

A PHENOMENOLOGICAL STUDY OF GIFTED ADOLESCENTS AND THEIR
ENGAGEMENT WITH ONE ON-LINE LEARNING SYSTEM

By

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ABSTRACT OF THE DISSERTATION

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Little research exists on the nature of the interactions between gifted students and the use of technology. Furthermore, no research has investigated the phenomenon of gifted adolescents using one internet-based program, the Renzulli Learning System (RLS). Renzulli Learning is an on-line educational profile with a matching database that provides enrichment resources, generating students' creative productivity and high-end learning. Its goal is to connect student interests, learning styles, and expression styles with an expansive array of educational activities and resources.

This qualitative study describes what happens when students are using the Renzulli Learning System (RLS), exploring how students approach, employ, and use Renzulli Learning. The student sample included nine students, who were identified for and participated in a 7th and 8th grade gifted and talented program in an urban school district in Connecticut who had been using RLS for an average of two years. The students participated in an electronic questionnaire and were interviewed by the researcher during two semi-structured interviews.

Research questions sought to describe how gifted students use RLS in school as well as how students use it at home. The answers to the research questions suggested four main themes. The first dominant theme was that the Renzulli Learning System is an effective and desired tool for students as they attempt to achieve high grades and academic success in school. The other main themes were that RLS is used primarily in school, that it does not affect socialization, and that it is fun. The study supports the importance of further research in areas related to technology and gifted education.

ACKNOWLEDGEMENTS

This study has provided me with a great opportunity to combine my passion for gifted education and my enjoyment of gifted adolescents and hopefully give something back to both, as I have received much pleasure and satisfaction from working with both over the past thirty years. I want to thank especially the nine students who shared their Renzulli Learning lives with me during a short period of time within that defining stage of adolescence when they were creating the blueprint for their futures. I have great appreciation also for the TAG teacher, the principal, and the district evaluator who allowed and invited me into their school and school district as an observer.

I wish to thank my committee chair, Dr. Catherine Lugg, for her gentle prodding over the course of several years, for encouraging me to carry on in times of frustration, and for her patient editing and proofing over the course of many months. I wish to thank Dr. William Firestone and Dr. Sally Reis for agreeing to be on my committee and for lending their expertise in critical aspects of this study and topic. I thank also my colleagues Christine McAdams and Dr. Alan Groveman for their supportive peer review of the research.

My husband Ross has been a continuous supporter of any goal I attempted over the past thirty years. I appreciate his innate understanding of what was needed to complete this task along with his patient encouragement.

I wish to dedicate this study to my son Miles who has been a continuous source of inspiration for twenty six years and who is one of the most gifted individuals I know, finding his own strengths during his period of adolescence.

I also dedicate this work to the memory of Dr. E. Paul Torrance, a great mentor and incredible human being, whose work continues to influence me on personal as well as professional levels, and who introduced me to the work of Joe Renzulli in 1976. It has been a privilege and an honor to promote the research and programs of both these educational trailblazers.

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CHAPTER ONE: Overview

Introduction

Extensive research has been conducted in the field of gifted education (Clark, 1997; Davis, 2006; Dixon & Moon, 2006; Ford, 1998; Gallagher, 1975; Horowitz, Subotnik, & Matthews, 2009; Maker, 1982; Plucker & Callahan, 2008; Renzulli, Gubbins, McMillen, Eckert, & Little, 2009) and additional research has been conducted that links technology and educational attainment in U.S. classrooms (Azzam, 2006; Bain & Ross, 1999; Coiro, 2003; Cradler, 1999; Field, 2009; Garner & Gillingham, 1998; Leu, 2004; Levin & Arafah, 2002; Mann & Shafer, 1997). However, there has been almost no research on the use of the Renzulli Learning System (RLS) with gifted students and no research has been conducted about the phenomenon of using Renzulli Learning System with gifted adolescents in a school setting. This qualitative study describes situations in which students are using the Renzulli Learning System to complete school projects. Renzulli Learning is an interactive on-line program that matches student interests, learning styles, and expression styles with a wide array of educational activities and resources that are designed to enrich students' learning processes. Students who use Renzulli Learning have opportunity to explore, discover, learn and create using current technology resources independently and in a pre-screened web environment. Students spend many hours surfing the internet on a weekly basis, however no qualitative research has been conducted on understanding what is happening when gifted adolescents use a specific on-line learning system. This study describes the use of RL from the perspectives of gifted and talented students. Online learning in general holds much promise for students who are, by definition, asynchronous in their development (Neihart, Reis, Robinson, & Moon, 2002). The vast resources of the internet enable students of all ability levels and age levels to find content that can challenge them at appropriate levels. This study may help to describe the efforts necessary to increase gifted students' engagement at school through online learning, to assist educators in planning for these students, and in better understanding how these students like to learn and prefer to work at school.

Statement of the Problem

Educators, parents, and other advocates interested in the self-actualization of gifted students have struggled in recent decades to pinpoint the most effective and efficient methods of educating this population. Researchers and leaders in the field of gifted education do not all agree on what constitutes the best curriculum and instruction for gifted students (Borland, 2003; Renzulli, Gubbins, McMillen, Eckert, & Little, 2009; Sapon-Shevin, 1995). Exceptionally capable students exhibit characteristics that challenge the efficacy of the traditional American educational system (Horowitz, Subotnik, & Matthews, 2009; Karnes & Bean, 2001; Plucker & Callahan, 2008; Renzulli, Gubbins, McMillen, Eckert, & Little, 2009). Research may appear to be contradictory about what constitutes giftedness and whether the teaching methods of acceleration or enrichment are preferable and leaders in the field of gifted education may also experience a change in philosophy over time (Borland, 2003; Plucker & Callahan, 2008; Renzulli, Gubbins, McMillen, Eckert, & Little, 2009; Sternberg, 1985). One big challenge for educators and for parents is that the development of gifted students may be asynchronous (Karnes & Bean, 2001; VanTassel-Baska & Little, 2003). Their development can be advanced in many areas, while some areas of development can be age appropriate or below expectations for their age. This problem makes it difficult for classroom teachers to provide appropriate challenge for wide ranging skills and development areas. Kearney (2005) notes that the Columbus Group in 1991 provided a definition of giftedness that further elucidates this phenomenon:

...Giftedness is asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm. This asynchrony increases with higher intellectual capacity. The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching, and counseling in order for them to develop optimally. (p. 1)

Because of this asynchrony, gifted students, especially those with high aptitude, comprise one group in schools for whom the principle of age-appropriate placement is not developmentally appropriate (Davis, 2006; Horowitz, Subotnik, & Matthews, 2009; Tomlinson, 1999). For this

reason, individualized learning via the internet holds promise as a meaningful strategy for meeting the educational needs of gifted students in a school and continued in a home setting. Students can pursue study on the internet based on their interests and skill development rather than on their age (Anderson, 2004; Cradler, McNabb, Freeman, & Burchett, 2002; Field, 2009; Leu, Leu, & Coiro, 2004; Renzulli & Reis, 2009; Sheffield, 2007).

This study examines one such internet tool, the Renzulli Learning System, for the purpose of contributing to the literature and understanding of what happens when gifted adolescents pursue learning in this manner. Phenomenology provides a useful approach to this new topic and can enlighten educators and parents regarding the education of these students. Educators need to understand the work students do within a program such as RLS if such programs or their characteristics are to be replicated, refined, and improved. Principals and school leaders in particular need to find and address gifted education solutions that are effective, efficient, user-friendly, and economical on a school-wide basis. Online learning can satisfy all such criteria. This study describes how gifted adolescents engage with a differentiated on-line learning program and describes how it is incorporated into their educational lives and may provide useful information for principals and all educators. The research questions elicit information about how RLS is used, how it affects the students' social lives, and students' perceptions about the program.

The study was conducted in a large urban school district in Connecticut. The student sample included nine seventh and eighth graders who had been identified as gifted and participated in their school's gifted and talented program and who had been using RLS for an average of two years in school through their gifted and talented (TAG) program. The researcher went to the school district, met with the district's evaluation coordinator, the two TAG schools' principals and TAG teachers, and then selected one of the schools for the study. The TAG teacher secured permissions from the students, their parents, and other school staff. The researcher then sent an electronic questionnaire to the personal email addresses of each student asking questions related to the research questions of the study. The responses on the

questionnaire were compiled into a master table (see excerpts in Tables 4.2 and 4.3) for comparison and summary.

The questionnaire was followed by two onsite interviews with each student which were recorded, transcribed and coded. All the information was used to answer the research questions and was coded according to common themes that emerged from the responses. The coding process reduced the data to manageable proportions to categorize the data and well as to conceptualize it. As an initial list of codes was predetermined by the singular nature of the topic and the predetermined items on the questionnaire, a combination method of using predetermined codes as well as emerging codes was used (Coffey & Atkinson, 1996; Miles & Huberman, 1994). This research took place during the last two months of the 2008-09 school year. Other information available to the researcher was obtained through logon data from Renzulli Learning, observations, conversations with the TAG teacher, and a rank order list made by the TAG teacher about his impression of how the nine students ranked in school engagement behaviors compared to each other.

This dissertation includes Chapter One that introduces the study, providing a brief overview of the study and the research questions. The overview also includes a brief overview of the statement of the problem and also provides a snapshot of the sample and methodology. The remaining chapter summaries are as follows.

Chapter Two includes a review of related research surrounding this topic. Because there is so little research directly related to the specific topic of the study, topics that are addressed through the literature include research in gifted education (Clark, 1997; Davis, 2006; Dixon & Moon, 2006; Ford, 1998; Gallagher, 1975; Hollingworth, 1942; Kulik, 1992; Maker, 1982; Morelock, 1992; Plucker & Callahan, 2008), gifted adolescents (Buescher, 1991; Edward, Wigfield, & Midgley, 1993; Horowitz, Subotnik, & Matthews, 2009; Sak, 2004; Sheffield, 2007), programming models (Renzulli, Gubbins, McMillen, Eckert, & Little, 2009; Tomlinson, Kaplan, Renzulli, Purcell, Leppien, & Burns, 2002; Van Tassel-Baska & Brown, 2007), information about the Renzulli Learning System and the Schoolwide Enrichment Model supporting RLS (Renzulli & Reis, 1997; Renzulli & Reis, 2007; Renzulli, Reis, & Smith, 1981; Renzulli & Smith, 1979;

Renzulli Learning web site, 2008), obstacles and keys to successful gifted education programming, and a brief look at constructivist learning (Hmelo-Silver, 2004; Phillips, 1995; Sobral, 1995; Stepien, 2002; Stepien & Gallagher, 1993; Stepien, Senn, & Stepien, 2000). The conceptual framework for this study suggests that there is a need for curricular modification as acknowledged by the educational reform movement (Alexander & Murphy, 1998; Firestone, Schorr, and Monfils, 2004; Gamoran, Anderson, Quiroz, Secada, Williams, & Ashmann, 2003; Malorni, 1996), the finding that gifted education faces many obstacles in providing the appropriate curricular modifications that are needed for this population (Plucker & Callahan, 2008; Renzulli, Gubbins, McMillen, Eckert, & Little, 2009; Van Tassel-Baska & Brown, 2007), and that online learning might provide a significant solution to overcoming those obstacles (Anderson, 2004; Field, 2009; Lenhart, Madden, & Hitlin, 2005; Leu, Leu, & Coiro, 2004). The Renzulli Learning System is selected as a potential example of how one solution might manifest itself in action. All these topics impacted the researcher's approach to the topics, her beliefs about the study, and inform the reader in ways to consider the findings.

Chapter Three outlines the methods used in this research and addresses the five research questions that asked how selected adolescents used RLS, what the perceived effects of using RLS were, their perceptions of social impact, and how parents and teachers perceived student involvement with RLS. These areas were formed into the following research questions:

1. How are the selected adolescents using RLS?
2. What are the perceived effects of using RLS on school behaviors?
3. How do students perceive that using RLS has affected their social behaviors?
4. What are students' perceptions of their parents' understanding of RLS?
5. What are students' perceptions of their teachers' understanding of RLS?

The methods and practices are outlined as well in Chapter Three. The study was a phenomenological one in which nine adolescent students completed a questionnaire that addressed the research questions and were interviewed individually by a sole researcher to gain a richer sense of the perceptions of the students in their own words. The data that was collected, recorded, and transcribed was summarized according to the research question answers and then

coded into themes that may have relevance to a larger population. The sample and setting of the students are further described in this chapter as is information about validity. The limitations of the study are also described. For example, the small sample size using a fairly homogeneous group of students in a narrow age and grade range are limitations. In addition, one online learning system is the focus of the study within the context of school use only.

Chapter Four includes results of questionnaires and interviews. Each research question is addressed through the use of student responses in general as well as specific responses about student beliefs, often using their own words in quotes to convey accuracy. Students responded to most questions in a straightforward manner. When students were pressed with clarification or follow-up, the responses enhanced the findings. For example, some students indicated that RLS had no effect on their social lives, but talked frequently about the enjoyment they had in working together using RLS, wanting friends, and needing support systems, all of which could be argued are a part of their social academic lives. This chapter ends with additional questions and further study that might contribute to other knowledge about and solutions for the topic being investigated.

Chapter Five provides a discussion of the findings. The findings are summarized into four themes that directly address the research questions of the study. Additionally, three peripheral findings emerged that are also included as they were common to all students and were repeated during the course of the interviews to a significant degree. All the themes are helpful in understanding the phenomenon of these students' use of RLS. The four main themes were that RLS is an excellent tool for their current academic needs, that it is at this point mainly a school tool, that it is fun and enjoyable to use, and that it has not affected their social lives. The additional findings of interest to the study were that these students were greatly motivated by their families' influence, that they had a great sense of independence while still wanting to have a support system, and that they had very healthy self-images about their current academic standing and future potential for success. This chapter also includes a consideration of the findings, implications of the study, limitations, and recommendations for educators.

Following the last chapter are references and appendices with the online questionnaire given to the students and the interview protocol used for the first interview. Interview protocols for the second interview included specific follow-up questions for each student, based on the first interview.

The researcher hopes that the information gleaned from this study will be useful to readers and to future efforts to increase the engagement, productivity, and creativity of gifted students in schools. Few would argue that online learning is a tool that can be very useful to students who are highly curious and who need effective tools for researching and managing knowledge in a vast information age.

CHAPTER TWO: Literature Review

Many areas of research inform this study. The majority of the literature review originates from the field of gifted education which helps explain who these students are (Clark, 1997; Davis, 2006; Gallagher, 1975; Frasier, 1995; Naglieri & Ford, 2003; Renzulli, 1978; Winner, 1996), how they learn (Dixon & Moon, 2006; Ford, 1998; Gallagher, 1975; Plucker & Callahan, 2008; Sternberg & Grigorenko, 1993), how they should learn (Dixon & Moon, 2006; Horowitz, Subotnik, & Matthews, 2009; Karnes & Bean, 2001; Kulik, 1993; Maker, 1982; Tomlinson, 1999; Tomlinson, Kaplan, Renzulli, Purcell, Leppien, & Burns, 2002; Van Tassel-Baska & Little, 2003), what programs work (Maker, 1982; Renzulli, Gubbins, McMillen, Eckert, & Little, 2009; Rogers, 1991; Van Tassel-Baska & Brown, 2007), what methods do not work (Ford, 1998; Plucker & Callahan, 2008; Renzulli, Gubbins, McMillen, Eckert, & Little, 2009; Van Tassel-Baska & Stambaugh, 2005), what obstacles these students face and what options these students have (Kaufmann, 1981; Van Tassel-Baska & Stambaugh, 2005; Whitmore, 1980). Meaningful connections can be made from the educational reform movement regarding authentic and constructivist learning as well as research regarding how teachers operate in a school setting (Little, 1990; 2003). Renzulli Learning exemplifies the trend toward authentic and constructivist learning and was designed to assist teachers who do not have the time, training, or sufficient motivation to specialize programs for their gifted students. Such programs address a need noted by Borland (1978). His research and the research of others (Knapp, 1997; Lortie, 1975; Robinson, 1990; Van Tassel-Baska & Stambaugh, 2005) found that preservice and novice teachers are unclear about their professed beliefs regarding individual differences, have little idea of how to differentiate (Westberg, Archambault, Dobyms, & Salvin, 1993) and should not resort to having gifted students “teach” struggling learners in the classroom, according to Tomlinson (1977). On a positive note, other researchers have found that positive applications and results occur when teachers are trained in using specific strategies (Hultgren & Seeley, 1982; Reis & Westberg, 1994). Finally, a brief look at online learning will show the dearth of related literature but presents its possibilities.

Conceptual Framework

This study originates in the research finding that gifted students fail to receive the program modifications on a wide scale basis that would be appropriate to an educational program that meets their needs of rigor, challenge, and creativity as promoted by proponents of gifted educational practices (Dixon & Moon, 2006; Karnes & Bean, 2001; Renzulli, Gubbins, McMillen, Eckert, & Little, 2009; Tomlinson, 1999; Tomlinson, Kaplan, Renzulli, Purcell, Leppien, & Burns, 2002; Van Tassel-Baska & Brown, 2007; Van Tassel-Baska & Little, 2003). RLS is one potential method of achieving that goal. If one is to study the phenomenon of gifted adolescents using RLS, one must examine some of the factors that created the situation for the phenomenon. The three major factors influencing the phenomenon are the educational reform movement (Firestone, Schorr, & Monfils, 2004; Lee, Smith, Perry, & Smyle, 1999; Lieux, 1996; Liu, 2005; Newmann, King, & Youngs, 2000), the current status of gifted education (Karnes & Bean, 2001; Rogers, 2002; Tomlinson, 1999; Tomlinson, Kaplan, Renzulli, Purcell, Leppien, & Burns, 2002; Van Tassel-Baska & Little, 2003; Renzulli, Gubbins, McMillen, Eckert, & Little, 2009; Van Tassel-Baska & Brown, 2007) and the factors influencing that status (as relates to teachers, funding, and policies), and the third area of influence derives from the rapid increase in internet usage by young people (Jaschik, 2009; Karnes & Bean, 2001; National Report, 2005; Roberts, Foehr, & Rideout, 2005). Figure 1 demonstrates how school reform is perceived to bear upon the need for curricular modification in schools. School reform shapes the curriculum and instructional practices of teachers and therefore of their students, gifted and otherwise. Finally, the creation of RLS stems from the possibilities of use of online learning with this population which leads to the focus for this study. The desired end result is the successful enrichment and continued progress in learning for gifted students.

