to consult with students one-on-one, students learn that their educators care and respect their project. This makes students more accountable because their educators have learned about their project; additionally, students receive quality feedback, which has a positive impact on the end result of their project.

Mentoring was not emphasised in the literature review, but became essential during the empirical findings of this study.

5.4.5 Theme 5: Framework model

Educators were mixed over the necessity of using a specified framework. Most educators liked the idea of having a framework versus having no framework. Overall, educators felt that the framework added structure and clarity that was helpful for students and educators alike. Having a framework as a model is a better starting place for genius hour educators, especially those with no genius hour experience. For more experienced genius hour educators, their framework often becomes more fluid and individualized, steadily evolving over time after implementing necessary revisions.

Clarity was a major element of the model framework. Since genius hour is a novel undertaking, the clarity provided by a model framework was seen as beneficial for students. Finally, educators found the genius hour process, which is notoriously messy, to be more manageable if they knew the expectations through the framework of the project.

The framework itself is comprised of the aforementioned themes. Collectively, the themes accomplish the research aim (1.6) of this study. From chapter 2 (2.6), Heick (2014) outlines a potential genius hour framework, which emphasises inquiry, design, socialization, creating, sense of purpose, and the 80/20 rule (Koch, 1998). The 80/20 rule provides a usable framework for educators to begin structuring their genius hour time (Juliani, 2014). The framework is a representation of the empirical findings of this study. The shared experience of the participants alongside the classroom observations

are the basis for the genius hour framework.

5.5 PROPOSED INSTRUCTIONAL FRAMEWORK FOR THE SUCCESSFUL IMPLEMENTATION OF GENIUS HOUR IN THE CLASSROOM

5.5.1 Genius hour: The game plan

The genius hour framework for classroom implementation is explained through the metaphor of a sports team playing their first game of the season. The game plan metaphor is designed as an analogy to explain the themes that emerged from the data interpretation. Essentially, the analogy is designed to make it easy for educators to remember the framework. The five themes - front loading, learning from failure, developing passion, mentoring, and the framework model - are transformed into sport metaphors. Each of the five individual themes are represented by a specific metaphor.

5.5.2 Bonding time

Before the first game of the season it is customary that the team should spend time bonding. Traditionally, the team goes on a retreat in order to establish culture, build relationships, and trust. The same approach should be taken within a genius hour initiative. Before jumping into genius hour, educators and students need to spend time bonding. Bonding is a time of creating trust and comfort. Building trust, relationships, and establishing culture are essential ingredients to a successful genius hour framework. The team retreat mentality is the essential front- loading that needs to take place before launching genius hour.

5.5.3 Hype time

Before the big game, players usually huddle together and find ways to get excited before the big game. The collective excitement causes adrenaline while releases fear and anxiety. Athletes call this ‘getting hyped’. Likewise, before launching genius hour, it’s important to get students ‘hyped’ for genius hour. During this phase, educators need to get students excited for genius hour. Show the students videos, explain the purpose, show the possibilities, and help students discover what they are truly passionate about.

This is the point in the game where excitement and passion are formed.

5.5.4 Game time

During the game, it's important for the genius hour educator to think like a coach. Within the game, there are constantly minor adjustments and strategies that should be implemented. A genius hour educator needs to think like a coach and mentor. Students need advice, support, love, and direction under a wise coach. Without proper coaching and mentoring, a student is less likely to have a meaningful genius hour experience.

5.5.5 Half-time

In a sporting contest, half-time is the time when coaches make adjustments. Coaches point out everything that is not working, and they make adjustments. These adjustments allow the team to learn from failures. Likewise, in a genius hour initiative, educators need to make adjustments and learn from failure. Part of being a successful coach or educator involves learning from failure and making the necessary adjustments. Furthermore, educators need to instill the philosophy of learning from failure with their students. The old adage from Thomas Edison should be encouraged, "I haven't failed, I have successfully discovered 1,000 ways not to make a light bulb." Genius hour educators need to be able to reflect on individual projects, or on the whole genius hour process, and be able to make essential adjustments.

5.5.6 Celebration time

In a sporting contest, celebration time is the period after the game where players celebrate their success. The field of education often spends very little time celebrating success. Instead, results are given, and the next unit or chapter is initiated. As a genius hour educator, it's important to be a fan of your students and celebrate their achievements. In order to do this, educators should provide students with an authentic audience to share their results. By acknowledging student success, educators are rewarding student passion and courage. The celebration stage is an essential aspect to the genius hour framework.

5.6 SUMMARY

In this chapter the research process for this study was indicated and the data analysis for this study was introduced (5.2). Also in this chapter, 5.3 dealt with the interpreted data derived from semi-structured interviews and the data collection process provided an understanding of how the findings of the study were collected and analysed. Essentially, this chapter is representative of the obtained data collected from the semi- structured interviews with genius hour educators.

With the semi-structured interviews, data was collected from the participants. The participants, through their collective responses to the interview schedule (see Appendix A), determined several themes. Front loading may have been the largest revelation from the interviews. By ignoring the work that goes in before the launching of genius hour initiative, the framework was determined to be less vital. The educators echoed the importance of learning from failure, emphasising grit as an essential component of genius hour. Passion was another element that is not covered in a typical genius hour framework, but the interviewees determined that a genius hour initiative may fail if educational passion is not established. Moreover, the semi-structured interviews revealed the importance of mentoring. Collectively, the genius hour educators determined that mentoring was an essential ingredient of success. The framework model was viewed as beneficial, considering its ability to bring clarity to an otherwise storm of chaos.

Within the classroom observations, data was collected in accordance with the observation guide (Appendix C). These observations included analysis of students and educators in line with the observation guide. The genius hour classrooms revealed authentic engagement throughout the genius hour learning time.

The research methods mentioned in previous chapters were used in this study. In chapters 1 (1.7.1.1) and 4 (4.3.1) the research paradigm for this study is stated as constructivism. The concept of genius hour is concerned with constructing meaning through interest-driven experiential learning; therefore, analysing this study through a constructivist lens is sensible. From chapter 1 (1.7.1.2) the research approach is qualitative, because qualitative theory is more concerned with human behaviour,

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motivation, and the impact of increased autonomy within education. The collected data was analysed qualitatively. From chapter 1 (1.7.1.3), the research type is phenomenological. The semi-structured interviews focused on the lived experience of the educators implementing genius hour. Their history, opinions, and experience are the focus of this research. This study based its essence of phenomenology in accordance to Simon and Goes (2011), which involves qualitative studies such as observation, interviews, and content analysis.

5.7 CONCLUDING REMARKS

This study focused on how to best implement genius hour in the classroom. The genius hour framework, which represents the best practices, format, philosophies, and methods used within a genius hour setting, were taken into consideration for the purposes of this study. Throughout the data analysis and interpretation, themes emerged that provide the best educational practices within genius hour implementation. Essentially, these themes represent beneficial strategies regarding genius hour implementation.

Initially, I believed a strict set of requirements, which articulated educational goals through dates and times, was the solution to genius hour implementation because it would provide a universal structure to the movement. But after this research, the framework evolved into a philosophic approach. Yes, it is important to begin with a structured framework, but educators need to be fluent, adaptable, and open to modification based upon the individual students and projects attempted within their classrooms.

Therefore, one of the most important aspects of this research conducted within the qualitative approach are the themes that emerged from the interviews after the data analysis was done. Front loading, learning from failure, developing passion, mentoring, and the framework model were the five themes that emerged from this research. Initially, thinking of this study from a singular objective, the framework model seems inefficient unless it includes the other themes that emerged within this study. This research concludes with the final chapter of this study which includes research recommendations from the collected data, and provides concluding remarks regarding the collected data.