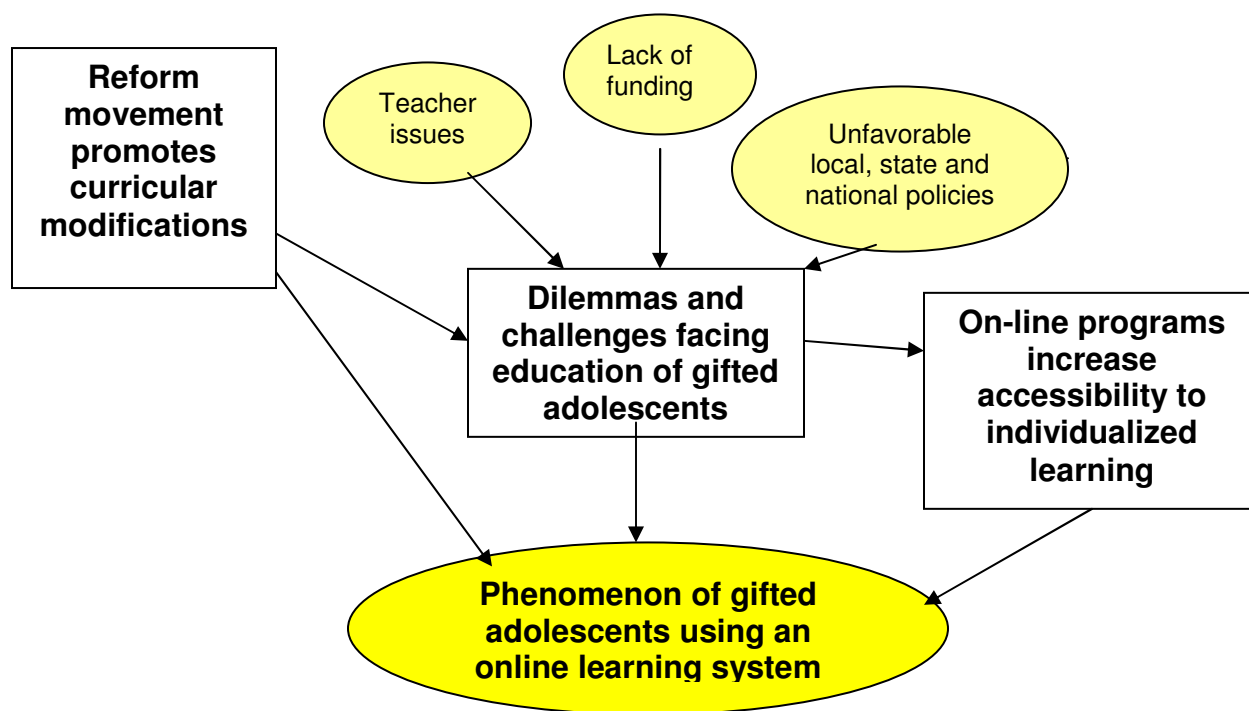


Figure 1. Conceptual framework underlying study of gifted adolescents using online learning

Gifted Education Background Information

In the introduction, the importance of asynchronous behavior was mentioned as a factor in the difficulty of educating gifted students (Karnes & Bean, 2001; Neihart, Reis, Robinson, & Moon, 2002; VanTassel-Baska & Little, 2003). There is some variation among definitions of giftedness in addition to the one presented in Chapter One from the Columbus Group (Kearney, 2005). In addition to the concept of asynchronous development, giftedness can be seen as a predictor of adult achievement (Renzulli, 1978) or as potential that must be nurtured through an appropriate environment (Gagné, 199; Hollingworth, 1942). Schools may define giftedness based on relative ability. In other words, if students perform within a certain top percentage of the school population, they may be singled out as needing an educational plan beyond the regular curriculum.

The field of gifted education generally presents the belief that gifted individuals are those who have ability in one or more domains that are sufficiently advanced as to require modifications in educational settings established for average students. The definition of giftedness from the United States Office of Education (US Department of Education, 1993) describes these students as follows:

Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment.

These children and youth exhibit high performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor. (from Davis & Rimm, 1989, p.12)

For the purpose of this study, the definition operationally used is that originally defined by Renzulli (1978). Renzulli's definition, which describes gifted behaviors rather than gifted individuals, defines giftedness as the intersection and interaction among three basic clusters of human traits—above average ability, high levels of task commitment, and high levels of creativity. Individuals capable of developing gifted behaviors are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance. He further notes that humans engage in gifted behaviors at certain times, in certain situations and under certain conditions. Renzulli believes that gifted and talented children are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance. His work has focused on children who manifest or are capable of developing an interaction among the three clusters as he believes they require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional programs (Renzulli, 1978).

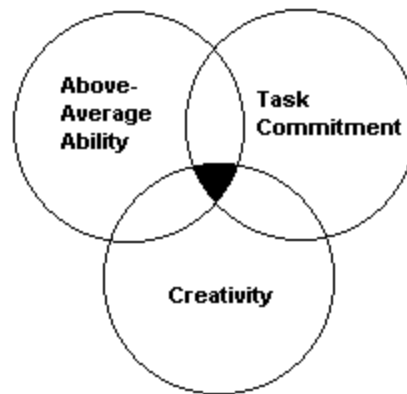


Figure 2. Venn Diagram of Renzulli's Definition of Giftedness

(Renzulli, 1978)

For most of gifted education's history, giftedness has been tied to a general intelligence factor, often defined by IQ (Galton, 1962; Terman, 1926). There has been a fear that the concept of giftedness as encompassing a wide variety of capabilities, emerging since the 1970s, risks "...that the coherence, communicability, and clarity of the field's traditional theoretical paradigm will be lost" (Feldman, 2003, p. 27). The absence of a clear and universally accepted definition of giftedness has cultural and political support in the United States where anti-intellectualism thrives (Sapon-Shevin, 1994). Students who do not fit the school's accepted definition of giftedness, which may not consider such aspects of performance and potential as creativity, cultural differences, or socio-economic gaps, may be prevented from receiving services and programs that would be highly beneficial to their needs. However, the concept of an expanding definition of giftedness that many researchers have promoted in the last few decades (Borland, 2003; Borland & Wright, 1994; Ford, 1998; Frasier, 1995) supports Renzulli's approach to learning as exemplified in the RLS program.

In addition to various definitions, other difficulties exist in providing effective education for gifted students despite the fact that these are generally motivated and intelligent students. Tomlinson (1997) notes that gifted students are often not challenged in the classroom because the curriculum is not differentiated for their learning needs. Winner (1996) reminds us that gifted, talented, creative, prodigious children have always been intriguing. They have been referred to as "freaks" and "nerds" (p.2) and their parents have been alternately blamed and criticized for

pushing them too hard or not hard enough. She further alludes to the difficulties that await such students and their parents in schools.

...Our schools often refuse to alter the curriculum for such “extreme” cases and insist that they adapt to the existing programs. When parents get upset about this, they are seen as people who have lost all perspective, people who do not realize how lucky they are to have a child with high, rather than low, abilities.

(p.2)

Gifted adolescents

Research on giftedness in adolescence is also pertinent in this study, since the subjects used in the study are of adolescent age. Most of the literature on adolescence of gifted students deals with social and emotional factors, such as rebellious behavior or peer group identification (Buescher, 1991; Edwards & Kleine, 1986; Maxwell, 2007; Webb, Gore, Amend, & DeVries, 2007) and less on learning differences such as the abilities to think broadly and globally and to make intuitive connections among concepts (Neihart, Reis, Robinson, & Moon, 2002; Horowitz, Subotnik, & Matthews, 2009). As factors relating to social and emotional characteristics such as perfectionism, oppositional behavior, or apathy are viewed as less related to this study than learning factors, attention will only be given to literature that seems most related to the study.

Adolescence can be described as a decade-plus period of change and transition from childhood to adulthood, compounded by the added dimension of giftedness for many adolescents (Edwards & Kleine, 1986). Literature focused on the gifted adolescent is emerging (Neihart, Reis, Robinson, & Moon, 2002; Horowitz, Subotnik, & Matthews, 2009). Gifted adolescents, as do gifted students of all ages, vary among themselves as much as they vary from the general school population (Delisle, 1984). Such variance and resultant research studies suggest that educators and parents must be aware of the intensity and variety of services these students need and that they must be prepared to offer multi-modal services and interventions (Edwards & Kleine, 1986; Renzulli, Gubbins, McMillen, Eckert, & Little, 2009).

While these students exhibit behaviors typical of most adolescents, researchers have also found that they exhibit behaviors that are different from the norm. Sak (2004) conducted a synthesis of fourteen studies on the personality types of gifted adolescents. In these studies the gifted adolescents were found to be different from the general adolescent population as well as different among themselves as assessed by the Myers-Briggs Type Indicator (MBTI). The most common personality types among gifted adolescents were “intuitive” and “perceiving”. They were significantly more introverted than the normative group, suggesting that introverted adolescents may prefer quiet learning environments and individual rather than group work (Sak, 2004). Introverted, intuitive students are more likely to prefer project-based learning because they can structure tasks that they like to do. For example, Sak (2004) suggests that an integration of Renzulli’s (1977) unstructured Type III Enrichment model and Parnes’ (1988) structured Creative Problem Solving would satisfy the characteristics of gifted students who prefer introversion and intuition as these models encourage analytical, creative and practical thinking through self-paced group and individual projects. Sak (2004) further notes that the perceptive characteristic shown in his research synthesis suggests that an atmosphere of flexibility may be helpful for gifted adolescents, as perceptive types tend to be unorganized and late in assignments.

In early adolescence, there is a gradual decreasing dependence on adults as youth tend to identify more with their peer group (Dixon & Moon, 2006). Teen years can be difficult for gifted students. They may be aware of myths and derogatory beliefs that exist in our culture about gifted students and may want to fit in to other groups. This desire may cause them to temporarily hide their abilities so that they may belong or it may cause them to rebel, sometimes against peers and sometimes against parents (Dixon & Moon, 2006).

Gifted children are natural questioners due to their desire for knowledge. As they enter adolescence, they begin to question rules and traditions to test the logic of such rules or to help them find their own truths (Dixon & Moon, 2006). Adolescent behavior that may seem irrational to adults may be partially explained by the following general adolescent needs identified by Buescher (1986).

Prominent needs of most adolescents:

1. Opportunities to experience real independence
2. Concrete experiences of successful self-direction
3. A variety of adult and leadership models to emulate
4. Ability to cope while building real-life skills
5. Successful avenues for defining oneself beyond the options suggested by adults
6. A desire to be taken seriously by peers and adults
7. Predictable space where one can safely explore acceptance and rejection by peers
8. A factual basis for understanding the process of adolescence
(as summarized by Delisle, 1992, p. 134)

Buescher (1984) further notes that gifted adolescents have additional issues to deal with related to their giftedness. They may not want to own the label of giftedness and may question being given that label. Gifted adolescents may feel dissonance in feeling imperfect, while hearing often how smart they are. They may wonder about taking new risks or staying with secure situations. Gifted adolescents may feel torn between others' expectations and their own needs. They can be impatient with wanting to know everything right *now* and they have a need to have their identity count *now*, not sometime later in life (Buescher, 1996).

Gender differences can be a concern as well. Kerr (1985) hypothesizes that differences begin to occur in adolescence. She found that boys maintain their high-status profile of career aspirations throughout their teen years but that girls show a pattern of decline. Kaufmann (1981) found a similar trend among the Presidential Scholars, as she followed them through to adulthood. Maxwell (2007) outlines multiple study findings that confirm that highly capable female students often do not achieve at the level of their male counterparts. Problem areas for females include lower career aspirations, external pressures of peers, family and school environment, loneliness, isolation, and gender role socialization.

Perfectionism may also be a factor for gifted adolescents. Perfectionism is a common characteristic of gifted students (Clark, 1997; Kerr, 1991; Whitmore, 1980) and when it is coupled with adolescence it can exacerbate the desire for recognition and acceptance (Buescher, 1991). Schuler (1999) found in her study of rural gifted students that perfectionism affected students in

three areas: interpersonal relationships, school life, and the future. Eighty per cent of the perfectionist participants in her study believed they had not been challenged in school. In another study, Schuler (2000) found that 88 % of the 112 gifted seventh- and eighth- graders surveyed were perfectionist; 58% were in the healthy range of perfectionism and nearly 30% were in the neurotic range. Neurotic perfectionists were limited by their fixation on making mistakes, resulting in a state of anxiety. Online learning may hold promise for perfectionist adolescents in providing a challenging, safe environment to take intellectual risks, and a reprieve from a school environment that may be stifling to perfectionists. It may also hold promise for gifted adolescents overall in helping them escape aspects of regular school that do not meet their needs while allowing them to individualize their own learning and behavioral needs.

Programming Models for Gifted Students

As with all students, instructional programs should match the identified needs of students and may take many forms, which is where difficulties may arise. The entire school program must accommodate the specialized learning and cognition needs of gifted students over time. Many curriculum and instructional models (Renzulli, Gubbins, McMillen, Eckert, & Little, 2009) are available to help the educator design an appropriate curriculum framework for their programs (Karnes & Bean, 2001; Parke, 1989; VanTassel-Baska & Little, 2003; Van Tassel-Baska & Brown, 2007), but the level of commitment on the part of all educators involved with the student determines its effectiveness. Renzulli and Reis (1997) recommend a continuum of services (1985;1997) to challenge and engage students across both academic and affective needs. Once a framework has been selected, programs can be implemented for school-wide, within class, and out of class programming. Whole school programs for differentiation include continuous progress curriculum, fast-paced classes, early admission, and multi-aged grouping (Karnes & Bean, 2001; Maker, 1982; Tomlinson, 1999; Tomlinson; Van Tassel-Baska & Little, 2003). All of these whole school programs must accommodate depth, such as in research projects or within small student interest groups. Within-classroom accommodations that respond to the varying needs of gifted students include curriculum compacting, self-instructional programs, learning packets or learning

contracts and advanced materials (Kulik, 1993; Renzulli, Gubbins, McMillen, Eckert, & Little, 2009). Internet study provides an option both within and without the classroom.

The Council for Exceptional Children (2002) states further curricular conditions under which the needs of gifted students can be met. CEC contends that teachers match their instructional strategies to the specific learning needs of the students and that the students receive an appropriately differentiated curriculum or have access to the full range of curriculum (through distance education, acceleration, or other specially designed programs).

Learning opportunities must provide a flexible program prototype to respond to the varying needs, abilities and interests of students if they are going to be sufficiently individualized and rigorous (Renzulli, Gubbins, McMillen, Eckert, & Little, 2009). Additional programming options include enrichment in the classroom, consultant-teacher programs, resource room/pullout classes, interest classes, community mentor programs, independent studies, special classes, special schools, magnet schools, summer programs, acceleration, advanced placement, early college entrance, online learning, and dual enrollment in college and high school (Karnes & Bean, 2001; Renzulli, Gubbins, McMillen, Eckert, & Little, 2009). There is such a wide variety of programming options for gifted students that there should never be a dearth of opportunities for these young people, yet it is not unusual to find programs lacking from a state and national level to a school and district level (Baker & Friedman-Nimz, 2000).

Many curriculum models exist in the field of gifted education. Eleven curricular models were critiqued by Van Tassel-Baska and Brown (2007) according to the key features that each model contributed to student learning, teacher use, and contextual fit, including alignment to standards and use with special populations of gifted and non-gifted learners. They found that six of the models show some evidence of being effective with gifted learners. Data on the six models favored a discipline-specific approach, although there may be variation in ways of teaching the discipline. Most of the models favored an inquiry-based model of instruction. Curricula based only on higher order processes and independent study yielded few studies of student impacts and those are not consistent. Van Tassel-Baska and Brown (2007) concluded that the strongest body of research evidence support the use of advanced curricula in core areas of learning at an

accelerated rate for high ability learners, suggesting that best practice would be to “group gifted students instructionally by subject area for advanced curriculum work that would be flexibly organized and implemented based on students’ documented level of learning within the subject area” (p.351). Of the six effective models, the two mega-models with the most research evidence used in this study were those of Julian Stanley and Joe Renzulli and Sally Reis. Each of these models has sustained more than two decades of research, development and implementation. They also represent a division in the field regarding acceleration and enrichment.

Stanley’s Study of Mathematically Precocious Youth (SMPY) (Stanley, Keating & Fox, 1974) started in 1971 at Johns Hopkins University and is now in its third decade of data collection. SMPY pioneered the concept of searching for youth who reason exceptionally well mathematically. The SMPY research has focused on the benefits of acceleration for continued advanced work in an area (Renzulli, Gubbins, McMillen, Eckert, & Little, 2009). The model has been well received by parents and students but less well received by schools, due to traditionally conservative attitudes towards acceleration practices and their emphasis on core subject areas (Van Tassel-Baska, & Brown, 2007).

The other mega-model is the Schoolwide Enrichment Model (SEM), by Renzulli and Reis (1985;1977), addressed here in considerably greater detail since it is the model for the online program that is the focus of this study. The web-based Renzulli Learning System (RLS) is an outgrowth of the Enrichment Triad and the SEM developed by Joseph Renzulli (1977) and with Sally Reis (1985; 1997). The SEM research has been ongoing for thirty years (Reis, & Renzulli, 2003), and is one of the most widely used models for enrichment and talent development around the world. The SEM is often cited in gifted education literature.

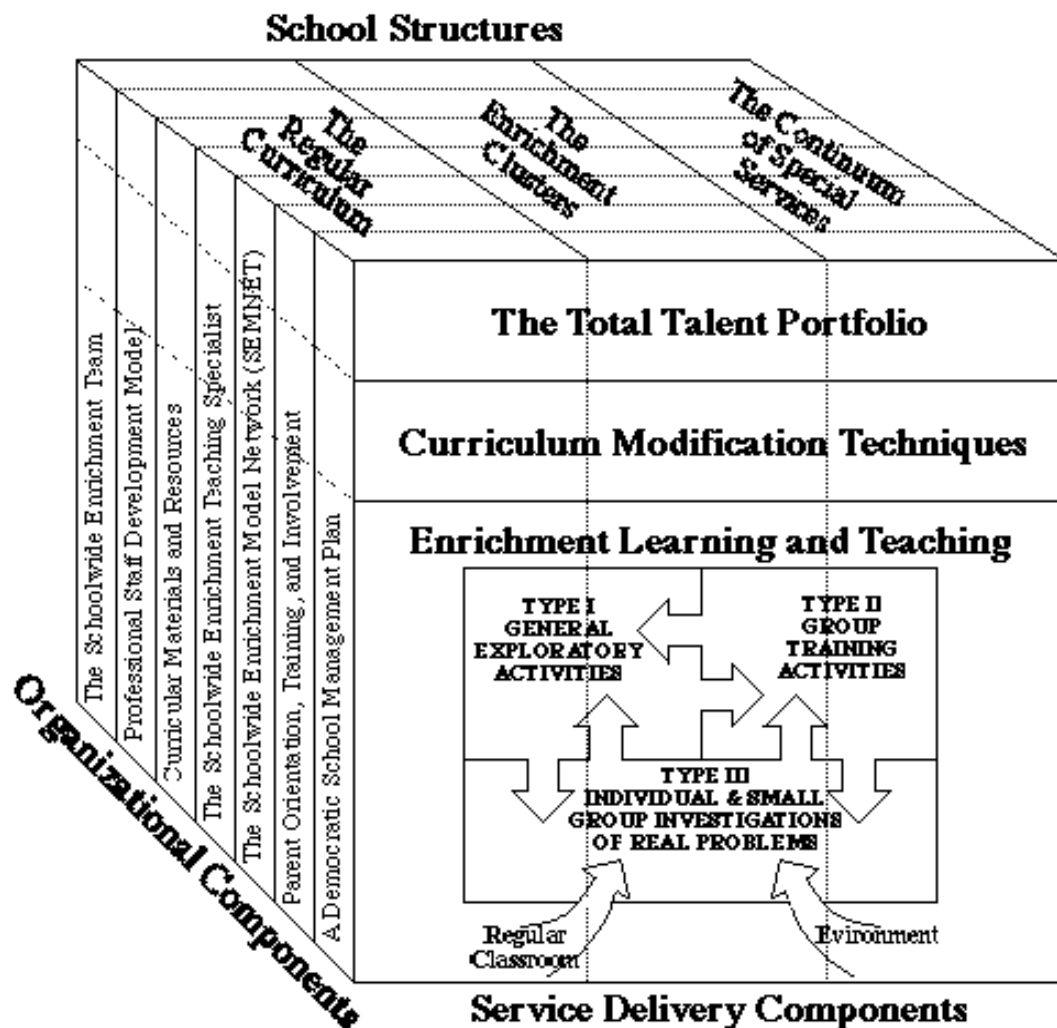


Figure 3. The Schoolwide Enrichment Model (Renzulli, 1999)

Figure 3 is a summary of the SEM (Renzulli, 1988). A talent pool of 15-20% of above-average ability/high-potential students is identified through a variety of measures, including achievement tests, teacher nominations, assessment of potential for creativity and task commitment, as well as other pathways of entrance (self-nomination, parent nomination, etc.) (Renzulli, Reis, & Smith, 1981). High achievement test scores and IQ scores automatically include a student in the talent pool, enabling those students who are underachieving in their academic school work to be considered for services despite grades that might eliminate them in other programs. Identified students are then eligible for several kinds of services. First, interest and learning style assessments are used with talent pool students. Second, curriculum

compacting is provided to all eligible students; meaning that the regular core curriculum is modified by eliminating portions of previously mastered content, and alternative work is substituted (Reis, Burns, & Renzulli, 1992; Renzulli & Smith, 1979). The substituted work might be a more advanced version of the compacted work or it might be interest based.

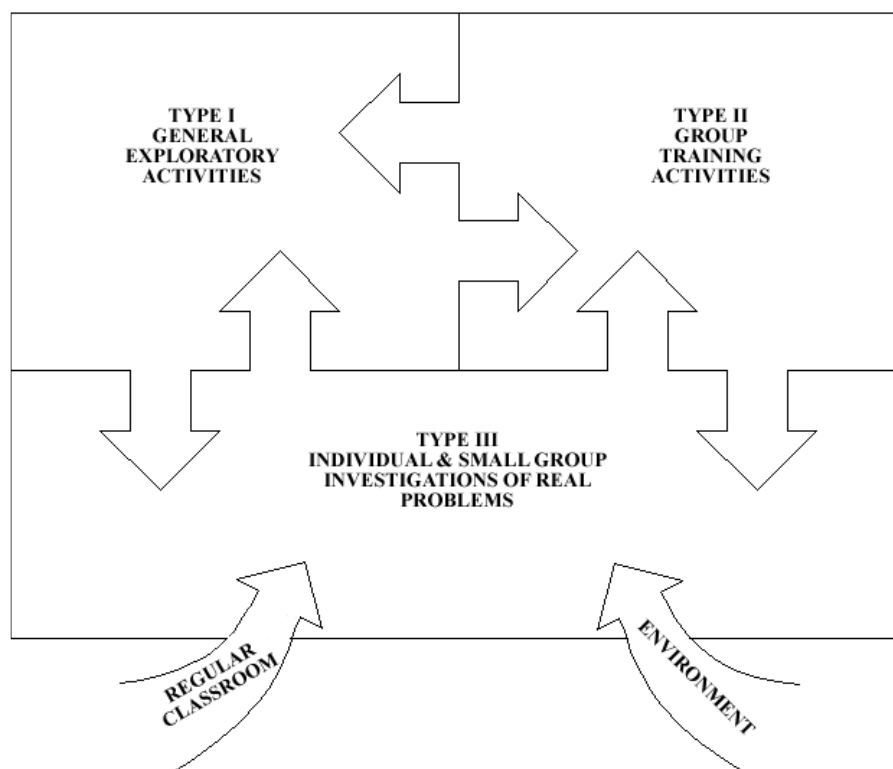


Figure 4. Three Types of Activities in Renzulli's Enrichment Triad Model

Finally, the Enrichment Triad Model offers three types of enrichment experiences: Type I, II, and III as shown in Figure 4 as enlarged and excerpted from Figure 3. Type I Enrichment consists of general exploratory experiences designed to expose students to new and exciting topics, ideas, and fields of knowledge not ordinarily covered in the regular curriculum. Type II Enrichment includes instructional methods and materials purposefully designed to promote the development of thinking, feeling, research, communication, and methodological processes. Type III enrichment is usually most appropriate for students with high levels of ability, interest, and task commitment. Type III Enrichment, the most advanced level of the model, is defined as investigative activities and artistic productions in which the learner assumes the role of a first-hand inquirer: thinking, feeling, and acting like a practicing professional, with involvement pursued at a level as advanced or professional as possible. Type III activities are closely aligned with the types of learning appropriate to gifted students. Renzulli perceives that the model is closely linked to core curricula, offers a scope and sequence within Type II activities, and has the potential to be aligned with National Content Standards (Renzulli, 1999).

The SEM and RLS have the potential to assist teachers in meeting the diverse needs of all students through differentiated content and instruction by providing a way to address the variation of learners in the classroom. Evaluation studies have been conducted in multiple school districts on the perceptions of the model with parents, teachers, and administrators. Researchers of these studies document positive change in teacher attitudes towards student work as a result of using the SEM model (Van Tassel-Baska & Brown, 2007). Recently the model has shown an increase in reading scores resulting from an intervention of ten to twelve weeks (Reis, et al., 2003). SEM longitudinal studies have been conducted that showed that students maintained career goals from their plans in high school, remained in major fields of study in college and were satisfied with current work. Type III processes appeared to be important for later productivity (Delcourt, 1994; Hebert, 1993).

The Schoolwide Enrichment Model consists of three interacting dimensions (see Figure 3). Two dimensions, called the *organizational components* and the *service delivery components*, bear on a third dimension, which represents various *school structures* such as the regular curriculum, a variety of enrichment situations, and a continuum of services that ranges from enrichment in the regular classroom to special projects, internships, various grouping arrangements and a broad array of out-of-school enrichment opportunities. The organizational components are resources used to support program development such as staff training materials, an enrichment materials database, procedures for staff teaming and interaction, and vehicles for promoting parent and community involvement (Renzulli, 1977).

The Enrichment Triad and School Enrichment Model provide the model and structure for the online learning system. According to the website, <https://www.renzullilearning.com>, the Renzulli Learning System is based on the following four basic principles of enrichment and advanced level learning:

1. Each learner is unique, and, therefore, enrichment learning experiences must take into account the abilities, interests, learning styles, and preferred modes of expression of each student.

2. Learning is more effective when students enjoy what they are doing, and, therefore, enrichment learning experiences should be created with enjoyment of learning as a major goal.
3. Learning is more meaningful and enjoyable when content (i.e., knowledge) and process (i.e., thinking skills, methods of inquiry) are learned within the context of a real and present problem; and, therefore, attention should be given to enrichment opportunities that: (a) personalize student choice in problem selection, (b) create conditions that insure the relevance of the problem for individuals or groups who share a common interest in the problem, and (c) provide resources and strategies for assisting students in pursuing interests in ways that approximate the work of practicing professionals.
4. A major goal of the Renzulli Learning System is to enhance knowledge and thinking skill acquisition with opportunities to apply what one is learning in areas of personal interest, relevance, and preferences for creative productivity.
(<http://www.renzullilearning.com>, 2008, paragraph 2).

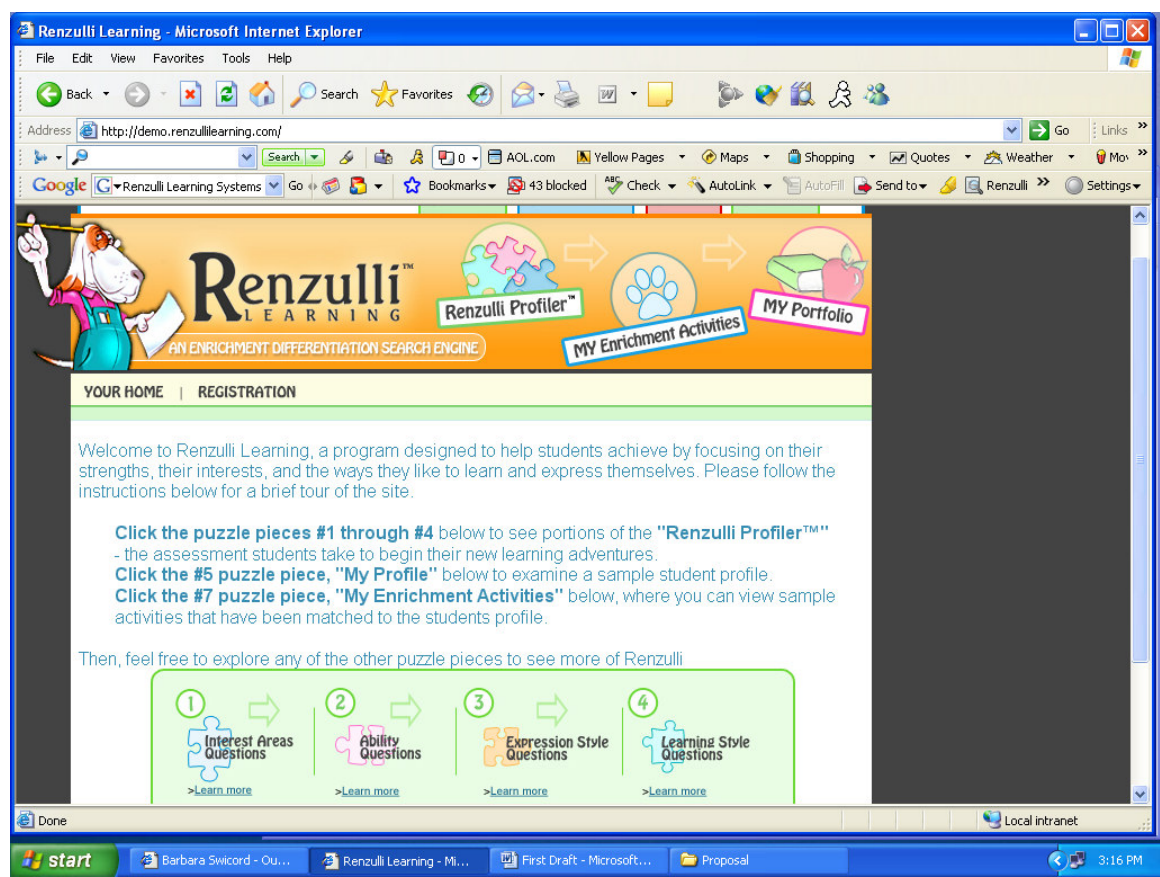


Figure 5. Student Page at Renzullilearning.com



Figure 6. Student Page at Renzullilearning.com

Figure 5 shows the page the student starts with in participating in the learning system and Figure 6 highlights from that page the eight steps that students take in creating a portfolio of work designed especially for them. An individual Talent Development Profile (TDP) is created for each student, and then an Enrichment Differentiation Database (EDD) collection of Internet and downloadable resources is located and made available in a personalized selection of activities that relate to student interests, and in some cases, their learning styles and preferred modes of expression. Based on students' responses to questions about their interests and how they like to learn and apply what they have learned in creative ways, specific activities are identified (<http://www.renzullilearning.com>, retrieved December 2, 2008, Home tab, Enrichment and Differentiation Activities, paragraph 2).

School Challenges and Obstacles to Effective Education of the Gifted

Differentiating programs for gifted students has not been consistently implemented for many reasons. Moon, Tomlinson, and Callahan (1995) found that 50% of the teachers they surveyed did not differentiate instruction because they saw no need to do so. However, a few years later, Hootstein (1998) found that 90% of high school teachers responded that addressing students' academic differences is important or very important to student success. General education teachers may not differentiate because they do not want to call attention to student differences, or they believe it is not their job to differentiate, or they are unaware of differing student needs or they do not know how to differentiate (Schumm & Vaughn, 1995; Tomlinson, 1995).

VanTassel-Baska and Stambaugh (2005) summarized the research studies of the past decade on the status of differentiation in the regular classroom and noted that the pattern of minimal differentiation is virtually unchanged, despite efforts in professional development to change that situation. They found several major barriers that prevent educators from implementing effective differentiation for gifted learners.

The first obstacle noted is the lack of sufficient subject matter knowledge (VanTassel-Baska & Stambaugh, 2005). Gifted students bring an advanced and sophisticated knowledge base to the classroom and need educators who can accelerate them in their knowledge base.

Another obstacle is that of effective classroom management. When teachers are not strong in classroom management, they do not have the flexibility and skill to manage the range of learning tasks and organizational responsibilities needed to have a variety of tasks ongoing at the same time and may end up quitting such efforts after a few tries. They further found that attitudes and beliefs about learning may hinder a teacher's ability to differentiate. If teachers do not believe that gifted students have varied learning needs and that they learn at different rates, they are less likely to be inclined to address those differences. Many educators are also outside their comfort zone in modifying curriculum, as such work requires additional effort, knowledge, and skill teachers many not have or be willing to develop. Teachers are further challenged by students who are exceptional in more than one area (twice- or thrice-exceptional), are minority, or are from a low SES status. They may be ill-equipped to deal with these additional challenges coupled with a student's gifted characteristics (VanTassel-Baska & Stambaugh, 2005).

VanTassel-Baska and Stambaugh (2005) also note the common complaint of teachers that there is not sufficient planning time needed on a daily and weekly basis to deal effectively with the management of differentiation in their classrooms. There may also be a lack of administrative support, so critical to the systemic change needed to support differentiation practices within a school or district. Finally, few teachers have the training and support necessary to work with gifted students so they do not know when and where to apply pedagogical skills within their disciplines.

These challenges may all be lessened by the inclusion of online learning into a student's total educational plan as displayed in the following table. Online learning would likely remove all such barriers as it can remove the teacher from the equation. The only uncertain areas would fall under categories where teachers might not have internet resources in the classroom for students to use or where they may not be allowed to use those resources.

Barrier identified by VanTassel and Stambaugh (2005)	Potential for barrier removal when individualized online learning strategies are employed
1. Teacher lack of subject matter	High
2. Lack of management skills	High
3. Philosophical beliefs not consistent with differentiation	Moderate
4. Inability to modify curriculum	High
5. Ability to teach diverse populations	High
6. Difficulty finding and utilizing resources	High
7. Lack of planning time	High
8. Lack of administrative support	Moderate
9. Lack of pedagogical skills	High

Figure 7. Display of obstacles identified by VanTassel-Baska & Stambaugh (2005) with presumed elimination effect by use of online learning

Teachers are only as effective with gifted students as they are knowledgeable about how to work with gifted students. Tomlinson (1995,1999) notes there are many impediments to a teacher's ability to meet the needs of gifted students in their classrooms. These impediments include "...large class sizes, competing demands on teacher time, lack of teacher skill and comfort with designing and implementing curriculums that are concept-based, problem-oriented, and student-centered and that teachers make adjustments for struggling learners more often than for

advanced multi-intelligent ones” (1995, p. 68). She further observes that teachers are more inclined to have negative attitudes about gifted students or perceive that these students will make it on their own.

As a result, gifted students often spend much of the day tutoring others in cooperative learning groups or reviewing curriculum that they mastered years ago on their own (Robinson, 1990; U. S. Department of Education, 1993). Gifted students become frustrated quickly with the cooperative learning group approach. In addition, not all students are comfortable with group work. A classroom policy that is centered on cooperative learning may thwart and alienate some students at all ability levels. With internet learning, the teacher impediment is lifted and the student has the potential to continue her own growth rather having the responsibility of teaching others (Tomlinson, 1999).

A deeper look into obstacles teachers face illuminates additional factors that contribute to the lack of effective gifted education strategies in schools. Stigler and Hiebert (1999) found that many American teachers believe that individual differences are an obstacle to effective teaching. As tailoring an educational program toward each child’s level of performance and ability is not an easy task, a common solution has been to track or group students into separate classes by ability or past performance. Like VanTassel-Baska and Stambaugh (2005), Stigler and Hiebert (1999) also found that classroom teachers do not receive sufficient training in working with this population of students in preservice and in-service stages so they are likely less prepared to work effectively with these students within a single classroom. “Most regular classroom teachers make few, if any, provisions for talented students” (U. S. Department of Education, 1993, p. 2). There is further research to indicate that teachers are not employing differentiated strategies for gifted students at an adequate level. Researchers at the National Research Center on the Gifted and Talented studied the extent to which gifted students received differentiated instruction in regular classrooms in the United States (Archambault, 1993). The major finding of this study was that third and fourth grade teachers make only minor modifications in the regular curriculum to meet the needs of the gifted students. This result was consistent for public and private schools and for ethnically diverse schools and in various regions of the country. The survey also showed that the

modifications that were used were not used widely. Believing that these modifications can happen or should happen does not cause them to happen.

Knapp (1997) notes that the engagement of teachers in professional communities is important in implementing any reform. Making modifications for gifted students is also a reform affected by professional communities. From the vantage point of interpreting reform in terms of professional and organizational learning, the collective enterprise of a school is greater than the sum of its parts. Firestone, Schorr, and Monfils (2004) found that high capacity districts were more collaborative and respectful of teachers' judgments. This type of collaboration is necessary for schools to be able to modify the learning environment for all students consistently across grade and content areas so that there is continuous support for initiatives that may require flexibility within the traditional curriculum and school framework. If there are not high expectations on a district level and if there is also not a community of teachers within a school who are committed to modifying the educational program for gifted students, such reform is not likely to happen (Newmann, King, & Youngs, 2000). However, a single teacher can support or at least allow the use of internet options with her own individual students.

Coburn (2003) describes teachers as gatekeepers who let some messages into their classrooms while keeping others out. Teachers may be keeping some of the suggested gifted education programming out of their classrooms because they believe such strategies are not appropriate to their grade level, that they are too difficult for students, that they are outside their bounds of conceivability, that they are unmanageable ideas, or that they do not fit with what they are doing. Teachers may also not understand such strategies or may be philosophically opposed to them (Coburn, 2003). Internet learning avoids these issues by being able to work around the teacher, if necessary.

To understand teachers' beliefs about the issues involved in teaching gifted students, it is important to understand how the circumstances of teaching can affect those beliefs. Teacher training does not equip teachers for the realities of the classroom; most teachers are isolated physically and pedagogically and they are uncertain about whether they are making a difference with students (Little, 1990; 2003). In a rare study looking at teacher beliefs and Problem-Based

Learning (PBL), Kim, Grabowski, and Song (2003) investigated and described the perspectives of science teachers who integrated a web-enhanced PBL model into their classrooms. This qualitative study found that the successful integration of an innovative learning program with the use of technology may depend greatly on how teachers relate what they believe about their own teaching practices to new teaching approaches. These findings might help explain teachers' reluctance to grapple with programs like RLS as they may have certain beliefs about their teaching that do not integrate with constructivist or online approaches.

Five key characteristics of professional groups and communities that provide additional direction for engaging in reform. These characteristics are shared norms and values, a focus on student learning, collaboration, reflective dialogue, and deprivatization of practice (Gamoran, Anderson, Quiroz, Secada, Williams, & Ashmann, 2003). When all staff within a school share a belief that the learning needs of all students should be respected, then it will be possible for modifications, such as those needed for gifted students, to be made to the traditional program (Malorni, 1996; NAGC, 2005). Online learning can support these community/group characteristics but also can function independently for students.