CHAPTER 6
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This study aims to be of value as a framework for educators pursuing genius hour programmes and educators considering launching genius hour initiatives. The study serves as an instructional framework designed for educators interested in implementing genius hour within the classroom. Psychologically, this study also diagnoses why genius hour educationally benefits motivation, creativity, and student autonomy. At the completion of this study, educators have an instructional framework of how to implement genius hour. In the meantime, this study demonstrates the benefits of genius hour from the educator and student perspective.

This study researches the success and failures of the current genius hour programmes in terms of the instructional framework, and genius hour best practices for students and educators.

Genius hour has not been formally reviewed, researched, and collated. That being said, educators are beginning to implement genius hour into their classrooms at an increasing rate. This study attempts to collate the successes and failures of genius hour educators into one document.

Educators have the opportunity to discover this instructional framework for implementing genius hour even if they were previously oblivious to the concept. This framework could be discovered through the various online platforms for discussing and publishing genius hour related research such as: #geniushour, geniushour.com, theglobalgenius hourproject.wikispaces.com. If this framework is endorsed by the most prominent genius hour educators like Kirr, Krebs, Maiers, McNair and Zvi, then this framework will gain credibility in the genius hour community, along with the promotion and publication of its content within genius hour-based websites hosted by Kirr, Krebs, Maiers, McNair and Zvi.

Genius hour has many positive aspects and benefits student learning. This study

demonstrates the academic importance and creative potential within the implementation of the genius hour concept into education. Current genius hour initiatives are invaluable towards developing passion (Maiers & Sandoval, 2010; Miller, 2009; Robinson, 2009), developing self-discipline (Gordon, 1989), integrating whole brain teaching (Biffle, 2013), and developing lifelong learners (Blaschke, 2012). It is an objective of this study to determine how well genius hour transcends primary learning and educational necessities.

The concept of genius hour can be more successfully applied to education. The successes and applicability of genius hour initiatives are researched in order to improve commonplace shortcomings within the current educational system. This study provides relevant project examples, synthesize current genius hour results, and determine how the concept can be applied to schools and classrooms around the globe.

In order to create an instructional framework for implementing genius hour in education, this study considers not only the successes of current genius hour programmes but also the failures. By determining the most successful elements from a variety of genius hour initiatives, this study combines the collective qualitative data into one overall framework highlighting the best practices within current genius hour programmes. Along with studying the most successful aspects of genius hour implementation, this study also analyses the failures in order to eliminate unsuccessful genius hour implementation strategies.

A collective genius hour framework for classroom implementation is needed in order to improve, perpetuate and add consistency to the genius hour movement which has increased exponentially over the last few years. Eager educators thirsty for inserting innovation, autonomy, and higher order thinking skills into their curriculum are turning to genius hour. The desire to try something new, the journey into the unknown, is the spirit of the genius hour movement. Yet, without a collective framework for implementing genius hour into the classroom, these new genius hour initiatives may not be sustained over time.

Clearly, it is useful to qualify the most successful genius hour implementation strategies into one collective document. As a genius hour educator, the researcher weighed the

collective data alongside his own research and experience implementing genius hour in the classroom. Additionally, the researchers own personal failures regarding genius hour implementation are weighed alongside the failures of the most prolific publishing educators of genius hour implementation.

Within chapter 1, the study was introduced. Included within this introduction was the background to this research (1.2), theoretical insights (1.3), key concepts (1.4), aim and objectives (1.5), the research methodology (1.7), and the problem statement (1.6). The original research aim and objectives for this study were centred on determining a framework for implementing genius hour in the classroom

In chapter 2, the theoretical framework for this study was introduced. Within this introduction, the theoretical framework was based upon the concepts of higher-order thinking skills (2.3) and inquiry-based learning (2.4). Scholarly reviews related to these concepts were explored within chapter 2. Moreover, dispositions, methods, and assessments related to higher-order thinking and inquiry-based learning were explored.

Chapter 3 included the contextual and conceptual frameworks for this study. Specifically, scholarly review findings related to 21st century learning and higher order thinking skills were reviewed. Working applications of genius hour (3.2.3), the typical school context for genius hour (3.2), and a model genius hour framework (3.3.2) were analysed.

In chapter 4, the research design for the study was outlined. Within this research design (4.3), research methods (4.4), research approaches (4.3.2), and research strategies (4.3.3) were articulated. Also included within chapter 4 was the rationale for empirical research (4.2).

Chapter 5 presented the research findings for this study. In this chapter, the results from the semi-structured interviews were analysed and interpreted, as well as the results from the genius hour classroom observations. Research findings related to the potential creation of a genius hour framework were indicated within this chapter as well. It included the research process (5.2), but its vital contribution was based on the data analysis (5.3) and interpretation.

In this chapter 6, a summary of the study is presented alongside research conclusions and research recommendations. This chapter includes a summary of research findings, which includes key scholarly findings and key empirical findings. Also included within chapter 6 are research conclusions which provide answers to the initial research questions posed in chapter 1.

Chapter 6 also focuses on recommendations related to the research of the study. Specifically, the *who*, *what*, and *why* of the study are elaborated upon and recommendations are made accordingly. Recommendations are drawn categorically depending on a variety of factors related to genius hour implementation.

Moreover, chapter 6 includes avenues for further research. This sub-section opens up new avenues for further research and elaboration related to benefitting the implementation of genius hour in the classroom. This chapter also acknowledges the limitations that existed within this study.

6.2 SUMMARY OF RESEARCH FINDINGS

Slevin and Basford (1999:298) allude to the importance of considering certain research questions. What do I know about the phenomenon that I want to study? How can I apply these theories and findings in practice? For the purposes of this study, current genius hour frameworks created by the most prolific publishers of genius hour related content are studied.

6.2.1 Scholarly review findings

From chapter 2, the theoretical framework for this study, higher order thinking skills and inquiry-based learning were identified and discovered. Additionally, from the theoretical framework section of chapter 2, 2.8, which emphasised how genius hour aligns with the educational movement in the USA of Common Core, was highlighted.

From chapter 2, 2.5, Goldfinch (2015) stated the primary elements of higher order thinking skills. Goldfinch asserted that higher order thinking when demonstrated encompasses asking questions, creating engagement, creating a real interest in learning

more, creating choice, creating a need to know more, and finding out what students are interested in and should result in students using higher order thinking skills. From the data collected in the semi-structured interviews, genius hour demonstrated Goldfinch's traits for higher-order thinking skills, because successful genius hour frameworks involve engaging student interest, passion, choice, and inquiry. From chapter 2, section 2.6, Heick (2014) outlines six key principles of genius hour. One of these essential principles is inquiry.

Within chapter 2, section 2.8, how the genius hour movement actually aligns with the Common Core policy was emphasised, since it emphasises higher order thinking skills through inquiry-based learning. Within this research study, it is evident that genius hour aligns with the Common Core, due to its emphasis on higher order thinking skills and inquiry-based learning.

From chapter 3, the contextual and conceptual frameworks were analysed. In chapter 3 (3.3.2), model frameworks from McNair (2017) and Zvi (2014) were mentioned for educators to have a model genius hour framework as a starting point when launching a genius hour initiative.

The findings within this study are traced back to creating a genius hour framework for classroom implementation while considering how the framework accentuates genius hour learning outcomes, such as higher order thinking skills and inquiry-based learning.

6.2.2 Empirical research findings

Primarily, evidence and data collection adheres to the primary research question as stated in chapter 1. How can the successes and failures of current genius hour programmes be synthesized into an instructional framework and design for the successful implementation of genius hour in education? In order to answer this research question, qualitative data was collected from current prominent genius hour educators. Furthermore, the researcher considered the collected qualitative data in relationship to my own experiences creating and maintaining an instructional framework for implementing genius hour in the classroom.

According to participant data, genius hour was found to benefit higher order thinking and inquiry-based learning, and aligned well with the Common Core. From the data collected in the semi-structured interviews, genius hour demonstrated Goldfinch's traits for higher-order thinking skills, because successful genius hour frameworks involve engaging student interest, passion, choice, and inquiry.