Teacher beliefs may also be affected by legislation such as the No Child Left Behind Act (Background information on the NCLB Act, n.d.). Schools face penalties if they fail to raise continually their proportion of proficient students, both overall and within various racial and other categories. To abide by the law, schools are putting their resources into programs and practices that they believe will raise the testing performances of lower ability students to meet the law's objectives. Educators may not perceive that programs like RLS are strategies that are consistent with their tasks and responsibilities within NCLB.

Equally important is the need for schools to recognize and respond to the social and emotional needs of gifted students. Social adjustment is often difficult, especially in the childhood and early adolescent years and particularly among highly gifted students (Morelock, 1992). Further, societal attitudes towards these children can be exploitative, negative, or punitive (Feldman, 1982; Robinson, 1990; Tolan, 1992; U. S. Department of Education, 1993).

In addition to concerns from the gifted and general education field, there are instructive findings to note from the research on school effectiveness. Borland (2003) writes that several conditions would have to be in place to make schools effective for gifted students. First, the differentiation of curriculum and instruction would have to be the norm, not the exception. Second, teacher education programs would have to make the ability to differentiate curriculum and instruction a basic skill for all graduates. Third, continuing staff development would have to be provided to maintain, reinforce, and strengthen these types of skills. Finally, the labels used for classification and grouping would have to be replaced by an acceptance of differences as the rule. These are four conditions that appear to be difficult to satisfy, but programs like RLS could function whether or not they are in place.

Lee, Smith, Perry, and Smyle (1999) also believe in the importance of social support and academic press. Social support that creates personalized learning environments, increases good teacher/student relationships and recognizes excellence and extra curricular interests is needed for the psychological safety of gifted students. Academic press that emphasizes academic success and achievement through high expectations, challenging work, and student assessment systems that improve accountability and instruction would also help create classrooms that appreciate students' abilities and counteract the anti-intellectualism prevalent in many schools.

When teachers do employ differentiation strategies, research on student success is promising. In a study of fourth and fifth grade students' math achievement, Tieso (2002) found that a differentiated mathematics unit can create significant achievement gains over the regular textbook unit. Reis et al. (1993) found that with only 1-2 hours of training, teachers could compact curriculum for talented students. When teachers eliminated nearly 50% of regular curriculum for identified gifted and talented students in their classrooms, no differences were found between treatment and control groups on posttest achievement scores in reading comprehension. However, the teachers had difficulty in replacing the compacted curriculum with challenging work as they lacked sufficient support mechanisms to do so.

In addition to compacting and increasing rigor, constructivist learning also holds promise for the education of gifted students and may help to explain the success of Renzulli's SEM model

(VanTassel-Baska & Stambaugh, 2005) in that real life investigations of real life problems are the end goal. Therefore, this review will address this topic in moderate detail and focus specifically on the strategy of problem based learning as it is so closely tied to the conceptual framework of RLS. The trend toward teaching for understanding reflects research such as Firestone's (Firestone, Schorr, & Monfils, 2004) and that of NCTM (2000) which indicate that instruction is being delivered with surface level strategies resulting in superficial student understanding, not the in-depth analysis and synthesis educators should expect from high ability students. Constructivist pedagogies allow students to create meaning from their current levels of understanding and to seek additional content and processes that fill in the gaps in their understandings as needed for problem solving and related applications, which are complex thinking skills appropriate for gifted students. Constructivist classrooms help to deepen students' understandings by transferring classroom learning to their lives, much as they do while engaging in the Renzulli Learning System.

According to Phillips (1995), there are at least three constructivist dimensions: 1) the active process, where the activity is either social or individual, or mental or physical; 2) the social process, where the concern is for the difference between individual knowledge construction or general human knowledge; and 3) the creative process, with the issue focusing on whether knowledge is constructed from inner creativity or is imposed from the outside. In an active learning process, students are engaged in the learning on many levels. The content or problem intrigues the student sufficiently to spark cognition within multiple layers of interaction. Socially, constructivist strategies force the student to make sense of gaps in his own knowledge base, compare his thinking to that of others engaged in the same processes and resolve issues based on information available. The creative dimension is also important in seeing gaps in information. Creativity is critical to seeking new knowledge, to imagining what one still needs to know and to synthesizing new knowledge into meaningful solutions, processes, or patterns. All three dimensions facilitate teaching for understanding and are also supported by problem based learning processes, which are active, social, and creative (Gallagher, & Stepien, 1996; Stepien, & Gallagher, 1993; Stepien, Senn, & Stepien, 2000).

Problem based learning is a promising practice for gifted students and is constructivist in several ways. First, students define the problem based on their own interpretation of the problem situation. Then they decide what it is they need to know to work effectively with the situation and decide how to answer their questions about the problem. Finally they create a resolution to the problem based on their own knowledge, research, and level of understanding about the problem. PBL derives from the content universe that the teacher is expected to deliver (Gallagher, & Stepien, 1996; Stepien, & Gallagher, 1993; Stepien, Senn, & Stepien, 2000).

All PBL models suggest that the process involves connecting with the problem content, researching the problem's questions, creating solutions, and assessing the processes as well as the products (Delisle, 1997; Gallagher, Stepien, & Rosenthal, 1992; Hmelo, 2004; Sobral, 1995; Stepien, 2002; Stepien & Gallagher, 1993; Stepien, Senn, & Stepien, 2000). PBL models incorporate problem solving behaviors, broad conceptual content, authentic learning situations, and choice of process and product. These components of authentic education strategies and teaching for understanding are desired in gifted education methodology so that students will engage with curriculum and instruction on a deep level of understanding.

Traditional instruction is described as a straightforward delivery of curriculum content (usually defined by state standards). For the most part, it is sequential, subject-oriented, and delivered from teacher to student in a grade level format. Most students receive the same instruction and are given the same assignments with the same grading system. PBL is not a sequential, linear system of delivering content from teacher to student. Students create their own learning tasks by asking questions about what they need to know about the given problem and can be working individually or in groups on multiple kinds of tasks that are designed to answer their questions, use their strengths and interests and develop application skills, not just recite knowledge. The students are likely to be involved in establishing their own criteria for self and product assessment (Lieux, 1996; Liu, 2005).

Early efforts in the areas of constructivist learning can be found in gifted education. The roots of problem based learning can be traced to the creative problem solving model of Parnes, Noller, and Biondi (1977) and with Torrance's (1963) use of this model in the Future Problem

Solving Program, all pioneers in the gifted education movement. In an effort to provide gifted students with intellectual stimulation and challenge, these programs present real and futuristic situations that are authentic and that involve steps such as identifying challenges, defining the overall problem, generating solutions and evaluating the best solutions, resulting in a plan of action. These steps are remarkably consistent with those of PBL. More recent research in gifted education and PBL points to student outcomes. For example, Gallagher and Stepien (1996) found that gifted high school students tended to retain information presented in PBL units better than information from traditional units (Dods, 1997).

The teacher's role as a facilitator of constructivist learning is critical. Spillane's (2004) research points out that educators are most likely to use strategies that they are most familiar with. In a study by Brinkerhoff and Glazewski (2000), student and teacher attitudes toward a PBL instructional unit were investigated. This study found that PBL may be an effective instructional strategy for gifted and talented 6th grade students, but they also found that teacher scaffolding appeared to increase teacher effectiveness, confidence and attitudes, pointing out the need for a substantial support system for teachers to be successful in the new role of facilitator.

One such support system can be found in the online version of SEM in Renzulli Learning. Teachers are supported by having the assistance Renzulli Learning provides in providing advanced and unique resources for gifted students, providing a method for assigning individualized assignments and communicating individually online with students at times convenient for the teacher. An excerpt from the teacher page follows to demonstrate the components available to teachers.

Figure 8 shows how the teacher page of the RLS can assist teachers in individualizing activities for gifted students and give them a tool for managing the progress and activities of each student (<http://www.renzullilearning.com>, 2008).



Renzulli Learning
Proven differentiation™

Home Student Site Registration Contact Logout Help

Teachers

My Students Lesson Planning & Differentiation Activities Manager Teacher Resources My Portfolio

Welcome

» Search Activities

- » [Complete Your Own Learning Profile](#)
- » [Find and Send Activities to Students and Teachers](#)
- » [Create a Student Assignment](#)
- » [View Your Students' Work](#)
- » [Register a Student](#)

» **My Students**

- View student Profiles, log-in information, and assignments.
- Manage your classroom with Grouping and Reporting tools.

» **Lesson Planning & Differentiation**

- Create individual, small group, and entire class assignments.
- Share assignments electronically with students and teachers.

Online Learning

One needs only to observe all the young people glued to their computer screens to understand that students are using the Internet as a frequent resource. Students would like to be able to use technology how, when, and where they want in their classes (National Report, 2005). Such motivation to use technology in school is a plus for educators and teachers alike.

Beyond any anecdotal observations of how the internet affects our lives, many studies document this phenomenon. A 2005 Kaiser Family Foundation Study showed that children ages 8 to 18 typically spent a third of their day, approximately 8.5 hours, using media. Approximately one-fourth, or two hours, was spent multi-tasking or using multiple forms of media. The children in this report were using a computer over one hour each day, doubling the findings from a similar 1999 study (Roberts, Foehr, & Rideout, 2005). Further, a 2005 Pew Study reported that 87% of adolescents aged twelve to seventeen use the Internet, up from 73% in 2000. Of this 87%, half use the Internet daily (Lenhart, Madden, & Hitlin, 2005). Two million students in elementary and high school had some online instruction in 2008 which is two times the year before. Thirty two states have virtual high schools (Jaschik, 2009).

Today's adolescents have grown up in the digital world and are familiar with technology. Though adolescents may enjoy using technology and are comfortable with a variety of formats, they do not necessarily know the most effective ways to apply technology as students and thinkers. Adolescent gifted students, being no exception, are at an optimal age and stage for using the internet for high level critical thinking and creative problem solving.

School administrators have a responsibility to find ways to organize their resources to facilitate and maximize this type of learning. Students believe that technology can enrich their learning experience (Lenhart, Madden, & Hitlin, 2005; National Report, 2005; Sheffield, 2007). RLS is a way for teachers to capitalize on that belief. Renzulli's definition of giftedness acknowledges a dimension of learning that is important in online activities, the ability to persist and generate understandings independently (Ng & Nicholas, 2007).

Ng and Nicholas (2007) found that the internet can help secondary gifted students explore their own ways of building support through a virtual learning community for people who

might otherwise remain isolated and disconnected. It is a benefit that they do not have to be singled out or publicly identified. This anonymity alleviates peer pressure to conform to the norm, which can be liberating for gifted students, especially adolescent students who are dealing with multiple maturation issues.

Anderson (2004) identified four capacities of online media that are important to gifted students in that they allow gifted students to have autonomy in their learning. The capacities are:

1. flexibility, for learning in terms of time and place
2. the vast amount of content on the web
3. content that is supported in varied formats such as multi media, video, text, and images, and
4. the creation of communication –rich learning contexts that support both synchronous and asynchronous modes of learning.

These capacities also support constructivism, as real learning can only take place when the learner is actively engaged, the likelihood of which is increased with depth and breadth and freedom of the internet.

Munro (2005) uses a developmental psychology framework to identify how gifted students learn. These students need a challenge or reason to learn. They need to know where they are going and see a pathway to their goals. Gifted students make links with and use what they know about a topic. They learn new ideas in specific contexts and are able to transfer and generalize on the basis of the new knowledge. Gifted students deepen their understanding, abstract what they have learned and link more broadly with what is known. They link positive emotions with new knowledge and are able to identify how they learn and monitor their own progress. RLS holds great promise for this type of learning in that it allows students to go where they want and need. In fact, in a reading study at the elementary and middle school levels, students who participated in RLS for a 16-week period demonstrated significantly higher growth in reading comprehension, oral reading fluency, and social studies achievement than those students who did not participate in RLS (Field, 2009).

While it is clear that technology can have a powerful influence on student learning (Bain & Ross, 1999; Cradler, McNabb, Freeman, & Burchett, 2002; Leu, Leu, & Coiro, 2004), little research has been conducted on the phenomenon of gifted students and online enrichment learning. This study focuses on the structures that are in place when adolescent students use Renzulli Learning as a method of pursuing topics and interests that are matched to them. Teaching is much more successful when teachers expand upon students' strengths (Renzulli, 1999; Levande, 1999), rather than focusing exclusively on weaknesses.

By June of 2000, more than 95% of U.S. schools and 72% of classrooms had access to on-line Internet technology (CEO Forum on Education & Technology, 2000). Computers are also accessible at home as well as at school. According to Azzam (2006), over half of U.S. children use a home computer to complete assignments and more than half of teachers use technology in their classroom instruction. Accessibility to RLS makes it possible to have a seamless learning experience from school to home. Therefore, a study of what happens during the process is all the more important.

NetDay's survey (2005) reported that students who use the Internet as a resource at home are frustrated because they cannot use technology how, when, and where they would like to in school. This survey also found that students are strong believers in the power of technology to enrich their learning experiences (National Report on NetDay's 2005 Speak Up event and survey, 2005). It stands to reason that if students want to use this technology and believe it will help them, then they willingly choose to be engaged with it.

Engagement

Research and evaluation studies summarized by Cradler, McNabb, Freeman, & Burchett (2002) show that technology can enable the development of critical thinking skills when students use technology presentation and communication tools to present, publish, and share results of projects and, even more importantly for this population, that technology tools for constructing artifacts and electronic information and communication resources support the development of higher-order thinking skills. Other research has shown the influence of technology on student learning (Bain & Ross, 1999; Cradler & Cradler, 1999). For example, Bain and Ross (1999) found

that careful alignment between content-area learning standards and carefully selected technology can significantly increase student achievement scores.

If scores and skills are increasing, engagement must be as well. Cradler and Cradler (1999) reported that teachers observed significant changes in their students' skills and knowledge acquisition upon completion of their first multi-media project. In a follow-up study, "teachers reported increased student knowledge in: research skills; ability to apply learning toward real-world situations; organizational skills; and interest in content" (Cradler, McNabb, Freeman, & Burchett, 2002, p. 47), suggesting that engagement in technology results in positive gains, both measurable and assumed. Such gains have recently been demonstrated and documented in Field's (2009) study on the use of RLS in reading achievement gains in grades 3-8.

In summary, many influences from the literature suggest that gifted adolescents face many challenges in receiving an education that is commensurate with their needs. Concerns previously mentioned include the need for authentic curriculum as noted in the educational reform movement, teacher beliefs about education from work in school effectiveness, the lack of systemic high level learning as promoted throughout gifted education research, and specific issues facing gifted students during their adolescent years. Online learning is one avenue of service delivery that has great potential to help meet the needs of gifted young people in ways that address these concerns, mostly through bypassing the obstacle origins. Because no literature was found that describes what is happening when gifted students engage in online learning programs such as RLS, understandings from this study can serve to inform future directions in this arena. Chapter Three includes the research methods of this study.

CHAPTER THREE: Methodology

The Research Questions

This study investigated the phenomenon of the interactions and behaviors manifested by gifted adolescent students' use of the Renzulli Learning System. The central question of this study was related to gifted adolescent students and their engagement with an online enrichment program called the Renzulli Learning System (RLS). Since this was a phenomenological study, there were issue questions as well as topical questions (Creswell, 1998). The following research questions guided this study:

1. How are the selected adolescents using RLS?
2. What are the perceived effects of using RLS on school behaviors?
3. How do students perceive that using RLS has affected their social behaviors?
4. What are students' perceptions of their parents' understanding of RLS?
5. What are students' perceptions of their teachers' understanding of RLS?

Methods and Procedures

In this study, qualitative procedures were used to investigate the phenomenon of engagement in gifted adolescents. Phenomenology describes shared experiences for the purpose of discerning underlying meanings and structures of the human consciousness to deepen our understanding of the phenomenon (Creswell, 1998; Marshall & Rossman, 1999). Since phenomenology examines the phenomena across several individuals, the study looked for similarities and differences among the subjects.

The study examined nine gifted adolescent students who had been using RLS over a two year period. The students were recommended by a researcher who had knowledge regarding an available population from which to draw. These students, their school administration, and parents were approached about their willingness to participate in the study. Those who agreed participated in in-depth interviews in school and completed an online questionnaire.

Since the purposes of this study were to explore, describe and subsequently interpret findings to understand the phenomena of gifted students' engagement while using the Renzulli

Learning System, a multiple case study approach was used to address the research questions. The case study method is an exploration of bounded systems over time (Creswell, 1998; Stake, 1995; Yin, 2003). Phenomenological study requires several individual cases for comparison. Over the course of the last month of the 2008-09 school year, the students completed a survey electronically and the researcher interviewed each student twice to probe his or her experiences.

The researcher also attempted to observe students using RLS while at school, but since the research time period was at the end of the school year, there were no opportunities available during this period when students were actively using the programs and no observations could be made. Projects had essentially been completed at that point. The researcher also attempted to review the RLS logs of the students. She was first referred to the director of evaluation for the district for obtaining the logs, who referred her to the TAG teacher, who referred her to the Social Studies teacher, who was absent on two of the final days that the researcher was in the school. The researcher sent this teacher two emails attempting to obtain this information, but the teacher never responded as of the date that the school year was over. The researcher also attempted to obtain lesson plans that used RLS, but the TAG teacher said that there weren't available as RLS was strictly used for project work.

The researcher contacted the RLS office at the University of Connecticut to obtain logs of the students' usage of RLS during after school hours. The RLS office was able to provide data showing the number of days students logged in at school and outside of school and the number of sites visited during both time slots during the entire 2008-2009 school year. That data can be found in Table 4.2.

Sample and Setting

A convenience sample of 9 public middle school students who used RLS was selected to participate in this study. The students were in grades 7 and 8, and most had used RLS for 2 years and all were using it at the time of this study. Students were selected from a public school that was within driving distance of the researcher.

Adolescent students were selected for this study for several reasons. This research deals with an online learning system that enables students to individualize according to interests and strengths and to pursue topics independently. The researcher wanted to understand students' use of this program who were old enough to be able to be actively engaged in independent study and to be functioning independently in academic skill areas. Students in this age range possess sufficient vocabulary and school experience that would be necessary to share information about their learning processes and preferences with enough detail to be able to provide sufficient information that could enlighten others about their approaches, understandings, and desires regarding their use of online learning in areas of personal academic interest. Most lists of characteristics of giftedness have included consistent mention of advanced verbal ability or advanced vocabulary (Gallagher, 1975; Maker, 1982; VanTassel-Baska & Little, 2003), suggesting that interviews are an especially appropriate vehicle for communicating with these students about this topic.

Sak (2004) found that on a test of personality characteristics, gifted adolescent students were significantly more introverted than the normative group and suggested that introverted adolescents may prefer quiet learning environments and individual rather than group work such as RLS. This research promotes the idea that a program such as Renzulli Learning would satisfy this characteristic better than group activities. If these students do enjoy RLS, one would expect that they would be willing and eager to share that information. Buescher (1986) identified the adolescent desire to be taken seriously by peers and adults, among a list of 8 prominent needs of adolescents. The researcher offered a medium through which the students' opinions and responses would be taken quite seriously. This age range was appropriate for this study both in terms of maturational development, cognitive sophistication and development and academic development. An added plus was that they would be old enough to speak with the researcher privately without the influence of parents or teachers impacting their responses.

The Sample

A convenience sample of 9 adolescent students was selected for the study, with the assistance of a dissertation committee member who had knowledge of and access to classrooms

using RLS. These 9 students matched the criteria of being identified for the school district's gifted and talented program (TAG) and were currently using the Renzulli Learning System, and exhibited a range of school behaviors indicative of engagement in the regular core curriculum, as reported by the teacher who provided the list.

The students attended a public school in an urban district in Connecticut. The researcher contacted the district through the director of evaluation, as recommended by the committee member. The director of evaluation suggested that the researcher contact the superintendent, which the researcher did. The superintendent gave his permission for the research to be conducted in his school district. The researcher then met with the district's director of evaluation. She introduced the researcher to 2 principals and teachers of gifted and talented in 2 schools in the district. All of the participating district educators were generous with their time and were willing to assist with the research. The researcher decided to select one of the schools she visited due to the larger school population and easier access of the school. The teacher of the TAG (Talented and Gifted) program offered to send the permission slips home to students who were selected by him, according to the criteria set forth. Both principals and teachers signed permission slips indicating their willingness to participate in the study. These slips were sent to the Rutgers Institutional Review Board.

A few weeks later, the TAG teacher told the researcher that five permission slips had been returned and that he anticipated that the rest of them would be returned soon. The researcher immediately sent the initial survey by e-mail to the first five students and set up six potential dates in June before school ended to have interviews with the students. The researcher offered to hold a parent meeting in the evening to discuss the purpose of the study, but the teacher felt it would not be necessary. All permission slips were returned and there were no questions from parents directed to the researcher. The teacher and the director of evaluation had explained that the parents were very trusting of the TAG teacher and would follow his lead. Each student interview was conducted in school during a one week period of time, and subsequent interviews were conducted within 2 weeks following the first interviews.

The Setting

The selected city's public school system has 30 elementary schools, 3 comprehensive high schools, 2 alternative programs and an interdistrict vocational aquaculture school. The system has about 23,000 students, making this public school district one of the largest school systems in Connecticut. The school system employs a professional staff of more than 1,700. Additionally, there are 16 private schools in this district.

The per capita income for this district was \$16,306 in 2000. In 2005-06, more than 95% of the students were eligible for free or reduced lunch, as compared to the state average of 26.9%. The district is diverse in race and ethnicity with a 90% minority rate in 2005-06. Of the total population 42% are Black, 45% are Hispanic, 10% are white and the remaining percent are Asian and American Indian. In the study's sample of 9 students, 7 are Black, one is Hispanic and one is White.

This district is far below the state average on the Connecticut Mastery Test. The district and state percentages of meeting the state goal for the 2 grades used in this study are displayed in the chart below (Figure 8).

Connecticut Mastery Test % meeting state goal in:	District	State
Grade 7 Reading	33.8	66.7
Writing	32.1	60.0
Mathematics	23.2	57.0
Grade 8 Reading	33.8	66.7
Writing	35.5	62.4
Mathematics	19.2	58.3

Table 3.1. District/State comparison of Connecticut Mastery test percentages for sample grade levels (7th and 8th)

The district however is on par with the state in physical fitness, with 36.3% passing all four tests compared to 35.6 at the statewide level.

Gifted and Talented Program

The gifted and talented program in the school district is referred to as TAG (talented and gifted). Students are identified to participate in TAG on the basis of teacher recommendation, academic and effort grades, Connecticut Mastery Test scores, and online quarterly assessments. Students chosen for TAG attend school full-time at one of two schools in the district depending on the home address of the student. Students meet as a team with the TAG teacher one day per week and attend regular classes the remaining 4 days per week. Transportation is provided for the students. It is understood that a child must continue to fulfill successfully both the academic and behavioral requirements of TAG in order to remain in the program.

The School

The K-8 school visited in this study is located in the north end of the city, which is the largest city in the state with a population of 140,000. This school opened as an elementary school in 1955. A middle school wing was added in the late 1960s. The TAG program occupies a room in a trailer behind the school, along with two other classrooms. While the building is not new, it is clean and well-kept. The hallways are dark and the building is spread out into long hallways and three levels in places. Visitors have to ring a bell to be admitted into the building. Security was consistently enforced during each of the researcher's visits to the school.

The school, located in a neighborhood area, close to a major parkway, currently houses nearly 800 students and a staff total of 67, with a Black male principal and a White female Assistant Principal. Office staff employees were friendly and accommodating and were usually the only administrative staff members in the office during the school visits.

The Participating Students

Students involved in the study ranged in age from 12-14, included 4 8th graders and 5 7th graders. Of the 9 students, 3 were male and 6 were female. Among the 8th graders, the genders were evenly split (2 boys and 2 girls). There were 4 females and 1 male in the 7th grade group. For reasons of privacy, their real names will not be in this study.

All the students were pleasant, respectful, and willing to participate. Only 2 female students were curious about the purpose of the interviews. As later discussed in Chapter 4, they were satisfied with the explanation that the researcher wanted to know more about how they used RLS, using their own words and hearing it directly from them. The others seemed to accept the interviews with the school's guest as something fairly routine as a part of school expectations. During the interviews, all students were quick to respond, did not seem to need, and indeed did not take, time to consider the question asked or the answer they would give, and when prodded or encouraged to provide information beyond what was asked, none were able to, or either chose not to, provide anything further. The students in this study appeared to enjoy school and seemed to like and respect their teachers.

Data Collection

Since the purpose of a case study was to build a rich description of the phenomena of the use of RLS by gifted adolescents, the researcher used the case study methods of interviews, questionnaires and casual observation to illuminate the behaviors of each student (Creswell, 1998; Marshall & Rossman, 1999).

Phenomenological Interviews

Data were collected using in-depth interviews with selected students, using a semi-structured protocol. Prior to the first interview, the researcher asked each participant to complete an electronic questionnaire (see Appendix A). The responses to the questionnaire helped the researcher assess the appropriateness of the interview questions, enabled the intimacy and privacy of internet communications, and provided primary data directly from the hands of the participants.

The first interview (see Appendix B for Interview Protocol), established a base for understanding the study and helped to establish trust. The first interview covered all topical questions and gave the students a forum for thinking about their beliefs about on-line learning and RLS. It also allowed them to ask any questions they had about the study. The second interview enabled elaboration of comments and questions addressed in the first interview and sought the participants' checks on information culled from the first interview. The interviews,

lasting from 30 minutes to 45 minutes, were taped and transcribed as soon as possible following the interview. The researcher took notes on the students' responses in addition to relying on the tapes. The interviews took place in an empty classroom in the school, at the direction of the TAG teacher. To increase trustworthiness of this study in the preliminary analysis stage of member checking, the researcher continuously rephrased what the students were saying and asked if she was conveying the same meaning that they intended. All students agreed each time that the rephrasing was accurate.

When reviewing the data gathered in answer to the research questions, the researcher noted recurring themes that emerged. These themes were coded and noted in the responses when they occurred by placing a letter beside each response that represented a code. Those themes pertaining to the research questions and occurring across most of the cases and repeated many times within a single case were the four major themes identified as:

RLS is a desirable tool for getting good grades

RLS is for school use, not for beyond school assignments

RLS has no effect on their socialization

RLS is enjoyable

Validity

Phenomenologists view verification (the process occurring throughout data collection, analysis, and report writing) and standards (criteria imposed by the researcher) as mostly related to the researchers' interpretation. Nonetheless, Creswell and Miller (2000) state that peer review and member checking are important to validity, as well as researcher reflexivity, all of which characterize this study. Researcher effects were checked by having others (a psychologist who has worked in the field of gifted education with the researcher and a master teacher of urban gifted children working in a context similar to the sample district) reviewed the study and findings and by being reflexive. Both readers concurred that the findings were consistent with their experiences working with similar students in similar situations. No changes or corrections were recommended.

Finally, the researcher's orientation to RLS was important in contributing to the study's trustworthiness. The researcher believed that RLS is an effective way to enhance and enrich learning for gifted students in pre-high school by creating in-depth learning opportunities, by allowing students to work within choice and interest options, and by motivating them to advance and challenge themselves whenever they wish through continuous access to the internet. The biases brought forth were a belief that RLS is a motivating, differentiating, powerful, and efficient way to learn and a belief that gifted students do not routinely receive the individualization they deserve and need in school settings. In bringing reflexivity into the trustworthiness of this study, the researcher reflected on her biases in regard to RLS as she reviewed the observations and transcripts to put aside as much bias as possible in understanding the situations and explanations that describe what is happening in the RLS experience. Review by peers was also valuable in correcting for bias.

Limitations

Many factors limit the transferability of this study to other similar situations. The reader will need to assess the extent to which the findings and interpretations of this study are applicable to other contexts that appear to be comparable. The sample size of this particular study was small with only 9 students. The grade range was limited to 7th and 8th grades. The responses upon which the results of this study were based derive from these 9 adolescent students who hailed from an urban, mid-sized New England town. They also derive from students identified for and participating in a program for gifted and talented students. Further, the data were gathered over a short period of two months at the end of a school year by a sole researcher, using limited data gathering methods.

Of the four original methods of data collection (survey, interviews, lesson plans, and RLS logs) three methods (survey, interviews and log in information) were available to the researcher in the final analysis. The three available methods were the most desirable in terms of richness and description, and as a primary source. Additional data from lesson plans may have enhanced the researcher's ability to triangulate data and verify results. This slight reduction in data did encourage the researcher to give great attention to the data available, to heighten the processes

of observation and analyze the reasons for being unable to obtain teacher data from an additional source.

Finally, the reader must keep in mind that just one online learning system was the focus of this study. Information regarding the Renzulli Learning system may not apply to other learning systems. Even more restricted is the way in which it was used by the students. RLS has a home component that was not used to a great extent by these students, so the data from the study only deals with in-school usage.

For all these reasons, results of this study were limited to the sample used for the study and any implications to other groups of varying abilities and ages must be made with caution and verified only with additional studies and experiences.

CHAPTER FOUR: Results

Chapter Four presents the findings of the study. The phenomenon of what was happening when students used the Renzulli Learning system is described by using the responses given to the research questions by the sample students and is compared to findings from related research and literature. The information is organized around each research question and in most cases, the students' own words are used to convey accuracy in reporting their understandings of how RLS has affected or not affected various aspects of their lives. First, a summary of the students used in the study is presented.

Students

Of the nine students, 3 were male and 6 were female. Among the 8th graders, the genders were evenly split, two of each. There were 4 females and 1 male in the 7th grade group. Table 4.1 displays demographic information about the nine students, including the name that is used to identify each student in this paper, their ethnicities, genders, grades and ages at the time of the study. Eighth graders are listed first.

Student	Alias	Ethnicity	Gender	Grade	Age
1	Rahul	Black	Male	8	14
2	Mark	Black	Male	8	13
3	Cindy	Black	Female	8	13
4	Alicia	Hispanic	Female	8	13
5	Dari	Black	Female	7	13
6	Hayley	White	Female	7	12
7	Cheryl	Black	Female	7	12
8	Naomi	Black	Female	7	13
9	Jamil	Black	Male	7	13

Table 4.1. Demographic information on participants

All students were willing and helpful participants, eager to answer questions, and did not need or did not take much time to consider questions before answering them. Students were interviewed in their school during the last month of the school year. Two female students asked the researcher about the purpose of the study, and the researcher explained that she was interested in learning more about how they used RLS and wanted to hear the information directly from them. The two females were satisfied with that answer and did not press further. The other students did not question why they were selected to be interviewed or why they were leaving their

classes to do so. All students appeared to accept the fact that they were being questioned and interviewed at school and did not act as if this situation was particularly curious or unusual.

When the students were asked during their second interview whether others would describe them as very engaged or engaged in school, five of them (all females, four of them in 7th grade and one in 8th grade) said they thought they would be described as *very engaged* and three (two males, one in each grade and one 8th grade female), as *engaged*. The remaining 8th grade male said whether or not he described himself as *very engaged* or *engaged* would depend on what he was doing. Three of those five putting themselves in the *most engaged* category corresponded to the top five in the teacher's list. Two of the self-proclaimed *engaged* category corresponded with the lower four ranked as *least engaged* by the teacher. Interestingly, the one female student who thought of herself as just *engaged* was ranked at the top by the teacher as the *most engaged* of the group. In this small informal assessment, teacher and students were similar in their perceptions 56% of the time. None of the male students described himself as *very engaged*, and while there were only three males, this situation is consistent with research showing that gifted girls demonstrate higher academic competence beliefs than gifted boys (Chan, 1996; Freeman, 2003). Therefore it is not unexpected that they would not describe themselves as *engaged* in their school situation as the girls did. The lack of a parallel ranking on this informal look at engagement by students and teachers is not inconsistent with the research. Many factors affect students' engagement at school as well as factors affecting how they and their teachers perceive their motivations. Engagement can be discussed through motivation and self-beliefs. If students are motivated to participate in school activity, they are likely to be engaged to some extent, and all these students labeled themselves as *engaged*. Gifted students generally demonstrate higher levels of academic self-concepts than non gifted students (McCoach & Siegle, 2003), so it is logical that these students believed they had the ability to achieve and perform well in school and would, therefore, describe themselves that way.

Additionally, as students perceive their participation in school activities through their own lenses of self-beliefs, there are many factors and influences that would affect how they believe they appear to others. Gifted students bring their self-beliefs about their abilities to the school

context through the self-appraisals they form as a result of their relationships with teachers, parents and classmates. Students tend to perform well when they are in a supportive and caring learning environment (Alexander & Murphy, 1998). The students in the sample group appeared to be in such an environment, seemed happy with their teachers, and spoke about the teachers in respectful and appreciative ways. These students also benefited from being in a social age group that was also an academically achieving group, placed together in the TAG program. It has been well documented that gifted students need to be grouped together for all or part of each day (Kulik, 1993). These students benefit from being with like-minded peers, both affectively and cognitively. In fact, Kulik (1992) found that gifted students in accelerated classes performed one standard deviation better on achievement tests than their gifted peers who did not receive acceleration. However, the self-concept of gifted students is lower when they are placed in situations where they work with their intellectual peers than are the self-concepts of those who work in regular classrooms (Marsh, Plucker, & Stocking, 2001). A lower self-concept is not necessarily negative; in fact, a stronger work ethic can emerge from a feeling that one must work harder to be as good as another student. Notably, a lower self-concept is not a poor self-concept. Students in such situations are challenged by their peers in a positive way and consequently, may view themselves as more or less engaged according to the context of comparison with their peers.

Parental relationships are also important in the self-beliefs of gifted students. The importance of parents in this study has been mentioned in other sections of this dissertation and, in fact, became one of the peripheral themes of this study. Parents can serve as positive or negative catalysts for their children's talent development (Gagne', 2004) and have been documented to play a large role in the development of eminent adults by providing support and opportunities (Bloom, 1985).

There is little research about the roles that parents of minority and economically disadvantaged students play in the development of their children (Robinson, Lanzi, Weinberg, Ramey, & Ramey, 2002). Such information would be helpful to this study, but it was clear to the researcher that parents provided great motivation to these sample students and that these

students wanted to please their parents with good grades. These students' self concepts and self perceptions and how they reported themselves are all colored by the related interactions they have with all these groups, suggesting reasons for the noted variation in rankings and in self descriptors.

Much of the research that exists on gifted minority and Black students does not apply to this study. These sample students were all enrolled in a gifted program so they could not be considered underserved through unfair identification practices (Frasier, 1995); they were not underrepresented in the sample (all but 1 of the 9 were minority students) as would be typical of research findings on this issue (Borland & Wright, 1994; Ford, 1998; Miller, 2004; Naglieri & Ford, 2003). They also were not underachieving students, as is often cited in research on minority students, such as that performed by Ford (1995), at least not in the context of their school. The sample students were identified for the program through their high achievement in the district. Therefore, many of the issues facing students of similar demographics in a more mixed environment were less evident here in affecting their academic self-concepts and possibly, their self-perceptions.

Research Questions and Answers

The previously mentioned research questions that guided this study were used to describe the subjective experiences of what happens when adolescent students engaged with the Renzulli Learning System (RLS). The phenomenon as revealed will be described and interpreted further in the next chapter, through themes that emerged from what the students wrote and told the researcher, but first the answers to the research questions are revealed and analyzed.

Research Question One was about the Use of Renzulli Learning System and asked how the selected adolescents were using RLS. The participants primarily used RLS at school for school assignments, mostly through their TAG (Talented and Gifted) program. RLS was used essentially to do research for projects. Alicia explained:

I use RLS for school projects and assignments, independent study – like when I am questioning something it helps to find easy to understand information to make everything clear to me, RLS is part of TAG

curriculum, and I use it for my core curriculum projects or hard assignments.

All of these students started using RLS at school and all had used it from 1 to 3 years. Alicia's statement reflects the most common response regarding usage, "I use it at home and at school. I use the program at home about 2-3 times a month. At school, I only use it when necessary; only when a teacher instructs us to." However, the log report indicates that Alicia only logged in 4 days from home during the school year and only visited one site. She may be referring to her most recent logins in her comment or she may be remembering incorrectly.

Naomi verified the use of RLS at school for assignments "At school, I use Renzulli to finish assignments. At home, I use it to do research for projects or assignments." Cheryl expounded on her school use:

I use RLS for school assignments. For example if a teacher submits the assignment I go on and review, then Renzulli organizes a work format which you can begin to work on your project. For TAG we use Renzulli to give us sources to our assignments. For regular school we receive assignments that come from the original Renzulli Website. For enjoyment I play the educational games and projects that I have interest in.

Further, Mark wrote, "I really don't use other programs because rls gives me all the information that I need." He used RLS for projects and assignments that he can't focus on and to better understand the topic he is working with. "If I need something I'll see if any of the sections provide it, then I'll go to the enrichment section and type in what I need." Rahul liked that he can go to RLS if he forgot some aspect of his assignment and his teacher "will be right there" and that the information is on his grade level. Dari also liked the inbox "so we can send messages to teachers."

Naomi stated that RLS helped her bring out her best. She explained in the interview.

Your parents tell you to do your best. To do my best means I would be really concentrating. When you do stuff at school or when you do anything, you always have to bring out the best. I like to do things where I put my best foot forward. Renzulli makes it easier to get things done. I just like how it's so easy. I like how everything is there for you to use. Everything we need is right there for that. It's just all in one place.

Naomi followed up with this same theme later in her interview.

You should not do less than you could do with Renzulli because there's no excuse for not doing your best. Everything's there for you and it's so easy to use. I don't have to go on the internet for a long search on Google. There are no excuses. It's all there for you.

All participants had been taught to use RLS by a teacher and no one used any other type of online learning system. Alicia had used RLS to research topics related to her personal interest in animals where it was logical to do so as a part of a school assignment. When the researcher asked her if she ever considered making suggestions to the teacher regarding topics other than assignment-related research, Alicia replied that she didn't like to do that because "I just like to follow the curriculum just in case the teacher says you didn't do this, you did this instead, so I'd rather just go by what they say and then when we have a choice, just do it." Certainly, Alicia's educational program could be better tailored to her needs if she felt comfortable verbalizing her interests for the purpose of individualized assignments. Rather she tended to save "about everything when I am online so I will have easy access to them when I do have time to surf them."