The participants continually emphasised inquiry as one of the most important skills to be included within any genius hour framework. The participants deemed that educators launching a genius hour initiative should spend a large amount of time promoting inquiry at the initial stages of the genius hour process.

During the semi-structured interviews with the participants, it became evident that the majority of the genius hour educators believed using a model framework would be an advantageous suggestion when launching a genius hour initiative.

6.3 RESEARCH CONCLUSIONS

Basically, the most obvious impact of this study is that educators currently implementing genius hour initiatives now have a researched collective framework to reference in order to revise and improve their genius hour programmes. Educators currently implementing genius hour initiatives are essentially the pioneers of the movement. If they can incorporate this collective framework into their adoption of genius hour, it may lead to a more successful implementation of the genius hour movement.

The theoretical model frameworks of Kirr, Krebs, Maiers, McNair, and Zvi are heavily relied upon in relationship to the aforementioned research questions and problems within this study. In chapter 1, 1.5, several essential research questions were stated. Within the next section, the research conclusions are presented as answers to the initial research questions. The research sub-questions are addressed first.

6.3.1 How does genius hour benefit student learning?

The genius hour movement is geared towards increasing student motivation, creativity, independent thinking, autonomy, and critical thinking. The potential value of this study

is that this framework could perpetuate the genius hour movement, increase the number of genius hour programmes, and solidify current genius hour programmes, thus adding to the movement. By establishing the collective framework for implementing genius hour into the classroom, an increased number of students can receive the opportunity to enhance their academic prowess within the aforementioned specified areas of expertise (motivation, creativity, independent thinking, autonomy, and critical thinking).

6.3.2 How can the concept of genius hour be more successfully applied to education?

Educators need to see genius hour as something that can be easily applied to every subject. The word *hour* puts a stipulation on how long genius hour should be. Instead of trying to fit genius hour into a box of what it has to be, educators need to be open to using genius hour in a variety of methods and contexts. The above answers lead to the answering of the main research question, stated in the following sub-section.

6.3.3 How can the recorded successes and failures of current genius hour programmes be synthesized into an instructional framework and design for the successful implementation of genius hour in the classroom?

In chapter 5, 5.5, a proposed instructional framework for implementing genius hour in the classroom is presented. This framework offers a potential solution to the primary research question for this study. The proposed framework offers a six-step method for implementing genius hour in the classroom.

6.4 RECOMMENDATIONS

The following section is dedicated towards providing feedback regarding the potential creation of a genius hour collective framework for classroom implementation. In consideration of the collective framework, recommendations are made specifically concerning genius hour implementation that may impact the framework itself. It is recommended that educators begin to implement genius hour into their curriculum due to its academic benefits in terms of emphasising inquiry based-learning, higher order thinking skills, and its alignment to the Common Core.

6.4.1 Recommendation 1

Establishing a positive classroom culture is imperative to a successful genius hour framework. Therefore, the first recommendation educators should consider when attempting to implement a genius hour framework for classroom implementation is to spend time building culture. This culture should relate to creating a safe academic environment that values creativity and innovation. A genius hour initiative is more likely to be successful if time is spent developing classroom culture. Within a genius hour setting, educators need to establish an environment where creativity is valued, risks are encouraged, and trust is paramount. By jumping headfirst into genius hour without establishing culture, students are less likely to take risks within their genius hour creations, which leads to safe projects and minimal critical thinking.

6.4.2 Recommendation 2

Students need to understand the purpose behind why they are doing genius hour before they start. A genius hour-related framework recommendation is a precursor to the actual implementation. In order for students to productively undertake a genius hour project, the student needs to understand why they are doing it. Unfortunately, students are conditioned by educators, which expect their students to sit back and absorb information. These educators want students to absorb information then regurgitate the information back to the educators. This conformist-centred industrial-model of educating students can make genius hour a challenging undertaking for students. The longer a student has been in school, the more difficult it is to recondition the student. Therefore, by altering the mind-set of the student, and teaching the *why* behind genius hour, students can begin to understand the educational philosophy behind the importance of genius hour. The comprehension of the *why* factor in combination with an educational philosophy mind-shift naturally promotes inquiry-based learning and higher-order thinking skills. The student mind-shift is integral to developing passion and student acceptance.

6.4.3 Recommendation 3

In order for a genius hour programme to be successful, passion has to be present. An educator needs to allow time for students to develop worthwhile explorations that they

are truly passionate about. Before students can fully explore their passions, educators have to build trust with their students, show interest in their students, and value the inner-genius of each of their students. Once these norms have been established, students feel more comfortable to pursue their passions. Traditionally, student passions are reserved for outside of school time, but, if nurtured properly, these passions can become part of school through a genius hour initiative.

6.4.4 Recommendation 4

Establishing a parent/institutional acceptance and understanding of genius hour is vital to eventual success of the implementation. Aside from the precursor work that goes into establishing the classroom culture, knowing the *why*, and developing passion, one of the most overlooked factors within any genius hour initiative, is the parent/institution acceptance factor. Educators might assume that implementing genius hour with their students is a pleasant idea, but without parent/institution acceptance their initiative could fail. It is essential to establish open communication with parents/institution regarding the educational philosophy behind genius hour, and the reasons why the project is being undertaken. Even if the parents/institutions are opposed to the initiative, they at least understand why it is happening and its potential benefits. Furthermore, by sharing the results of genius hour initiatives with parents/institutions in the form of a public genius hour presentation, these parties are more likely to see the benefits of genius hour.

6.4.5 Recommendation 5

The presentation element of genius hour is an important ingredient to consider. The presentation of a student's genius hour project can be rewarding for the student, school, and parents. The student feels rewarded because they are sharing their passion with an authentic audience. For the student, these presentations contribute to affirmation of passion, pride, and acceptance of their hard work and innovation. For schools, the genius hour presentation can act as a philosophy shift amongst educators. By witnessing what is happening within a particular class, other educators might begin adopting genius hour or other innovative approaches to education. By witnessing passionate presentations, the educational philosophy of the school might become influenced to evolve more progressive academic approaches. Finally, parents have the opportunity to

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see the passion of their own children used for academic purposes, which might shift their thinking towards the benefits of incorporating genius hour.

6.4.6 Recommendation 6

Using an established genius hour framework for classroom implementation is a more organised way to begin an initiative. I personally recommend Andi McNair's 6 P's (passion, pitch, plan, project, product, presentation) as a broad outline for the framework, and Gallit Zvi's genius hour framework for a more specified daily approach to implementation. By starting with one of these frameworks, or combining the two, educators can begin to tailor the framework to what best fits their educational needs. Since genius hour educators vary widely in terms of the number of students in a class, the age of their students, the frequency of genius hour time, and the amount of time allotted towards genius hour, it is recommended that educators individually fine-tune these frameworks in order to best suit their educational needs.

6.4.7 Recommendation 7

A successful genius hour programme needs to have a purpose. Often, genius hour initiatives are launched just for the sake of innovation; educators fail to envision the deeper purpose behind undertaking genius hour. Educators should not integrate genius hour just for the sake of trying something new. A successful genius hour initiative should be well thought out. Before launching a genius hour initiative, educators should determine their goals for implementation. For example, educators might create a list of benefits such as: empowering students, increasing critical thinking, teaching students to own their learning, developing real world applicable skills, building relationships with students, and developing academic passion are a few reasons educators might foresee.

Launching a genius hour initiative is more likely to be successful if the genius hour educator takes the time to understand why they are launching the programme. Moreover, if the genius hour programme unravels, or becomes problematic, the educator should remember the benefits instead of focusing on the obstacles.