When pressed in the interviews, some students admitted to using RLS beyond basic projects, but not very often. Cindy expressed that "sometimes I'll just use the internet and research and play games and see what I can find." Beyond school assignments, Rahul admitted to only using computers beyond school for fact-finding when arguing with friends to see who was right. Mark, in his interview, mentioned using RLS to research mechanical engineering on his

own, a field he hopes to pursue. In contrast to this evidence of self-direction, Mark was ranked 8th out of 9 on his teacher's list of *most engaged*. He described himself as "engaged", not "very engaged", at school.

Information provided by RLS corroborates the data finding that participants describe RLS as mostly a school tool. Table 4.2 summarizes the log in information of the participants during the 2008-2009 school year, both during the school day and after the school day. Participants logged in to RLS for a total of 180 days in school and 80 days at home, showing substantially more usage at school than at home. Some students (mostly girls and 7th graders) used it more frequently than others. There are interesting things to note from this table. The reader will see that students can log in and not visit other internet sites. There are several explanations for this seemingly erroneous data. Students could log on to do their profiles and not visit sites, to do assignments from their teachers and not visit sites if the sites are embedded within the assignments, and also to use the Wizard Project Maker as the sites are embedded within the assignments. Additionally, these are middle school students who might be journaling and other writing that does not require visiting a site

A few instances of engagement data compared with this usage data are interesting to note as well. Rahul was ranked as least engaged of the 9 students and his usage does appear to be consistent with the teacher's impression. He only visited 1 site during 14 log in days at school and did not log in beyond the school day at all. Mark, ranked as the 2nd least engaged, has log in data during the school day that also seems consistent, with only 7 days log in at home and at school, and with no sites visited during school. However it is interesting to note that Mark visited 39 sites beyond the school day-far more than any other participant. Perhaps his visits to multiple sites is indicative of his future career interests in working with computers.

Alternatively, Cindy, who the teacher ranked as most engaged and who did visit the most sites of any of the participants during the school day, only logged in one time beyond the school day and only visited 2 sites during that log in. While she would appear to be very engaged at school from this data, she does not seem to follow up with the same level of school-related engagement at home. Dari, who was ranked as second most engaged, logged in 33 days at

school but visited no internet sites during that time. She logged in 19 days beyond school but also visited no sites during that time. The high number of logins does appear to be consistent with her high ranking on engagement, but she does not seem to want to visit sites beyond what is provided by RLS.

Renzulli Learning beyond the school day

Total days logged in at school: 180

Total sites visited while at school: 26

Total days logged in outside of school: 80

Total sites visited outside of school: 50

Student and grade	Days logged in at school	Number of sites visited during school	Days logged in outside of school	Number of sites visited outside of school
Rahul-8	14	1	0	0
Mark -8	7	0	7	39
Cindy-8	15	12	1	2
Alicia-8	15	6	4	1
Dari-7	33	0	19	0
Hayley-7	34	1	8	0
Cheryl-7	27	1	9	0
Naomi-7	20	5	20	8
Jamil-7	15	0	12	0

Table 4.2. Summary of RLS usage during and beyond school day

With regard to how students use Renzulli Learning, their responses to the first question suggest that they used RLS mostly as a school tool and the information provided by RLS regarding in school and out of school usage verifies their responses regarding school usage. Participants found it easy to use and helpful in accomplishing school tasks in the format of projects. The projects were mostly for their TAG program. The previously identified capacities of online media that Anderson (2004) identified explain the reasons why RLS was so useful and helpful to these students. RLS allowed for flexibility, in that students could do their research when and where they needed to; the vast amount of content on the web allowed them to find resources for every topic they encountered; the content was often supported in varied formats such as multi media, video, text, and images, which they liked, and they could find rich learning contexts for their topics that supported both synchronous and asynchronous modes of learning. All these

factors make online media and, by assumption, RLS, as a form of online media, beneficial tools for the students to use in accomplishing school tasks.

The second part of this research question dealt with the perceptions students have about using RLS. Students reported that they enjoy using the system since it is easy to use and helps them achieve good grades. Seven students responded in a positive fashion to how they feel about using RLS. They used words and phrases like “excited,” “engaged,” “interested,” “almost focused,” and “work is easier.” Cheryl, who used the phrase “almost focused,” was asked to clarify the “almost” during her interview. She explained, “When I’m doing Renzulli, I’m basically focused and then the distractions come and I get kind of off topic, then I go back, and I need to focus and I get back on track. RLS helps me stay on track more than it distracts me.” RLS appeared to be a way to turn not focused back into almost focused. In his interview, Rahul mentioned that he once went to Google for an assignment but felt the “links weren’t as good, so I went on Renzulli to complete my assignment.”

Cindy, who was listed by the TAG teacher as being the most engaged at school of the nine students, described her feeling, “I feel very engaged and engrossed when I am engaged in an RLS activity. I am also happy because I am having fun and doing something educational.” Mark noted the personal aspect, “When I start a project using rls I get excited because it is easier to find what I need and since it has personal settings it knows exactly what I need.”

Naomi commented on the all inclusiveness of the program when she wrote, “When I do assignments at school on Renzulli it’s easier. At home it’s even better because everything you need is right there for you even if your teacher isn’t.” In her interview, Naomi explained how RLS helped her with her success doing in-depth studies.

I like to do long projects because when you do short projects it’s over in a second and it’s easy to forget. But when I do long projects you get more in-depth with what you are doing and the end project is really grand. And you’re like, wow, I did all that?

Hayley was asked what feeling engaged in school work meant to her. She replied, “like I’m more interested in work, like it’s more interesting to go on a website.” Hayley, number 5 and

right in the middle of the teacher's rank order list of *most engaged*, liked doing long and short projects on RLS "because you can do more short projects but if you do a long project you can become an expert in something so you know a lot about it."

Two students indicated some boredom when using Renzulli for some assigned work. Rahul explained that he was bored if he was not interested in the topic that he had to research for an assignment. When asked to clarify this written statement in his interview, Rahul said, "When we had to learn about explorers I wasn't really interested in them and there weren't any good programs about the subject and I wasn't really interested in the subject." When pressed further to explain, he continued, "Sometimes I might not like what I am doing. We might just sit there waiting for them to give an assignment and I might get bored because sometimes it takes forever to get an assignment." Rahul's association with boredom was related to cases where RLS might have little or no information about his subject or where he had time in class when he was unoccupied, not to RLS specifically.

Alicia wrote, "I feel somewhat bored when I use this program, because when searching for information it takes time and patience to get information you can use for your project." When asked further about this feeling in the follow-up interview, Alicia indicated that using Google is more fun as there are more surprises due to its being non-scripted or non-directed. In her words,

RLS is kind of boring when you use it because when you're typing in questions and everything you have to really know what you're looking for to understand it and if you don't, you kind of get lost and it's not as fun as it would be like when you're on Google, you know you can find everything, everything's kind of a surprise. And the information it has is more like on people's use while RLS is more like on historical facts and documents rather than on what people are thinking.

Alicia seemed to equate boredom with the efficiency of using a learning system that kept her on track. She had also commented that she thought RLS was *keeping her* from being a better student, but when the researcher asked her to say more about that comment in the interview, she stated that it was not really holding her back. "I don't think it's holding me back because if I felt

like it I could be doing learning patience myself. I just think it hands things a lot easier and students don't use their skills on search sites." This comment shows insight as well as demonstrates the paradoxical goal of these academically talented students wanting school to be both easy and challenging at the same time. This possible contradiction can be attributed to research that indicates that gifted students have a preference for complexity (Hettinger & Carr, 2003) while at the same time, these students consistently voiced the need to achieve, be successful at school and get good grades. While enjoying challenge and complexity on one level, they also need the security provided by a tool like RLS that they will also remain at the top of their class.

All the students used RLS with and in the presence of other students at school, and usually at the same time, while they were doing their TAG assignments in the computer lab. Naomi summed it up when she wrote, "We all have Renzulli accounts. I usually use Renzulli with my TAG group. We tell each other what we found on our individual studies page and even good research websites." Cheryl further clarified the working together aspect, "Other students do use Renzulli at school with me. We use it at the same time. We only ask each other for help. We don't give each other the same ideas." Mark liked to use RLS in groups because "there are other people who can help me." Hayley liked to use it by herself because "I actually learn all the information. If I use in a group, it takes a while to learn all the information."

The second interview with the students focused on how they used RLS related to their learning preferences. Since the RLS Profiler identified their learning preferences, the students were asked how important it was to them to have their preferences defined and incorporated into assignments. This aspect was very important to 4 of the students. Jamil and Cindy thought it helped them do better on assignments and therefore better in school. Naomi said that "choices make learning effective" and "hands-on make it work." Hayley believed that it didn't matter, so long as she was learning. Alicia agreed that it was not that important, that the information was the main thing. It also did not matter to Rahul. Two students just responded to this question by talking about how they like to learn, which one might take as an indication that learning preferences are important to them. It may have been that these 2 students didn't fully understand the question or

interpreted it to be that the researcher was interested in knowing how they liked to learn. They may also not understand that RLS delivers matches to their instructional and learning style preferences.

In summary, to address the first question, participating students use RLS as a tool at school to assist them with assigned project work. Overall, they are pleased with the functionality of RLS as a tool since it simplifies the attainment of high quality work for them. They use it both in groups as well as individually, and had mixed perceptions about the learning style preferences aspect of the program.

Gifted students are diverse in their ways of thinking and learning as is manifested in these students' range of verbalized opinions as to how important it was to them to have their preferences defined. The students' responses about learning preferences are consistent with some research about the thinking and learning styles of gifted children in that the research is also mixed (Dai, 2008). Dai identified 3 challenges in the thinking and learning style research. The first challenge is to differentiate style (performance more than competence) from ability (measured in outcomes and levels). The second challenge is to reconcile cognitive style research (objective-analytic measurements) with learning style research (more phenomenological). The third challenge is to grasp the nature of a style and how it functions. Is it something fixed or subject to change within certain contexts?

There is much to be learned about learning styles and preferences, but current research provides some direction. Gifted students tend to dictate their own structure upon learning materials (Snow, 1994; Sternberg & Grigorenko, 1993). These students may like the tools provided by RLS to help them create that structure while, at the same time, they may feel some constraints on their ability to build their own structure through a system that already has some prescribed navigation in place. Gifted students are also not as distracted by irrelevant background information as typical students (Davis, 1991), which explains why the sample students may like the fact that RLS has removed some distraction already by focusing them on their topic, or why they might not like the fact that they are no longer the ones deciding what is relevant or irrelevant, as the learning system had already done that for them. Personality and affective factors play a

role in stylistic functioning (Dweck, 1999); some domains may require specific styles of functioning (Labouvie-Vief, 1990); some children may have a tendency to think divergently and deviate from conventional thought consistently (Runco, 2005) These research points may help to explain the lack of a definitive answer by the students to the learning preferences question.

Nonetheless, the learning preferences question is important to high ability students in general from a long-term point of view. The concept of how students prefer to think and learn is important in broadening conceptions of giftedness. Rather than just thinking about ability as being defined by how much or how well one achieves or excels, learning style differences point to how differently one can think and learn, which can lead to development in areas related to careers, talents, and life-long creativity (Grigorenko & Sternberg, 1997). For urban, minority students, who may not achieve in traditional assessments, this broadened conception of giftedness may be key to their successful and productive futures. If unique, stylistic differences can be identified and nurtured early, then a student who might not excel on one standard, may, in fact, stand out in other areas that are valued in a context beyond the school environment, and therefore, key to long-term success. Online learning systems, like Renzulli's, can help educators assist students in discovering and nurturing their unique and valuable contributions.

Research Question Two was about School Behaviors and the perceived effects of using RLS on school behaviors and a range of responses were elicited, of which the most prevalent were related to increased confidence and feeling smarter. Table 4.2 summarizes the responses to these questions in the students' words showing the variety in responses.

Survey Question	Rahul 8 th	Mark 8 th	Cindy 8 th	Alicia 8 th	Dari 7 th	Hayley 7 th	Cheryl 7 th	Naomi 7 th	Jamil 7 th
9. How does using RLS affect your feelings about school?	Not interesting, bored	It allows me to understand the work I'm doing and it also explains topics I'm not familiar with so it actually makes more confidence so I can get better grades	Makes learning more fun and interesting	- No, school would still be school even if it was mandatory to use this program.	It feeds the student more information about certain subjects given in an assignment. So it makes the student feel smarter.	It makes me feel more engaged in school work and it teaches me new things.	No change in feelings with or without	School definitely is easier when I have Renzulli.	It doesn't really affect my feelings on school
10. Do you believe using RLS at school helps you be more satisfied with school or less satisfied?	Satisfied, helps get assignments done	I think it makes me more satisfied because I can understand subject that I'm not to good with	More. Makes it more interesting and makes me want to learn even more.	- To me it changes nothing,	more satisfied because the independent studies help improve my grades.	more satisfied because it helps me understand things better and it makes the work easier because they list websites to help you with the assignment.	more satisfied. I say this because it gives a range of assignments that are not just educational but fun also. Furthermore, when I use R. I feel like I can get the job done way faster than usual.	I am satisfied with my work of what ever i do when I know I did my best. Renzulli helps you bring out the best.	More satisfied because it helps me with my work
11. Do you believe that using RLS helps you be a better student?	Yes, more computer literate	Yes	Yes, Helps me to be more knowledgeable about things we study in school and get better	- No I could still find the information I find with the program on a regular search cite. Yet, it would probably take me longer which would,	Yes because it does increase my knowledge on subjects. It does make me more independent and computer literate because for the assignments it	It has helped me be a better student because it makes me smarter and I have more knowledge for the future.	I don't think using Renzulli makes me a better student. I am more computer literate. I am definitely more knowledgeable.	Independence is one of the many things the R. program has helped me achieve. When i do work i don't just do it and call it a day. I	Yes because the RLS help me elaborate with my school assignments. Also this site makes me a better student

			research. My computer skills have increased.	actually, make me a better student because then I would become more patient and have more skill in using search cites.	requires researching about the topic which helps improve my researching and computer skills.			really become knowledgeable on the subject. Yes, R. has helped me become a better student.	academic wise
12. Do you believe that using RLS has improved your grades?	No,	RLs has improved my grades and I think they will improve in the future and yes this is a goal for me	No , but has given me the tools that I need to keep on doing well.	- No	Yes because the assignments given are counted as apart of our grades. Right now I have good grades but if I can improve my grade in anywhere I can, then ill do my best.	No However, it has helped me get my projects done sometimes and I get straight A's in school, so it helps my maintain my grades.	Yes. It will surely help me in the future when I continue on to high school. Getting higher grades is a major goal for me I need to excel in everything that I do especially school wise.	Renzulli has helped me keep close to my goals. I think that it will help in the future as well. High marks is one of my goals.	It helps me get better grades, and I believe it will help me in the future as well.
13. Do you believe you are more involved in school as a result of using RLS?	No	more involved	Yes, more active in school. Participate in more classroom discussions because I know more about the topics	- No, I still am eagerly raising my hand and participating in class; and I would do so with or without this program.	Yes	No	Not really	I have always been involved in school. Renzulli makes it easier to contribute	Yes

Table 4.3. Student responses to impact of RLS on school behaviors

Mark explained, "It allows me to understand the work I'm doing and it also explains topics I'm not familiar with so it actually makes more confidence so I can get better grades." When the researcher followed up in the interview on his statement about confidence, Mark explained that RLS gave him confidence to understand things. "So I don't have to keep asking questions. I just do it myself." Dari also equated the use of RLS with feeling smarter, "It feeds the student more information about certain subjects given in an assignment. So it makes the student feel smarter."

Three students believed that RLS had no effect on their feelings about school. As Alicia put it, "school would still be school even if it was mandatory to use this program." Cindy thought it made school fun and interesting. Rahul voiced some boredom in school that extended to RLS, "When using RLS, I don't find it interesting. So usually, it might cause me to be bored in school." Rahul was ranked 4th among most engaged in school by his TAG teacher of the 9 students in the sample group. In the follow-up interview, Rahul was asked to explain what he meant by being bored. He said that his boredom was due to not being interested in the assignments they were doing. He gave the example of not being interested in any of the programs or subjects being studied during a unit on explorers. He also attributed being bored to time it took to receive assignments at school. So, the boredom was not attached to the Renzulli system but rather to the school curriculum and procedures that he associated with getting his Renzulli assignments. Boredom on those aspects of school is quite common among gifted students (Plucker & Callahan, 2008). If students are not engaged in the curriculum topics, do not have the opportunity to individualize their program, and are not challenged by the curriculum, they are more likely to experience boredom than if there is appropriate modification made for their learning needs.

When asked what effect Renzulli had on the students' satisfaction with school, 6 responded that they felt more satisfied, 2 were satisfied and 1 said Renzulli had no effect on school satisfaction. A representative comment of the satisfied students responded much like Cheryl who said, "I say this because it gives a range of assignments that are not just educational but fun also. Furthermore, when I use Renzulli I feel like I can get the job done way faster than usual." When asked in her interview what makes something satisfying, Cheryl defined it as "something that can entertain me and I can still use it as an educational thing for my teacher or

assignments given to me.” She believed that RLS makes everyone satisfied because “even if teachers assign us a project to do, we will have a project that suits our needs and also suits the needs of the teacher, so it’s satisfying.”

Even the 2 participants who indicated that they were satisfied students believed Renzulli helped them. As Naomi wrote, “I am satisfied with my work of what ever i do when I know I did my best. Renzulli helps you bring out the best.” Upon follow-up questioning in the interview about whether and how RLS enhanced her learning, Naomi explained, “You get to look up things and find them out for yourself. If I find them out for myself, they’re easier to remember. I can make connections to other things.” She gave an example of how using RLS was like exploring, not working. “We had this project where we had to learn about the rain forest ... I learned a lot about it so I could really know what I was talking about. On Renzulli, it’s not just random websites. Everything has a purpose.” She believed Renzulli was not like school at all. “You get to kind of play with it and see how everything works. In school it’s not like that and it’s not going to change ever. In Renzulli you’re going to see how it works if you try it.”

In her second interview Naomi also referred to her desire to match things to what they are in real life as “correlation and application”. Naomi appeared to be the most verbally gifted of the sample of students as she was passionate, insightful, and mature in the thinking that was described through her responses. This response stating how Renzulli worked for her correlated with the importance of authentic and real life learning, mentioned in research with this population (Gallagher, Stepien, & Rosenthal, 1992; Hmelo, 2004; Sobral, 1995; Stepien, 2002; Stepien & Gallagher, 1993; Stepien, Senn, & Stepien, 2000), a general goal of most gifted education programs and the reform movement in education (Firestone, Schorr, & Monfils, 2004; Lee, Smith, Perry, & Smyle, 1999; Lieux, 1996; Liu, 2005). She also struck a chord consistent with current theories of giftedness and the emergence of alternative assessment. Moon (2008) summarizes the current research in alternative assessments and makes 2 relevant points to Naomi’s comments. First, students’ reactions to alternative assessments are more meaningful, interesting, and motivating to them than are traditional assessments, and second, students with a deeper

understanding of an area are able to provide explanations similar to experts when providing responses to alternative assessments.

Naomi might be considered as an example of a student who learns practically and who would by definition, exemplify the Teaching for Successful Intelligence model based on Sternberg's (1985) Triarchic Theory. This theory states that three components of intelligence (analytical, practical, and creative), as well as memory, are need for success both in and beyond the classroom. Through RLS, Naomi demonstrated that she was analyzing information ("see how everything works"), noting its practical application ("I make connections to other things"), and then creating in her mind how things matched up and what might be done with that information ("play with it").

Naomi's comments also reinforce current movement within the broader fields of measurement and assessment to develop assessment tools that evaluate students on four basic cognitive abilities (Bass, Magone, & Glaser, 2002). Students should be able to demonstrate an understanding of a problem grounded in a particular topic or study; they should be able to demonstrate strategies for solving the problem. Assessment techniques should monitor progress and the students should be able to explain the principles supporting the area of study. These cognitive activities occur in alternative assessment, also referred to performance-based assessment, and authentic assessment (Plucker & Callahan, 2008). RLS allows for alternative assessments as students research topics related to problems that interest them and allows them to demonstrate their learning through various modalities and projects. RLS also allows them to record and track their progress online. Naomi realized that for learning to occur and be meaningful for her it must be active, transferable and contextual as supported by the Triarchic Theory, and validated in methods of alternative assessment, as is possible through such online learning systems as RLS.

For Alicia, however, in regard to her school satisfaction, Renzulli "changed nothing." She believed there was no impact on how she feels about school as a result of using RLS. When questioned further, Alicia just really did not think RLS changed school in any way for her, for better or worse. She said that what made school fun and satisfying for her was learning things

that she hasn't learned before and having fun with friends. Renzulli didn't seem to change those aspects of school in a noticeable way for her. Alicia's comments on most of the questions were fairly noncommittal in stating any effects in any area from using Renzulli.

When asked if RLS would help them be better students, 7 said yes, 1 said no, and 1 was not sure. Typical comments dealt with increased knowledge and better grades, but Naomi also pointed to other qualities: "Independence is one of the many things the Renzulli program has helped me achieve. When I do work, I don't just do it and call it a day. I really become knowledgeable on the subject. Yes, Renzulli has helped me become a better student." The researcher asked Naomi in her interview to explain how RLS makes it easier for her to contribute. She said, "Renzulli helps you become more knowledgeable on the subject. It helps you learn things and when you learn things it's easier to say stuff and put it into class conversations because you know what you are talking about." When the researcher asked Cheryl to explain what it means to be knowledgeable, she replied, "It means able to find any further resource for assignments given to you like accessibility to find something." Such a comment demonstrated why students would link the acquisition of knowledge to online learning systems such as Renzulli.

Hayley thought that RLS helped her extend her current academic needs, "It has helped me be a better student because it makes me smarter and I have more knowledge for the future." In her interview she further stated that RLS helped her maintain her grades. "If I didn't have the program I probably wouldn't do so well in school." Naomi agreed that this type of online learning is more in line with her future goals than regular school. "Renzulli isn't like a textbook...It gives you different types of ideas and different ways to think about things. It's more what are my goals and how can I get there.

Rahul liked how computerized learning helped his focus. He ranked fourth out of nine on his teacher's list of most engaged. He explained in his interview:

Online learning can be very [*sic*] interesting than reading a book. It can be more interesting because electronics can do many things. It can show you how things work. Reading from a book, kids might fall off, put their

heads down, not pay attention; someone might interrupt you a lot. With a computer it's easier to focus on what you are doing.

Mark referred to his association with the inadequacy of books as instructional tools when he talked about his improved ability to read and understand more, and learning to write better as a result of using RLS. "Books put me to sleep because my mother used to read to me to put me to sleep when I was younger." Home and family influences are powerful as the reader can see in this comment of Mark's. These influences can be elusive to educators who do not always have all the information they need to understand the connections that students sometimes make, based on their personal experiences. In this case, fortunately, the fact that Renzulli Learning was not a book was helpful in contributing to Mark's academic success.

Hayley believed that she has gained the skill of helping others through RLS because "sometimes if my friend needs help, I will help her." She added, "It's very rewarding to help others." Having a few good friends was important to Anna. She did not have the goal of being highly popular, so having a few good friends who could support her and that she could help in such ways as helping them with school assignments through RLS was important to her. She perceived the ability to be helpful as a new skill she had gained through using RLS.

By contrast, Alicia, who answered "no" to this question of whether RLS helped her be a better student, had an interesting viewpoint about why she might be a better student without Renzulli, "I could still find the information I find with the program on a regular search site. Yet, it would probably take me longer which would, actually, make me a better student because then I would become more patient and have more skill in using search sites." Cheryl, who also thought "RLS did not make her a better student apparently did not equate being a better student with increased computer literacy and knowledge. She explained: "I don't think using Renzulli makes me a better student. I am more computer literate. I am definitely more knowledgeable." Cheryl's opinion that computer literacy and knowledge are seemingly not the same as being a good student is consistent with the impression given by all the students that being a good student has more to do with good grades than the skills that accompany life long learning. Both Alicia's and Cheryl's responses potentially demonstrate their own confusion about what it means to be a good

student at least in terms of in-class behavior. It appears likely that they have undergone a traditional school induction regarding the desirability of getting good grades, while at the same time they note the various aspects of what they believe constitutes a good learner, such as using tools and thinking processes and gaining knowledge.

Students were also asked about their academic success as it relates to RLS in terms of them getting better grades both now and in the future. Though they consistently referred to getting better grades in their overall responses as a result of using Renzulli, their answers to the direct question were split. Five believed that it did help their grades (1 Black 8th grade male, 1 Black 7th grade male, and 3 Black 7th grade females) and 4 responded that it did not help (1 8th grade Black male, 1 8th grade Black female, 1 8th grade Hispanic female and 1 7th grade White female). Typical of the affirmative responses was an observation by Cheryl who also was able to see her success in the future as well as the present. "It will surely help me in the future when I continue on to high school. Getting higher grades is a major goal for me. I need to excel in everything that I do especially school wise."

Two of the 4 students giving 'no' answers to Renzulli's effect on academic success had no explanation they could offer. But the other remaining 2 students indicated that Renzulli has given them skills to do well. As Hayley put it, "it has helped me get my projects done sometimes and I get straight As in school, so it helps me maintain my grades." Again, seemingly contradictory statements by students about their grades and academic skills were noted. Such beliefs may result from contradictory feelings and statements given by educators throughout their educational careers. Schools convey various messages about learning, success, and achievement. Sometimes the message is about getting a good grade on a test, in a course, or in a competition and sometimes an emphasis exists on the application of skills and knowledge for the long term benefits of gaining a good educational foundation. Such comments may hail from parents as well. There may also be a hint of believing that they have the ability to do well, regardless of what tools or aids assist them in school. Students may not want to attribute any of their success to external assistance. This proposition would be supported by the research on the positive academic self concepts that gifted students have of themselves (Kulik, 1992).

The students were also asked if they felt more academically motivated to engage in school-related academic activities as a result of using RLS. Again the answers were split as 5 yes and 4 no. The students responded in the same positive or negative manner to this question as they did to the previous one, with two exceptions. Cindy (8th grade Black female), who answered “no” to whether RLS helped her get better grades, answered “yes” to this question of being more engaged at school. She stated that as a result of using RLS, she is more active in school and participates in more classroom discussions because she now knows more about the topics as a result of using Renzulli. Again, the lack of association between grades and knowledge was apparent in Cindy’s seemingly opposite responses. Cheryl (a 7th grade Black female), who responded in the affirmative to the help with bettering her grades question, answered “not really” to being motivated to engage in school-related activities. When pressed for more, she gave no further explanation; she just seemed to think that there had not been any change in her school involvement that she associated with Renzulli.

Most of the other students also gave little or no explanation for their answers on this survey question on engaging in school behaviors. Cindy typified the ‘yes’ responses with “Yes, more active in school. Participate in more classroom discussions because I know more about the topics.” Alicia (third on the teacher’s list of most engaged in school out of the 9 students) wrote, “No, I still am eagerly raising my hand and participating in class; and I would do so with or without this program.”

Naomi, on the other hand, probably the biggest RLS cheerleader of the group, made it very clear that she is happier in school when she is using RLS and that usage affected her entire school persona.

When I’m not using Renzulli, I’m watching the clock. With Renzulli, there’s more of a connection between teachers and students, not just ok whatever. With Renzulli you get to experience what you’re learning. It’s kind of like connect the dots. I’m satisfied with my work when I know I’ve put all my effort into it. You don’t feel ashamed to come to school.

Renzulli allows me a way to put everything into it.

And later, in a more concise nutshell, Naomi summarized, “Renzulli benefits – it’s more of a living experience. At school, teachers talk and talk and I understand why they have to. But you have to be able to wrap your head around things.” Naomi is alluding to the boredom that highly capable students often experience in school due to the lack of choice and control in their educational programs (Kanevsky & Keighley, 2003; Plucker & McIntire, 1996). Naomi also expressed her need to experience content, delve into real world problems and issues, and play with ideas. These needs are well documented and substantiated in the research on the learning characteristics of gifted students and their need for complex curriculum (Gallagher, 1975; Maker, 1982; Renzulli & Reis, 1997; Rogers, 2002; Tomlinson, 1999; Tomlinson et al, 2002; Van Tassel-Baska & Little, 2003). Naomi, like the majority of gifted students in schools today, was seeking meaningful and usable connections among school learning, conceptual formation, and life application. In her view, RLS accomplished this for her.

In general, it appears that RLS shaped the school behaviors of most of the students in the sample in a constructive way. Students expressed that they were more confident, satisfied, focused and possess more general knowledge as a result of using Renzulli. They could identify several ways that RLS helped them in school and generally acknowledged that Renzulli helped them be better students, academically, now and in the future. Even those students who thought school was school, no matter what was added or taken away, described ways that RLS helped them. Students were split on their beliefs regarding whether RLS had increased their engagement in other aspects of school.

As mentioned previously, technology can have a great impact on student learning (Bain & Ross, 1999; Cradler, McNabb, Freeman, & Burchett, 2002; Leu, Leu, & Coiro, 2004). These students appear to confirm that impact as evidenced by their positive feelings about how useful this one tool, Renzulli Learning, was for them in achieving school success. The fact that they seemed to enjoy using RLS, in addition to the academic benefits, is consistent with research that shows there is enhanced motivation where students used student-centered approaches (Renzulli & Reis, 2007; Baum, 1988), as is characterized in the matching of project activities to the students profiled preferences in RLS. The researcher could find no studies to explain why there appeared

to be somewhat of a disconnect between the students' understanding of their school engagement and their understanding of how Renzulli had helped them at school. Perhaps there were multiple understandings of the word "engagement." Perhaps they could not view themselves objectively in a before and after Renzulli continuum and were, therefore, unable to distinguish differences in their behaviors. Or, perhaps, we as educators have made distinctions at school, consciously or unconsciously, among various types of learning experiences as being separate and have not interconnected the many components of learning in a way that students would view them as seamless.

Research Question Three asked about Social Impact in how students perceived that using RLS affected their social behaviors at school. The students were surveyed about their perceptions as to whether using RLS has affected their social behaviors in any way (survey questions 14-17). The majority (5 students) felt that there had been no change in their social interactions at school since they were first introduced to Renzulli (1 8th grade Black male, 3 7th grade Black females, and 1 7th grade White female). Two students stated that they felt there was a decrease in social interactions (1 8th grade Black male and 1 8th grade Hispanic female). One student felt that it had increased her social interactions (8th grade Black female) and one student did not respond to the question as asked (7th grade Black male). A variety of reasons were offered by those who felt there was no change. Dari alluded to the lack of socializing while using Renzulli because "most of the assignments given are not a group effort". Hayley mentioned that her ample social interactions were separate from RLS activity, which is mostly a lone activity: "I usually use RLS by myself, but I also have many friends, so my social interactions with other students stay the same." She thought Renzulli helped her "help her friends sometimes, but that's the most way it relates" to her social interactions. Naomi explained, "what we talk about now is always homework, not what someone's wearing. No one really minds anymore. All my friends use Renzulli."

Rahul, who said he takes school very seriously, didn't let his friends "get in the way of anything. School is more important because it can get me somewhere." In noting the context in which RLS is used for them Rahul added, "When I use Renzulli, we are on computers and I am

already with my friends, so we might find information but it won't help me find friends because we're already friends." But Rahul also mentioned that he liked doing assignments in groups of 2 or 3 because he likes long assignments, "learning deep about the subject and getting all the knowledge I can about it" but not because he enjoys the challenge or difficulty of long assignments. He thought short assignments had their drawbacks. "Short assignments might be too much knowledge for my head so I might lose track of information that might not stick." He obviously perceived a dichotomy between deep information in a single topic and lots of information on various topics, the latter being more troublesome, in his mind.

The question of long-term versus short-term assignments was asked to explore more about students' learning preferences in gaining greater understanding of how students' perceive learning within the RLS context, with and without the social component. In contrast with Rahul, Dari didn't like in-depth assignments. She explained, "I get too deep, too involved in bigger studies. I get too stressed because I need to finish it to get As. So I'll try my best to do the best I can." Dari did, however, think that the group projects on RLS were good for social relationships. "Group projects help you bond. You can't spend time with friends when doing independent study." She valued friendships because friends can "help you out in bad situations. If I didn't have friends I think I would be too absorbed in school and I would go crazy."

Offering a different perspective, Jamil, a person of very few words during this study and the student ranked lowest on the TAG teacher's list of engaged at school, preferred to use RLS alone since he felt he learned more that way. He explained, "In group activities some students do not work as hard or as well as others." The reader may notice that Jamil is rarely referenced in this paper. His responses were minimal and rarely added any new insight or detail to the questions of the study. The researcher tried to get Jamil to follow up on his responses, add more detail, and offer any thing else he might like to say, but he never wanted to do so. Jamil was not contrary or belligerent in any way, though, and was always pleasant and willing to participate at his minimalist level.

Cheryl's words, "Renzulli did not really have that much of an effect on me with social interactions. I say this because many of the students aren't interested in school work so they

rarely talk about it.” But in her interview, Cheryl thought there was an effect on her social life in that, “everyone is on the Internet all the time and we can talk about our assignment and how we can help each other.” She distinguished between the social aspect of learning and her social life outside of school. She saw them as two different things. Cheryl noted that RLS didn’t affect her social interactions because RLS was outside the typical talk of adolescents. That is, researching topics on Renzulli was not typical of the usual fodder of their adolescent conversations.

Mark thought his social interactions at school had decreased, but gave no reason for that thinking in his survey. He wrote “but we’re not here to make friends are we?” When asked about this answer in the interview, he was not concerned about losing friends because he has a “bigger academic than social goal. I have some of the friends I had before.” When pressed further about the effects of online learning and school he added, “I used to sit around and play more with the people next to me but now I sit there and ignore them, read books, listen to the teachers, and do my work.” He mentioned also that he thought if more teachers used Renzulli, student grades would improve because students would be more focused on grades than friends. Mark believed RLS has not affected his after school relationships. “Hasn’t affected it but I’d rather have better grades than some friends now because we have a lot of time to make friends.” When Mark was asked why school was always the same for him, regardless of what he was doing at school, in his second interview questions, he replied, “it doesn’t make a difference to me because I am a friendly person and no matter what I know my friends will be there for me.

Alicia, who also believed there was some reduction in socialization, attributed the decrease to not needing to ask others for information since RLS was so inclusive. “It has decreased my social interactions because I don’t have to go and trade information with others when I have all the information needed in front of me.” When the researcher followed up on this comment in an interview, Alicia explained, “before we were on Renzulli learning system we would find crazy information that we would want to share with someone. With Renzulli everyone gets the same information so there’s nothing new to be added.” Hence, there was less of a need to interact about such information. Alicia is referring to times when students have the same assignment and are searching the same assigned sites. If they were researching individual

assignments geared to their interests and preferences, they would be finding different information.

Cindy was the only student who wrote that RLS had increased her social interactions with other students, but she did not elaborate as to why she believed that. Her belief that RLS had increased her social interactions apparently stemmed from her association of the social interaction needed when working together with other students on projects online. In response to the question regarding online learning and social relationships, Cindy wrote, “when I am on RLS I get to talk with the other students more because we suggest activities to other students.” Though online, this “talking to each other” is social interaction that she would not have without participating in group learning on Renzulli.

Most findings in the literature of the social development of intellectually gifted students show a positive picture of their development (Gross, 2002; Neihart, Reis, Robinson, & Moon, 2002). Most of this research is based on studies of moderately gifted students, which would appear to be an appropriate comparison to the sample used in this study, and who also did appear to be socially well-adjusted. Several studies have found that gifted children prefer the companionship of age peers with similar intellectual capacity or older children (Gross, 2001). The students in this study were grouped together in their TAG program and therefore were able to work together and socialize together in the context of school, satisfying their need to have a social and intellectual group at their fingertips that allowed them to have good social experiences. This situation might help to explain why there were few social concerns or negatives associated with their use of an online learning system. It could also just be that online learning did not affect their socialization in any direct manner.

Part 2 of Social Effects Question: Social impact at home

The question related to the effect of RLS on social interactions at home was far more conclusive. All but one student said that there was no effect at home on their social interactions. Most of these students do not use RLS extensively at home, therefore it follows that there is limited opportunity to affect their social lives at home. Only Dari (#2 on the teacher’s “most engaged” list) responded that using RLS had affected her social interactions at home due to her

desire to do her work completely and quickly. “When doing projects at home it takes away from my social time with those around me because I try to focus on my work to finish as fast as possible.” This comment by Dari is not really an outlier statement, as she explained that she is not saying that RLS has affected her social interactions at home, rather, it is the focus that she brings to the projects she is working on that takes her attention away from family and other distractions at home and thereby negatively affecting her social interactions. The fact that she wants to finish fast may suggest that she is eager to get on to other activities such as interacting with her family and friends. Her ability to focus is consistent with the teacher’s opinion of her that she is very engaged in school.

Part 3 of Social Effect Question: Overall Social Impact

The students were further asked about their beliefs regarding the effects of using RLS on their ability to make friends, and on their social relationships in general. Six students felt using RLS had no impact on their friendships. Most students simply stated that there was no effect. Naomi further elaborated by writing, “Friends are people who like you for who you are. Renzulli hasn’t really changed anything between my friends and I [*sic*].” Two students expressed a belief that using Renzulli had reduced their social interactions because they didn’t talk to people as much. Dari further explained, “I think it’s important to have friends because they help with your social life. Renzulli assignments keep me busy so I can’t really spend time with my friends when having an assignment.” On the other hand, Cindy believed using RLS enhanced her social experiences. “When I am on RLS I get to talk with the other students more because we suggest activities to other students.” All students indicated during the interviews and on the surveys that friendships were very important in their lives in general.