6.4.8 Recommendation 8

Failure is an acceptable part of learning, which must be understood and cherished within a genius hour initiative. A recommendation that is consistently echoed within the genius hour community is that educators and students need to be okay with failure. Genius hour may be disorganized. It is not always going to work smoothly with every student, or every group of students. Within the spectrum of student projects, passions, and ability exists a vast divergence. Educators must be able to embrace this vast divergence by continually working one-on-one with students, mentoring, guiding, and inspiring. Students are prone to take on projects that are too big for them to accomplish, which can become overwhelming. And educators are prone to attempting to control student projects too much, which is their inclination and habit as educators, instead of mentoring and guiding the student toward success. These natural complexities can make genius hour challenging, but genius hour educators, like scientists and inventors, must embrace failure as a chance to grow.

6.4.9 Recommendation 9

A genius hour framework is not about control. Educators need to relinquish their control and preconceived notions within a genius hour initiative. The framework exists as a method to alleviate chaos, establish norms, and present students with clarity, but at no point should an educator mistake a framework as control. Genius hour is a journey into the unknown. Educators are along for the ride - not the other way around. Educators need to use genius hour as a time to work one-on-one with students. During this one-on-one time, educators should focus on fuelling passion, suggesting resources, mentoring, and guiding the project without overtly manipulating the potential results. Educators need to focus on constructive verbal assessment in order to best support student development. On the other hand, educators can err on the side of being too hands-off within a genius hour initiative. An educator could overly rely on the genius hour framework to do the work for them, but the real work exists within the individual conversations with students in an attempt to best serve the genius hour projects of the students.

6.4.10 Recommendation 10

Within a genius hour initiative, it is essential that genius hour educators understand their role. Within the semi-structured interviews, educators were adamant about genius hour educators understanding their role within a genius hour initiative. Most of these educators acknowledged that when they first began implementing genius hour they made mistakes because they did not understand their role within the genius hour initiative. Educators might consider only what students need to accomplish during genius hour, additionally, educators need to consider their own roles.

Educators need to be able to metaphorically switch hats with their students because in genius hour the student becomes the educator, and the educator becomes the student. This reversal of roles from ‘sage on the stage’ to ‘guide on the side’ is essential to a successful genius hour initiative.

A genius hour educator has several roles within a genius hour initiative which should be understood. Perhaps it is best understood through a sports analogy. A genius hour educator is a coach, a trainer, a cheerleader, and a fan. Basically, a genius hour educator needs to be a cheerleader for their students, constantly encouraging and helping develop passion. A genius hour educator needs to find time to work one-on-one with their students while still managing the chaos of 20+ different genius hour explorations, constantly coaching their students in ways to improve. A genius hour educator is a fan, sharing the successes of their students through presentations, blogging, or public presentations. Finally, a genius hour educator is a trainer, in charge of building up stamina, creating mental strength, and helping transform their students from passive learners to passionate learners.

The next section addresses avenues of further research that could potentially benefit the genius hour educational movement.

6.4.11 Recommendation 11

What is it about one particular student that allows them to be more motivated? Motivation within genius hour seems to be based around the structuring of the initiative. Four of the

five steps mentioned within section 5.4 are key factors towards motivation. Within section 5.4, front loading, learning from failure, developing passion, and mentoring are all factors that impact student motivation in a positive manner. Front loading allows students to understand the purpose behind genius hour, which increases their motivation due to their increased understanding of purpose. Learning from failure, or more specifically, being okay with failure, allows students to focus on learning instead of results. Developing passion is one of the key motivational factors in genius hour, because once students take ownership of their learning experience, it becomes their educational pursuit, and not their educators. Mentoring increases motivation because students have an educator guiding them throughout the process. Within a true genius hour mentorship role, this educator becomes someone the student is aiming to impress.

6.4.12 Recommendation 12

How does one share this instructional framework with as many genius hour educators as possible? The framework should be shared through a variety of portals already associated with genius hour. Currently an online meeting is held monthly for genius hour educators on Twitter at #geniushour. These monthly meetings serve as an opportunity to share the instructional framework for implementing genius hour into the classroom.

6.4.13 Recommendation 13

How will educators discover this instructional framework for implementing genius hour if they are oblivious to the concept? The creation of this collective framework for implanting genius hour into the classroom is certainly a first step, helping to align current and future genius hour movements. In order for educators who are currently oblivious to the genius hour movement to discover genius hour, they have to learn about it through blogs, conferences, social media, or word-of-mouth from educators, students, or administrators who are experiencing the genius hour movement. This collective framework will have to become an accessible and obtainable reference for educators considering launching genius hour initiatives. One method of placing this framework within the grasp of educators wishing to begin genius hour movements is to align with the most well-known genius hour publishers.

6.4.14 Recommendation 14

Will this framework be endorsed by the most prominent genius hour educators: Kirr, Krebs, Maiers, McNair, and Zvi? In terms of successfully and purposefully spreading the genius hour movement to as many educators and students as possible, Kirr, Krebs, Maiers, McNair, and Zvi are doing an impressive job. Without the endorsement of the aforementioned educators, this framework is of value to genius hour educators only if this research is discovered. Educators considering implementing genius hour initiatives and potential students who have the opportunity to participate in classes provided by the educators who have considered and instituted the instructional framework could benefit from this research. That being said, the endorsement of Kirr, Krebs, Maiers, McNair, and Zvi would exponentially accelerate the process of spreading this collective genius hour programme to the masses of current and potential genius hour educators. Therefore, a research recommendation of this study is to get prolific genius hour publishers to promote this study.

6.5 AVENUES FOR FURTHER RESEARCH

This research represents one study attempting to learn from the genius hour movement in order to benefit the future of genius hour by analysing the structural framework. That being said, there exists other possible approaches for determining methods of benefitting the genius hour movement. This section outlines a few possible avenues for further research.

6.5.1 Motivation

Another potential area of clarification is the need to demonstrate how genius hour impacts student engagement, motivation, and passion for learning - specifically, how genius hour aligns with the Common Core through higher order thinking skills and inquiry-based learning, allowing students to construct meaning through experiential learning. The Common Core standards align extremely well with the genius hour concept. “We are excited the Common Core has given us benchmarks, but not guidelines. We are excited Genius Hour offers a framework to make our ideas come to fruition” (Sun-Kleinberger, 2015:2). Even though these areas do not fit perfectly into the

creation of a genius hour framework, they must be considered. Essentially the aforementioned aspects are the reasons why the educational genius hour movement is thriving. Therefore, student engagement, motivation, and passion for learning are heartily emphasised through the questions and interviews proposed to genius hour educators.

Student motivation might be the most essential ingredient in determining the potential success of any given student. What is it about one particular student that allows him or her to be more motivated? How do educators quantify or recreate student drive or grit? What is the balance between driving students to succeed and pushing them to breaking point where motivation morphs into frustration and apathy? Genius hour allows students total autonomy over their educational experience; they want to succeed for the intrinsic reward of independent learning and self-fulfillment, not for the extrinsic motivation of the grade.

6.5.2 Independent learning

Genius hour could be more successfully applied to education if students had the opportunity to practice and perfect the skill of independent learning. Considering the fact that the genius hour movement is in its infancy, most students who get the opportunity to experience genius hour, is most likely not get to experience the movement more than once. As an educator who had the opportunity to provide students with genius hour time for three consecutive years, I noticed student growth in terms of creativity, critical thinking, and independent learning. When challenged with genius hour for the first time, students have difficulty quantifying the purpose of being able to learn something on their own. Also, their understanding of what it takes to be an autonomous independent learner is oftentimes sorely lacking due to the industrial approach found in most content-driven classrooms.

6.5.3 Assessment

Another factor to consider within the creation of a genius hour implementation framework is assessment. Genius hour educators vary significantly regarding assessment. Some educators do not even grade genius hour projects; others grade them strictly based upon

educator created rubrics. The most effective use of assessment for genius hour is self-assessment. Denise Krebs uses a self-assessment rubric coined *Genius Hour Rubric of Creativity*. Students score themselves on a one to five-point continuum based upon the following aspects of their genius hour project: "quality, ambiguity, inquisitiveness, generating ideas, originality of ideas, flexibility/adaptability, self-reflection, intrinsic motivation, risk taking, expertise, and persistence" (Krebs, 2013a:1).

6.5.4 Lifelong learners

Educators are becoming increasingly less interested in content specific lessons emphasising short-term retention, and more interested in developing student interest and passion, which develops lifelong learners. A potential avenue for further research would be studying how genius hour impacts lifelong learning. Philosophically, genius hour asserts that the genius hour movement is designed around developing independent learning and passion-based learning. Moreover, genius hour develops 21st century learning skills such as critical thinking, creativity, collaboration, and problem solving.

In order to test whether or not genius hour truly develops lifelong learners, one could survey/ interview a variety of genius hour students from a plethora of different genius hour educators across various locations. This avenue of further research would help prove whether or not genius hour actually develops lifelong learners. Within this avenue of further research, a researcher would study the academic development of students who benefitted from genius hour in relationship to students who were taught within a more traditional classroom approach.

6.5.5 Genius hour for educators

Another avenue of further research would involve focusing on the educators instead of the students. What if educators had 20% of their time to focus on passion-based projects that would improve the education at their school? What would educators do with their genius hour time? What would educators choose to learn? Would the development of these intrinsic passions make educators more motivated?

By shifting the passion-development focus to the educators instead of the students, this

shift might create a trickle down affect where the educational system would have a larger percentage of passionate educators, which would potentially lead to more passionate students. Lyn Hilt (2010) is one of the initiators of providing genius hour time with her staff. She testifies that providing her staff with genius hour time is critical to changing the culture of education, creating innovative ideas, and developing educator passion, yet the majority of schools embracing genius hour have not considered giving genius hour to their staff. By researching the schools that have allotted time for educators to pursue genius hour at work, a whole new avenue of data might emerge that justifies the benefits of providing educators with genius hour time.

6.6 LIMITATIONS OF THE STUDY

Limitations exist within any research study because it is impossible to conduct perfect research. Within this study, limitations existed in terms of study design limitations, impact limitations, and statistical or data limitations. Study design limitations exist due to specific constraints within the study population.

Impact illusions exist within regions and specific populations. Regionally, of the five educators interviewed for this study, three countries - Bahrain, Canada, and the USA - were the only countries selected for this study. This regional specificity represents one limitation of the study. Also, by choosing three educators from the USA, this research may be too regionally specific.

The research took longer than expected, which may nullify the novelty within some of the conducted research. This study began in 2013, before genius hour had become a mainstream educational movement, attempting to be the first reference point for understanding how best to implement genius hour in the classroom. At the time, the only book written about genius hour thinking was Angela Maiers' The *Passion-Driven Classroom: A Framework for Teaching and Learning*. This book basically launched the genius hour movement. In the meantime, during the time my research began to now (2013-2018), Denise Krebs and Gallit Zvi published the *Genius Hour Guidebook*, and Andi McNair published *Genius Hour: Passion Projects that Ignite Innovation and Student Inquiry*. These genius hour-related books are excellent resources for experienced or beginning educators implementing genius hour in the classroom. These resources do an

excellent job addressing genius hour frameworks and the genius hour educational philosophy. That being said, this research holds novelty and value in that it represents the most recent collective thoughts of these renowned genius hour educators regarding genius hour philosophy and genius hour framework implementation.

6.7 CONCLUDING REMARKS

As a student-centred educator, the greatest purpose behind creating this framework and conducting this study was the desire to benefit the students. Ultimately, the goal of this study is to have as many students participate within the genius hour experience as possible. How this is accomplished comes down to how successfully educators can implement the collective genius hour framework. If genius hour programmes are successful, the genius hour movement could spread. Typically, when one considers the spreading of the genius hour movement, they might imagine educators sharing their stories and successes with other educators, thus persuading them to begin genius hour initiatives. This is certainly an integral part of the spreading of a movement, educators demonstrating their programmes through educational conferences, social media, or educating colleagues. Possibly, it is not this generation of educators who will have the greatest impact on the genius hour movement. Educators tend to teach how they were taught. Therefore, the greater number of students who are exposed to the genius hour, the greater number of potential future genius hour educators. In order to inspire the next generation of genius hour educators, current initiatives need to make their genius hour experiences enjoyable, meaningful, and amazing.

The value and contribution of this study rests within research and data collection. That being said, since the genius hour movement has not been formally assessed or researched, little is known regarding its outcomes. Essentially, the discovery of the best practices within genius hour implementation, publishing, and practice, enables this study to qualify data into one collective framework for implementing genius hour in the classroom. Also, by factoring in the current pitfalls of the genius hour movement, current and potential genius hour educators have a researched study that demonstrates strategies that have previously proven unsuccessful.

This study is meant as a motivation to continue the genius hour movement by providing

researched document analysis regarding the best practices of genius hour classroom implementation. The promotion of genius hour and conclusions regarding best practices for proper implementation should provide an increased number of educational situations where student autonomy and creativity are nourished. Students across the globe are experiencing the fatigue and monotony of rote learning; they may obtain the opportunity to experience genius hour because of this study. This study is driven from a student-centred perspective. School should engage human curiosity, creativity, innovation, and self-driven learning experiences as opposed to the current system, which often emphasises memorization, compliance, and obedience.

Genius hour breathes life into the stereotypical approach towards standardized education, where students and educators are prescribed particular standards with the expectation that learning will take place if the guidelines are met. Genius hour, like other alternative educational approaches such as project-based learning or problem-based learning, is the anti-standard. Standards are typically a positive system because they focus the learning outcomes, but over-standardizing education can become stifling for educators and students. Genius hour allows for students to become engaged in the experience of learning through freedom and autonomy.

Student motivation is paramount. Educational systems underestimate the importance of intrinsic motivation, assuming that grades and a compliance-based system are the key to motivation. The insertion of genius hour as part of the educational experience would validate the students and their own intellectual curiosity.

By creating an accessible educator-friendly/student-friendly framework for implementing genius hour in education, a higher percentage of educators might attempt to insert the genius hour concept into their curriculum. These educators, who bravely adopt the practice of genius hour, could influence other educators to implement genius hour into their classrooms. Movements begin when educators commit to innovation; this heutagogical approach enables autonomy and creativity to thrive within the educational experience.

Along with the impact on educators contemplating or oblivious to genius hour initiatives, the greatest impact of this study might be on the current educators instituting their own

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genius hour educational framework. The information revealed within this study, might allow educators currently pursuing genius hour initiatives to adjust their framework and approach; thus potentially creating more successful programmes. In turn, if the current approach to genius hour becomes more successful, perhaps more educators will adapt genius hour into their classrooms.

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List of research project topics and materials

APPENDIX A
INTERVIEW SCHEDULE

SEMI-STRUCTURED INTERVIEW SCHEDULE FOR EDUCATORS

Date …….

Dear Participant

The aim of this interview is to gather information related to your experience and philosophy related to implementing genius hour in the classroom. Specifically, this semi-structured interview is concerned with your perspective regarding the creation of a collective genius hour framework for classroom implementation. You are expected to provide your honest views, experiences and opinions on the topic in order to best serve this study's purpose. The provided information will enable the researcher, a PhD scholar, to understand your opinions and analysis. The collected data provided within this research will be used to conduct the empirical study.

Your responses will be treated confidentially and your anonymity will be protected.
The 45 minute scheduled semi-structured interview will be recorded. As a voluntary participant within this study, you have the right, if desired, to listen to the recorded interview to ensure that all statements were correctly presented. Understand that as a voluntary participant you have the right to withdraw from this study without penalty, or to withdraw from a question if desired. Thank you for your willingness to participate in this study and for your contributions to the genius hour movement.

Interview schedule:

A) Starting the Genius Hour Initiative:

What is the best way to launch a genius hour initiative?
After launching the genius hour initiative, how do you get students started?

B) Organization and Methodologies

How do you facilitate a successful genius hour programme?
Do you require students to create essential questions before they begin their genius hour project? If so, why? If not, why not?
Do you require that students get their genius hour project ideas approved by the educator? If so, why? If not, why not?

C) Your Genius Hour Framework

How do you organize your genius hour framework? Motivate
What elements should every genius hour framework contain?
Describe your ideal genius hour framework.

D) Considering the Student Perspective

What do you recommend for students that struggle with creativity, intrinsic passion, and motivation?
What is your opinion regarding group work for your genius hour project?
How do you effectively maintain and procure student engagement?

E) Personal Experience

What have you learned from trial and error in terms of implementing genius hour in the classroom?
In your experience, what constitutes a successful genius hour programme?
What elements do you recommend should be an essential part of a successful genius hour programme?

F) Learning from Fellow Genius Hour Educators

What genius hour-related methods and implementation ideas have you gleamed from fellow genius hour educators? Be specific

G) Advice for Genius Hour Educators

If you could create a document, essentially a how-to implement genius hour framework that would help a novice educator implement genius hour into the classroom, what information would this document contain?
What advice would you give to educators starting a genius hour initiative?

Thank you!

APPENDIX B
LETTER TO THE PARTICIPANTS

TITLE OF THE STUDY: IMPLEMENTING GENIUS HOUR IN THE CLASSROOM: AN INSTRUCTIONAL FRAMEWORK FOR CLASSROOM IMPLEMENTATION

Kenneth Townsend
107 Blackburn #3, Santa Cruz, CA 95060
707-419-9364
kennethtownsend@mvcs.org
University of South Africa (UNISA)
An Instructional Framework for Implementing Genius Hour in the Classroom
Promotor: Prof. E.C. du Plessis

Date ……..

Dear Participant,

My name is Kenneth Townsend and I am a fellow genius hour educator conducting doctoral research at the University of South Africa under the supervision of Prof. Elizabeth du Plessis. This research is to undertake a PhD within the Department of Education specializing in the area of curriculum studies. I am conducting a multiple case study in order to synthesize the techniques and practices of genius hour educators into one document. The purpose of this study is to create an instructional framework for implementing genius hour in the classroom. Your experience as a genius hour educator is essential to this study. Your participation within this study through a 45-minute semi-structured audio-recorded interview will create essential data that will lead to the creation of a collective instructional framework for implementing genius hour in the classroom. This study will consist of a minimum of six experienced genius hour educators. By participating within this study you will contribute to the creation of a collective genius hour framework. This framework will make genius hour more accessible and easier to implement for educators interested in pursuing a genius hour initiative.

My expectation from you is that you participate within a semi-structured interview that will take approximately 45 minutes of your time. This study draws upon your

previous/current experience as a genius hour educator; essentially, focusing on the years 2014-2017. During this interview, I will collect data related to your experience with genius hour classroom implementation. Your role within this study is to provide wisdom and expertise regarding your experience and philosophies about genius hour classroom implementation.

This study acknowledges that genius hour is being applied to education in a variety of ways. The goal of this study is to take the existing methods and deduce what has been the most successful implementation tactics in order to arrive at a collective framework for implementing genius hour in the classroom. In order to achieve this collective framework, this study will involve multi-institutional and multi-country participation.

This study will adhere to UNISA's ethics policy, which includes participant confidentiality, privacy, and anonymity. As a participant within this study, your participation is voluntary and you can withdraw from this research at any time without penalty. An invitation to ask questions is not only extended to you in order to benefit the study but is strongly encouraged. As a courtesy to participants, you will be contacted regarding the findings of this study.

Your answers to these interview questions will be treated with confidentiality and all of your responses to these interview questions will remain anonymous. It is not compulsory to participate in this study.

If at any point you have any questions regarding this study, feel free to contact me directly via email. If you wish, you may also contact my promotor, Prof. Elizabeth du Plessis at dplesec@unisa.ac.za or the University of South Africa’s Department of Education.

By signing the consent letter attached, the participant provides permission for their responses to be applied to this study in order to create an instructional framework for implementing genius hour in the classroom.

Sincerely,
KennethTownsend
PhD Student (UNISA)

APPENDIX C

OBSERVATION GUIDE

LEVEL	OBSERVING	SIGNALS OF OBSERVATION
1	Higher order thinking skills	The educator uses probing questions in order to drive higher order thinking skills. The genius hour projects clearly exemplify the use of higher order thinking skills.
2	Inquiry-based learning	The educator promotes the use of inquiry within the genius hour learning experience. The educator communicates with their students through inquiry-based dialogue.
3	Framework	The genius hour learning experience is clearly organized and students are actively participating due to the clarity of the expectations.
4	Project variance and depth	The classroom demonstrates a wide variety of projects. The depth of the projects, clearly demonstrate time allotted to develop inquiry, conduct research, and personalize the genius hour project based upon individual passions.
5	Authentic engagement	The educator has created a learning environment that demonstrates continuous activity. Students are concentrating, on-task, creative, and persistent throughout the majority of the observed period.

APPENDIX D

CONSENT LETTER FOR PARTICIPANTS

Title of the study: IMPLEMENTING GENIUS HOUR IN THE CLASSROOM: AN INSTRUCTIONAL FRAMEWORK FOR CLASSROOM IMPLEMENTATION

The researcher undertakes to adhere to the fundamental principles of research ethics and scientific integrity while gathering and analysing data obtained during the semi-structured interviews with the educators. The researcher will maintain the highest standards of honesty and integrity at all times and will handle the data according to internationally acceptable ethical norms and values. Thus, the researcher is prepared to take responsibility and may be held accountable for all aspects and consequences of this research activity.

Dear participant, kindly complete following form of consent prior to the commencement of the semi-structured interview.

Please Initial Box

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions.

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving reason.

3. I agree to take part in the above study

4. I agree to that the interview being audio recorded.

5. I agree that my lessons may be observed and video recorded.

6. I agree that the researcher use anonymised quotes from the participants in the study

Name of participant: ……

Signature: ……..

Name of Researcher: ……

Signature: ……..

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APPENDIX E
PERMISSION LETTER TO PRINCIPALS

TITLE OF THE STUDY: IMPLEMENTING GENIUS HOUR IN THE CLASSROOM: AN INSTRUCTIONAL FRAMEWORK FOR CLASSROOM IMPLEMENTATIO

Kenneth Townsend
107 Blackburn #3, Santa Cruz, CA 95060
707-419-9364
kennethtownsend@mvcs.org
University of South Africa (UNISA)
Curriculum and Instructional Studies
Promotor: Prof. E.C. du Plessis

Date ……..

Dear Principal

I, Kenneth Townsend, am doing research under supervision of Elizabeth Du Plessis, a Professor in the University of Education towards a PHD at the University of South Africa (UNISA).

I am seeking your permission to conduct research via interviews and classroom observation for my doctoral studies within your school. My research topic is related to creating an instructional framework for implementing genius hour in the classroom. I am requesting your permission to conduct an interview with an experienced educator at your school familiar with implementing genius hour within the classroom. The interviews will not take place during school hours; therefore, the interviews should not interrupt classroom instruction time.

Participation within this study is voluntary, and the decision to withdraw can be made at any time. Additionally, if the participants elect to be part of this study, their identity will be protected. Participation is intended to benefit future educators implementing genius hour. That being said, there are no financial benefits attached to participation in this

study. Abiding by research ethics, this study will be made available to the participants within this study.

Thank you for your assistance in this research.
Kindest regards,
K. T. TOWNSEND

PHD Student (UNISA)

_____

School Principal name (print)

_____

Signature Date

Please return this signed form to: Kenneth Townsend at kennethtownsend@mvcs.org

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APPENDIX F
LETTER OF CONSENT FOR STUDENTS

Title of questionnaire: Genius hour: An instructional framework for classroom implementation

Dear Learner,

This questionnaire forms part of my *doctoral* research entitled: **Genius hour: An instructional framework for classroom implementation**. This study is required for the degree in Education specializing in curriculum development at the University of South Africa (UNISA). You are invited to take part in this study alongside other schools participating in the implementation of genius hour in the classroom.

The purpose of this study is to understand how genius hour is being implemented in the classroom in order for educators to create an "An instructional framework for classroom implementation". Essentially, the findings from this study will help genius hour educators understand how best to implement genius hour in the classroom, and to enhance the overall learning experience within genius hour classroom implementation.

For the purposes of this study, you are providing consent that your classroom genius hour learning experience be used for research purposes in the form of video recordings.

All of the information obtained in this study will remain confidential. Moreover, participation within this study is completely voluntary and the decision to withdraw from the study can be made at any time. Finally, after the study, the findings of this study will be made available to your parents upon request.

The University of South Africa (UNISA), the Department of Education, and the Ethics Committee of the University of Education has granted permission for this study.

If you have any questions or concerns, please feel free to contact me at +1 707 419 9364 or email: kennytownsend174@hotmail.com. My supervisor, Dr. Elizabeth du Plessis, at the University of South Africa (UNISA) Department of Education Curriculum and Instructional Studies, can be reached at: dplesec@unisa.ac.za.

Kindest regards,

K TOWNSEND

(PHD STUDENT)

APPENDIX G
LETTER OF CONSENT FOR PARENTS

Dear Parents,

This letter is to inform you that your child has been invited to participate in a study entitled: **Genius hour: An instructional framework for classroom implementation**. This study is part of my *doctoral* studies at the University of South Africa (UNISA). The purpose of this study is to understand how genius hour is being implemented in the classroom in order for educators to create an "An instructional framework for classroom implementation". Essentially, the findings from this study are designed to help genius hour educators understand how best to implement genius hour in the classroom, and to enhance the overall learning experience within the genius hour movement.

I am requesting permission to use your child's video recorded genius hour learning experience. Your child's genius hour learning experience is extremely valuable in terms of the purpose of this study, which is focused on how best to implement genius hour within the classroom. Your child's participation is designed to benefit future genius hour educators and genius hour students.

Participation within this study will take place from six schools currently implementing genius hour in the classroom. Your child will receive no payment or academic benefit from this study. That being said, your child's participation in this study will be of great benefit to the learning within current or future genius hour classrooms.

All of the information obtained in this study will remain confidential. Moreover, your child's participation in this study is completely voluntary and the decision to withdraw from the study can be made at any time. Finally, after the study, the findings will be made available to you upon request.

The findings will be stored securely, digitally and physically. Digitally, the study will be in a password-protected personal computer. Moreover, a physical copy of the study will be stored in a locked cabinet.

If you have any questions regarding this study, feel free to contact me by phone or email. My contact information is as follows +1 707 419 9364 or email: kennytownsend174@hotmail.com. If you prefer, you may also contact my supervisor Dr. Elizabeth du Plessis, at the University of South Africa (UNISA) Department of Education Curriculum and Instructional Studies; she can be reached at: dplesec@unisa.ac.za.

Your signatures below indicate that you have read this letter and approve your child's participation in this study. If you desire, you may keep a copy of this letter for your personal records.

Kindest regards,
K TOWNSEND
(PHD STUDENT)

Name of child: _____

_____ _____

Parent/ guardian's name (print) Parent/ guardian's

signature Date

APPENDIX H

PARENT RETURN SLIP

CONSENT TO PARTICIPATE IN THIS STUDY (RETURN SLIP)

I _____,the parent of _____ confirm that the person conducting this study has reviewed with me the procedure for this study as stated in the consent form. Additionally, the person conducting this study has also informed me of the benefits regarding this study along with the foreseeable drawbacks of my child's participation. Based on my previous reading of the consent form, I agree to the following statements.

I have read and comprehended the study as it was explained to me.

I have received a signed copy of the consent form.

I understand that participation is voluntary and that the decision to withdraw at any time can be made without penalty.

I understand that the findings of this study will be published.

I understand that my name will not be used, and that this study has promised anonymity.

Parent Name & Surname (Please Print) _____

_____

Signature Date

Researcher's Name & Surname (Please Print) _____

_____

Signature Date

APPENDIX I

LEARNER RETURN SLIP

CONSENT TO PARTICIPATE IN THIS STUDY (RETURN SLIP)

I _____ , a learner at the school _____ confirms that the person conducting this study has reviewed with me the procedure for this study as stated in the consent form. Additionally, the person conducting this study has also informed me of the benefits regarding this study along with the foreseeable drawbacks of my participation. Based on my previous reading of the consent form, I agree to the following statements.

I have read and comprehended the study as it was explained to me.
I have received a signed copy of the consent form.
I understand that participation is voluntary and that the decision to withdraw at any time can be made without penalty.

I understand that the findings of this study will be published.
I understand that my name will not be used, and that this study has promised anonymity.
Student Name & Surname (Please Print) _____

_____

Signature Date

Researcher's Name & Surname (Please Print) _____

_____

Signature Date

APPENDIX J

TRANSCRIPTION OF SEMI-STRUCTURED INTERVIEW: JOY KIRR

Townsend: This is Kenny. All right. Very good. Nice to talk to you. Thank you so much for agreeing to do this. Really, super helpful. Thank you so much. Just a little background, I've been working on this research for a few years now. I've had you in mind to interview all the time at the time, so it's awesome that you agreed to do that because I already have all sorts of pages already written toward it, so thank you again. Really appreciate it.

Kirr: No worries.

Townsend: OK, so I'm just gonna go through the questions I sent you and then we can, you can feel free to go, but feel free to go off script if you want to. Um, but maybe just start off, tell me a little bit about your background information about your teaching experience in your little life biography.

Kirr: I started seven years ago. I don't fall into such trouble in reading. So I went and got my master's and I worked seven years at the reading specialist where I am now. And then my last job and has been now ninth grade ELA classroom until 2012, 2013, something like that.

Townsend: Great. Thank you so much. Is that, in your opinion, what is the best way to launch a genius hour initiative if you're trying to get it started and the kids have no idea what it is?

Kirr: You're trying to get inside?

Townsend: Let's go with it, let's do, let's do both.

Kirr: OK. Hold on a step. A lot of people, they try and do the genius hour. **So I would not start with an initiative with the staff**. I start with an invitation to try and implement it with the kids, I'd say is that a lot of finding out about the new; finding passion to share the picture book, video stories of people doing things for others because of their passion, you know, we get them to jot down ideas that a lot of time having them explore what they might want to do.

Townsend: Awesome. Thank you. Um, so how would you, once you're in the classroom, how would you facilitate it to make sure that the programme is going well? I kind of almost looking at it like from a new teacher's perspective, you know like here you're mentoring them. What advice would you give them to facilitate it?

Kirr: **Make sure they give them that time at the beginning, you know, and not worry about it, not just give them that time**. Maybe started in second quarter, third quarter

even if you're not sure if his was, no, make sure that you can follow us in one on one. So I used to have my students, half of them would make a goal for two weeks and then in two weeks I take that little sheet with her, gone and come see them and say, how'd you do on your goal? Know where they're going to go from here, and I'd make sure I saw my kids every other week because you then have squeaky wheels that need or think they need your attention all the time and you've got to get to everybody. Cause the silent ones. You never know what they're doing. **So check with everybody all the time and make sure you're conferring with the student. This isn't a time to sit back and let them work because of the time to check your email.** This isn't a time to do your own genius hour projects. We should be doing that at home and its time to be with students to really be present with them.

Townsend: I totally agree. I remember getting sucked in to certain groups because what they're doing is so interesting and they're extroverted, they are commanding your attention, you know, you can definitely, you can definitely lose the ones who may need that guidance and they don't seek. And do you require the students to create their own essential questions, for their, for their project and if you do and why or why not on that one?

Kirr: I personally don't feel it's needed. **There was no need to turn that into a question and so I think that come up with essential questions can be helpful, but it can also hinder some of the students who have an idea.** So I can see it as a good way to organize, but then not to force it.

Townsend: Yeah. I agree, I think it can maybe turn overly academic sometimes if you've made them forced into a question, maybe lose some of the passion from it.

Kirr: Right? Like what's the point of it, you know, why do you want them to make that much?

Townsend: How do you organize your genius hour framework?

Kirr: Read to share what you've learned. And that was that was it because we're in ELA class and they didn't bring enough. So that was where I started it and then it morphed into something and ask them it like what did you do anything online or what did you mean and what do you want to know about it? And I, again, I am just going to be so open with you, but I don't think that we need to be tallying pictures of trial, but I think they need to see a whole bunch and then pick what works for them and say if people leave and the reasons why to try it, then they have to frame it how it works for them in the class and with the children that they're doing that they're, you know.

Townsend: I totally love your honesty and like I'm completely open to if the answer to,

to my thesis ends up being he doesn't need a framework and it's totally, it's totally an arguable for you now. And I love that fact of, you know, all the reasons why we can talk about that too. So feel free to just express yourself honestly. I love that. OK. So what do you recommend for students who struggle with creativity and interest in intrinsic motivation in Wednesday?

Kirr: Straggler with system, you don't really have a passion for it. We've got to get that time again. I have trouble with that. You, I never said, well, I can't do that, I'm not creative or I don't, you know, I have no motivation to do that and follow our reason for what he did was for the age, let copy someone else's project if they want, you know, just so they can experience with planning and adjustments that would need to be made alive by then. Definitely let the kids looked a little bit of that. Not every child knows that he or she wants to know something. I, I know I didn't know what I wanted to do it seventh grade, I would know what I was passionate and fun stuff like reading or whatever you call. **But again, mostly because they might not have been afforded this opportunity before.** The biggest challenge to be asked is when they have been told this is what you need to learn.

Townsend: OK. And, do you allow students to work in groups and why or why not?

Kirr: I don't like to. They have no clue what we're talking about. End the end. **I feel like they should be working on it because they want to, not because another student is doing their project.** They're just not that event, you know, it's usually the one person doing all the work. So sometimes if that happens, I take, the second person and say, why don't you take a break today and go record what the other kids are doing. Sunday you'll see the passion they have. Maybe they can say, hey, I could be doing something I want to do is when I'm doing something that's fun to know, have they been asked to do this before? I'm sure go ahead and work with a group at the beginning of the year ago and how it works. But then you're looking for things to do on your own and leave that for ideas.

Townsend: I guess the next question is basically regarding maintaining the engagement. It has to deal with the length of time that they're working on one project. Do they can continue the same genius hour project all quarter? They have a, you know, all semester. Does it start dying out, you know, like, how do you keep them engaged? And what seems like the right fit in terms of how long they can stay interested in the project

Kirr: **Henry would start new projects every three weeks. And I would always say to him, I told her before you go to the next project, share with the class what they think, do you think I should continue with this project or not?** And also sometimes they say no, but when I did say yes, you have to give it a thought and then have three

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months on that before you went to a new project, when you'd have to tell me why, but that all adults do. Again, you know, it's from some kids. I'm Philadelphia, so until it's what they love and that, that could drive them for the whole year. A couple years ago my passion stayed true for the longest time. And so I was always about, you know, we've got to make sure that we know.

Townsend: Wow.

Kirr: For years I was like, how can I do this better? How can I do this better because it wasn't passionate because I really wanted to hit it right. So again, I think that depends on what the future is going to handle, like on the future handle, ideas every couple of weeks. Kind a teacher let it go. Tell a teacher for one who wants to do it for the whole year when that happened. I think that the teacher has to be comfortable with it too.

Townsend: Cool. What have you learned from trial and error? Implementing Genius Hour.

Kirr: I say that all the time

Townsend: It’s not going to be the same for every class. I mean you can do it one period a day and it works really well then the next period and no one's into it at all.

Kirr: Every year. The demand that's placed on you.

Townsend: OK. The next question, in your experience, what constitutes a successful genius hour class or programme, you know, it's going well, like, like what are the things you look for if it's going well.

Kirr: I look for what they're learning and fundamentally what I'm asking them to learn learning. And then **they're being inspired by their peers and they're learning what they're learning**. I think of that because I know they're not gonna. Remember the contents, I thought though, they'll remember how they feel if they're learning on their own or learning how to learn.

Townsend: OK. So obviously you have a lot of experience with other educators with the genius hour live binder, and what not. So tell me what have you gleaned from other educators, obviously I don't think you're still doing genius hour, but if you were to bring it back, like what things would you like apply that you've learned from other educators?

Kirr: We still do this to admire the classroom, attitudes, habitudes from Angela Maiers. So we used that. Everything is adaptability. Imaginations. At the beginning of the year, I would start with that cardboard challenge. Another there was about except that super creating what they want out of cardboard and they're learning all those traits, that personable adaptability to courage and everything. And then the reflection afterwards. **Now what they learned when they fail the next time, and then that leads into it**

could lead into a genius hour project. The what do I want to learn, what did they learn, what do they say, fail, what would I change it in the time? And it just keeps that up, like keep all those traditions go in the classroom all year long. And I think that that's why we, and again this year we did start with those habits. We just didn't get into too many though because it's the pilots, so we were told to do and he was prominent in the seventh grade and such, but it still goes back to what you want to do and how can you do it and then what can you do better?

Townsend: Great answer. So if you had to put it in simple texts for a teacher that you weren't there to mentor or just, not a whole book, but something they can just look at it and could really follow simple instructions. What would you, what would you keep it like one or two paragraphs, what would you say if you had to put something for it? Just starting out.

Kirr: That's a hard question.

Townsend: Yes.

Kirr: For me, learning on their own. Right?

Townsend: Right. Learning how to learn.

Kirr: I would keep it focused on that. Like **how can we teach the kids how to learn when they want to learn**, so I maybe just the right time every week for them to ask the question and find the answer to that that's been on Google and find an answer or problems in your community and see what. Or like maybe every week could be something different every week for every week on that. It'll be a different focus on what could be the physician who was one of the problems. Look at his solution. I don't know. It's like I gotta be how they want to frame it, so it's like a history teacher than maybe what's been done in history and what's happening now or as a science teacher selected.

Townsend: Yeah, totally. Yeah, I know.

Kirr: I think they have time to share too.

Townsend: OK, last question. Where this amount of time here, um, what advice would you give other educators studying of Genius Hour? Initially, what will be your little pearl of wisdom that you'd want handed down to them.

Kirr: I do believe that they should be doing it. Then you've got to put forth the effort to try and we will have our failures, but then they'll tweak her that, um, I also think that educators should do what they're asked to do. So if we're asking them to create a bracket or whatever they're passionate, what the positive are, then you need to do it yourself, you know, and then share with them your reflections and your failures on your own time. They'll do it when the kids are doing it because you're doing one on one with them. **One**

on one is essential.

Townsend: Thank you so much Joy. Super, super duper helpful, a lot of great information.

Kirr: I'm going to send you two links that I had ready for you about processes and decisions have to be made that I believe should be good.

Townsend: Thank you. Thank you so much. I really appreciate it. And I said you're my first person. I just, I love all the information. I got it. All right. Thank you again for meeting. It was nice meeting you.

Kirr: It was nice meeting you too, Kenny.

Townsend: Good-bye.

Kirr: Good-bye.

APPENDIX K

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