Finally students were asked what they would do if they believed using Renzulli was having a negative effect on their social lives. Six students did not believe that RLS had made any impact their social lives, wouldn’t care if it did, or wouldn’t let it impact their social lives (two 8th grade Black males, three 7th grade Black females, and one 7th grade White female). Varying thoughts existed on this topic. Mark said he “probably wouldn’t care because my grades have improved.” Alicia, following the same line of thought said she “would ignore it and just learn to balance out

my social life with my use of the program. These two students who entertained the possibility that there could be a decrease in social interactions were not concerned about it and seemed much more interested in how RLS had helped them achieve success in other areas. Cheryl “would still use the website regardless of how my social life resulted.” Naomi thought “real friends like you for you, so i [*sic*] would still use the program. Sometimes friends disagree.” And, while Rahul did not believe that RLS has any effect on his social life, he did state that if it did have a negative effect, he would not use it.

Interestingly, Cindy, who was ranked first on the teacher’s most engaged list, went a step further in her belief. If she believed RLS was having a negative effect on her socialization she “would most likely follow that belief and not participate on any online learning.” So although, it was extremely important to her to do well in school and to get good grades, she would give up a tool that helped her accomplish that goal if she believed it negatively affected her social life.

The remaining 7th grade White female and Black male, answered with non sequiturs, apparently not connecting with the question. Hayley and Jamil both said their parents think it’s a great program and Jamil also made a statement about asking for help when participating in online learning.

In summary, the students in this study did not believe that RLS had really influenced their social lives, at school or at home. They essentially did not see a connection between having/keeping friends and working with Renzulli. Clearly, doing well in school and having friends were both very important to these students. But, if students were forced to choose one over the other, a couple would likely choose academic excellence and a couple others would likely choose their friends.

These results are consistent with what the research tells us about the social and emotional needs of gifted students (Neihart, Reis, Robinson, & Moon, 2002). The range of behaviors, emotions, and socialization among moderately gifted students is similar to that of the general population. Peer relationships are increasingly influential during the early adolescent years (Elias et al, 1997). Just as any group of adolescents would, these students are mixed in the amount of focus on and need for socialization, while still making it clear that socialization is

indeed important. The majority of recent research in the area of affective development notes that gifted youth as a group are not any more likely to be flawed in their social and emotional adjustment than any other group. In fact, Neihart, Reis, Robinson, & Moon (2002) conclude that gifted young people may “possess assets that, when supported, may enhance their resilience to highly negative life events and enable them to utilize their talents to achieve productive and satisfying lives” (p. 268). Most problems that can be attributed to those that gifted students do have in the affective domain can be attributed to ill-fitting environments. One major way to create an appropriate environment is in the area of curriculum differentiation. Gifted students have an affective need for mental stimulation (Reis & McCoach, 2000; Rogers, 1991). The need is evident in the students in the sample responding to the social questions with comments about how important a tool for academic learning would continue to be important for them, even when facing the potential of such a tool impacting their social interactions.

It is incumbent upon parents, teachers and administrators to create a thinking, learning, and feeling environment that supports the social and cognitive needs of these students so that problems, such as feeling isolated, different, or lonely, are decreased. The need for a differentiated curriculum has been extensively established in the literature over recent decades (Gallagher, 1975; Kaplan, 1994; Maker, 1992; Rogers, 2002; Tomlinson, 1999; Van Tassel-Baska & Little, 2003). Now in the age of the internet, there are additional ways to cultivate an environment that can address the needs of gifted students on multiple fronts that address the full range of their characteristics and needs. If we reference the students in this sample, the question about lessened social interactions is not a concern or reason to limit such online opportunities.

Research Question Four asked about Parent Involvement regarding students’ perceptions of their parents’ understanding of RLS. Since RLS has a parent component and parents can be involved in their children’s use of RLS at home, the students were asked about their parents’ involvement. While all their parents were essentially uninvolved in hands-on use of Renzulli, 6 of the 9 students indicated that their parents encouraged them to use the online learning system because they believed it would help their children. Alicia put it this way: “My parents don’t truly know what the program is. They just know I’m getting my homework done so

that's all they care about." She added in her interview, "All my mom knows is that it's a program I use once in a blue moon [at home] and she doesn't really mind what I use to get my information as long as I'm getting good grades and I am trying my best."

But a couple other students referred to their parents' beliefs regarding the usefulness of RLS. Cindy said her parents encouraged her to use it "because they have seen its benefits. My parents really like the program." Naomi said her parents thought "it's a good learning experience for kids." Amy's parents "believe it will help with my learning ability and academics."

When asked how much their parents knew about RLS, 7 students said they knew a little (2 8th grade Black females and all the 7th graders) and 2 said they knew nothing (2 8th grade Black males). Those who knew a little did not seem to know much about Renzulli Learning. Alicia's parents knew that it "is a learning program that I use for projects and other assignments." Naomi's parents "aren't that familiar with it. They know what it's for though." Dari's parents, who were a little more informed, "know that I'm able to receive assignments, work on them, and can send them directly to my teacher when im [sic] done."

Seven students whose parents knew a little about Renzulli reported that they had a positive opinion about the program. The benefits they see, according to the students, are:

- "That it is a very helpful website to me when I do my schoolwork and there is nothing but good things to say about it" (Cindy).
- "They like that I'm using sites and programs to help me succeed in school" (Alicia).
- "They enjoy it because it helps keep me occupied when there is nothing to do and it helps with my academics" (Dari).
- "They think it can prepare me for a bright future" (Hayley).
- "To do your work on the rls and get an A" (Jamil).
- "They think it would help any student on the educational side" (Cheryl).

Almost all (8) of the students said their parents had no effect on how much they used RLS. As Hayley observed, “my parents don’t affect how much I use the program or in what way I use it.” Only Dari felt her parents had an influence on her use. “If they know I have an assignment they encourage me to complete it as soon as possible.” Only Cheryl’s mother engaged in a Renzulli activity with her--though not online. She helped Cheryl assemble all the packages to make the product for her chocolate factory, where the product was to assemble her own boxes for the chocolates.

This question probably has the most definitive answer of all the research questions. Parents were not involved and did not affect these students’ use of Renzulli, but they recognized that it was a helpful tool for their children and they encouraged them to use it within their extent of knowledge about the program. An opportunity exists to increase parental involvement in the use of RLS at home. There is strong evidence to suggest that when home and school collaborate, programs tend to have many more positive outcomes that last for longer periods of time than without such collaboration (Haynes & Comer, 1996; Walberg, 1984). Further, it is clear from research literature on talent development and creativity that families play a large role in the realization of promise and potential (Bloom, 1985). But clearly, the parents of these students espoused values conducive to academic achievement and impressed those values on these students to the point that they are doing very well in school. The sample students verbally attributed much of their success and motivation to succeed to their parents’ inspiration. This ability to convey the importance of such development is consistent with research that notes such value communication can be made by parents by emphasizing the finding and developing of one’s abilities, achieving at the highest levels possible, and functioning independently in one’s full range of pursuits (Olszewski, Kulieke, & Buescher, 1987).

Research Question Five asked about Teacher Perceptions. The final research question sought to understand the influence teachers might have on students’ use of RLS, from the students’ perceptions and was stated as: What are students’ perceptions of their teachers’ understanding of RLS? All students indicated that a teacher had been instrumental in getting them to use Renzulli. In addition to explaining to them how to use it, most students indicated a

teacher/RLS relationship to school assignments, as did Alicia (“my teacher gives us assignments and projects that revolve around the program”) and Naomi (“Assignments are the main reason we use Renzulli so yes. They help explain what exactly they expect out of our work.”)

Students were asked what they thought their teacher’s opinion was of RLS. All students reported a positive attitude on the part of their teachers regarding Renzulli. Mark’s comments underscored their association of RLS with academic success. “They like us to use them because they’ve seen a change in our grades since we started using them.” Alicia’s comment suggested that teachers were concerned about the quality of internet sites, “My teacher’s attitude towards the program is that he would prefer we use it than other search sites, which aren’t reliable.” Naomi summed up the positive feelings with “Our teachers LOVE the program. It’s easy to use.”

Students were asked whether their teachers incorporated RLS into their individual educational programs. All students responded that they did not--RLS was only used for assignments and school projects. Naomi wrote that it was “mainly for research and activities that pertain to the topic we are studying.” Alicia went a little further with her statement, “it is used when we do projects, and little assignments to allow us to learn the topic easier.”

The researcher was also interested in knowing whether teachers had encouraged students to use RLS outside of school. Seven students (all but the 2 8th grade Black males) indicated that teachers had encouraged them to use RLS in various ways and 2 indicated (the 2 8th grade boys) that teachers had not. Encouragement to use RLS included ways to track their progress on projects, to gain clear, useful, reliable information faster, and to use for projects at home. Jamil (ranked as least engaged in school by his teacher) said that he was encouraged to use it for homework. All students agreed that no teacher had ever discouraged the use of RLS.

Finally, students were asked whether they thought their teachers believed Renzulli had improved students’ academic success. All but one stated that they thought their teachers did believe that it had helped, for various reasons. A couple of students, like Dari, mentioned expanding one’s knowledge. “I think they believe that RLS has been helpful to my academic success because it teaches me beyond core subjects such as history.” A couple others, like Cheryl, mentioned doing well in general. “RLS has been helpful in achieving academic success.

They always show me how good I am doing in all of my classes.” Jamil again pointed out the pragmatic: “teachers can easily get the work; also they don’t have to worry about us losing the work.” Naomi summed up all the positives (highlighting done by Naomi), “Renzulli has really made learning easier. All my friends like it and my teachers too. It **really** enhances my learning experience.” Table 4.3 displays the students responses to the question of whether they think their teachers believe that using Renzulli has contributed to their academic success.

Survey Question	Rahul 8 th	Mark 8 th	Cindy 8 th	Alicia 8 th	Dari 7 th	Hayley 7 th	Cheryl 7 th	Naomi 7 th	Jamil 7 th
27. Teacher believe RLS has improved academic successes?	Yes, helps get research and find information	Yes, our teachers do believe the program is helpful because they like us to use them and I do think they help in other areas	Yes, they can see that ever since we started using RLS our work has gotten better.	No, I think my teachers know I would gain the same grades with or without this program because I am a hard worker and I don't need this program to help me	I think they believe that RLS has been helpful to my academic successes because it teaches me beyond core subjects such as history.	I believe the teachers think that the program has been helpful because they always encourage us to use the program for assignments.	RLS has been helpful in achieving academic successes. They always show me how good I am doing in all of my classes.	Renzulli has really made learning easier. All my friends like it and my teachers too. It really enhances my learning experience	Yes because teachers can easily get the work, also they don't have to worry about us losing the work

Table 4.4. Summary of student comments regarding teachers' beliefs about RLS

Additionally, students thought their teachers liked using Renzulli for their school projects for several reasons. Alicia believed “they enjoy it because it’s easy to monitor us and they know there’s no way for us to find anything inappropriate and get off topic.” Dari added that she thought her teacher would say that Renzulli kept them “occupied” and that “it’s really helpful for extra

credit for students who don't have great grades." Jamil thought his teacher would say it was an easier way to do research and the work didn't get lost.

Alicia (number 3 on the teacher's most engaged list) was the only student who responded that she believed the teachers might not believe that RLS has contributed to her academic success. "I think my teachers know I would gain the same grades with or without this program because I am a hard worker and I don't need this program to help me."

This final research question also appears to have a definitive answer. According to the students, teachers appeared to perceive that RLS was not only a helpful tool for students that contributed to their academic success, but one that made the teachers' jobs easier. It was helpful to the teachers that RLS made it possible to track students' progress electronically. Teachers also liked that RLS provided safe websites for students that provided all the information they need for assigned projects. Teachers did not appear to use the system to individualize for students within the core curriculum, however. The fact that the teachers of these students did not use RLS to individualize their educational programs is consistent with research indicating that classroom teachers lack sufficient skill and motivation to differentiate or modify instruction for students with varied learning needs, such as gifted and talented students (Archambault, Brown, Emmons, Hallmark, Westberg, & Zhang, 1993; Plucker & Callahan, 2008). However, it is promising to note that teachers, such as the ones in this school, can significantly improve their skills in differentiation strategies, such as individualizing for these sample students, given ongoing professional development in such strategies within the curriculum (Avery, 1999). Sparks and Hirsch (1997) note the changing views of professional development in that to make substantial change, it must be focused on the goals of the schools and district as an effective organizations. Professional development is also most effective when it happens at the level closest to the students, using the materials they are being trained to use. In this case, training teachers in differentiation using RLS could easily occur as the program is at the school, accessible to teachers, and used by students.

In summation, the students' answers to the research questions described the format and functions they associated with the Renzulli Learning System. They use it almost solely for

school-related projects. They were mixed in their beliefs about its effect on their school behaviors and sometimes made comments that seemed contradictory, such as saying RLS did not make them better students, but then proceeded to outline the skills they had gotten from using the system. There was negligible if any feeling that their social lives at school or at home had been affected by using RLS. Parents were great cheerleaders for them, but did not take advantage of the ways they can be active participants in the online portions. Students believed that their teachers love using RLS as they perceived it to be a good thing for the students and easy to manage, but also did not take advantage of the ways RLS could assist them in differentiating for each student, beyond the use of research projects. Overall students enjoy using RSL, find it fun to use, and most of all, like that fact that it helps them achieve academically. They see it as a very useful and practical tool.

In Chapter Five, the responses to research questions will be summarized into the major themes that emerged from this study. Four major themes emanated from the research questions and three additional peripheral findings emerged from the general comments of the students across all cases. These themes provide a clearer picture of the ways the gifted adolescent students engage with the Renzulli Learning System and suggest directions for educators who strive to create meaningful learning experiences for similar populations of students.

CHAPTER FIVE: Discussion and Conclusion

Data collected and analyzed for the research questions provided information to describe what is involved when academically talented students use the Renzulli Learning System online learning tool. This phenomenon can be described and interpreted further through the use of themes that ran through the data gathered and across most of the cases in the study. Four major themes that emerged from the data gathered through the interrogations related to the research questions and three additional serendipitous findings that emerged from the content of student comments made while the researcher sought answers to the research questions. These themes are described below in an effort to better illustrate the phenomenology of this situation to its greatest extent.

Theme 1: An Excellent Tool for Excellent Grades

The first, most dominant theme emerged from students' perceptions of need and desire to attain high grades, and the use of Renzulli as a vehicle to achieve very good grades. These students very much wanted to have tools at their disposal that made it easy and likely that they would be successful in school. They viewed the Renzulli Learning System as such a tool. Since none of them used other online learning systems, they equated RLS with the concept of online learning. Cheryl felt that RLS "helps you be more computer savvy and the whole purpose of education and being in school is to learn, so it's both sides, like getting two birds with one stone." Dari stated that she now knows how to navigate the internet as a result of using RLS. "I know how to research properly to get information."

In these students' minds, Renzulli is a tool that makes doing projects easier. Cindy thought it made her more organized which helped her get better grades. "I can separate my topics within my project. Instead of one pile of information I can be organized and get better information. I wasn't a very organized person. I would just find a bunch of information and just sort of try to sort out whatever I could." Cheryl also used Renzulli for organization.

If I have an assignment where I have to find your own details then I follow the Renzulli format and it has everything organized. Renzulli has the project maker, and that helps you arrange the whole entire assignment or essay.

When you are using the Internet you can copy the link of the website where you are in and put it into Renzulli.

Mark also liked that “it has research that you want and not what you don’t need.” He added that RLS was “easier to use than wide-based databases because they have a whole bunch of things but Renzulli categorizes what you need.” He followed up in a subsequent interview by explaining, “other sites just give you their information, but Renzulli puts together the information that I can interpret better.”

In addition to the assistance that Renzulli provides for them in their projects, students note that they gained general knowledge as well, which helped them be more successful in school. As Cindy explained in an interview, “I am better able to take part in discussions even in classes where we haven’t used R because a lot of times the topics we do do vary but I’ve gotten a lot of general knowledge.” Alicia felt as though she had learned more about history through Renzulli. “It kind of makes my skills of remembering and knowing about past life better.” Cheryl believed she had gained keyboarding skills from reading all the projects and that she was “way more knowledgeable than before RLS. I’ve gained so much knowledge even with the assignments that are given.” She did not think it had helped her personal growth, however, since she strives to do her best in everything she does. Jamil thought that using RLS had improved his work ethic and helped him focus academically. “I work harder on schoolwork now and I have better products.” He ended one interview by stating, “Renzulli is great!”

While the motivations to be successful appeared to be more extrinsic than intrinsic for these students (focus on grades and wanting to please parents) the continued use of RLS may enhance students’ positive beliefs about their self-efficacy. The students were able to make a connection between their ability and facility to employ RLS to assist them sufficiently in getting high marks. This ability should demonstrate to them that they can be effective and competent. If students have positive beliefs about their efficacy, Schunk (1991) notes that they are more likely to set more challenging goals for themselves. Intrinsic motivations to seek challenge could be an added benefit of using learning systems like RLS and may help gifted students connect with the level of challenge they need. Mark pointed out the need for challenging assignments. When he

was asked how important it was to him to have his learning preferences defined as in the RLS profiler, he replied that it didn't matter to him; he just wanted assignments that were challenging.

The focus on external rewards for this sample of students, rather than on intangible rewards such as curiosity or the love of learning is consistent with Eccles and colleagues' (1993) discussion of how middle school educational practices can affect motivation. Grading and evaluation are generally important in traditional middle school classrooms. Wigfield (1997) notes that the kinds of school and classroom environments students encounter can greatly influence their motivation. Students, such as this group of 7th and 8th graders, have progressed through a system that becomes increasingly structured with subject area teachers, increasing emphasis on teacher control and discipline and few opportunities for personal decision making and choice as students move into junior high. Thus, it is understandable that methods that can assist them in achieving their academic goals easily and simply, like the methods employed in RLS, would be welcome to students seeking their own empowerment. The other three themes—school tool, lack of social influence, and fun to use-- were secondary in significance to the first theme but were consistent among all students.

Theme 2: Just for School

The second notable theme that emerged focused on how students viewed the Renzulli Learning System as a school program, not for personal use at home. It did not appear to have much relevance or extension into their lives beyond school other than homework. There was little use at home beyond homework, even though Hayley pointed out that her teachers "encourage us to use at home too, to do the best we can."

These 9 students clearly felt that school and Renzulli went together. As Alicia put it, "everything in Renzulli is about school. All the topics you should learn in school are in there." Dari agreed. "School is about learning new things and that's what Renzulli does. We learn about other cultures and traditions and that's what school does too so it's like a bonus for me." Hayley confirmed the school connection but admitted the potential for other benefits with this comment: "it's still doing work but it's more helpful to the student."

There is also the association of RLS with the management of their educational program. Many students mentioned that teachers use RLS to keep track of them and their assignments. Alicia noted that her TAG teacher likely approved of it “more than Google or Ask because it revolves more around the topics at school that he is supposed to teach us. And I think that it’s a lot easier for him to monitor us.”

Cheryl even added on her own that she thought Renzulli “should be enforced in every (school) area. Even in 2nd and 3rd grades.” Naomi concurs that it could be made easier so that younger students could use it. Her ideas for improvement were to add explanations for everything and maybe add some shortcuts.

Theme 3: Social Influence

The third theme related to their social lives, as students failed to see an association between RLS and their social lives and therefore did not think that RLS had a either a negative or positive effect on their social lives. As Alicia stated in her interview, “I don’t think it truly affects our social life because it really has nothing to do with it. We still have our free periods to do things like music or play around or like art or something. It’s just a period a day.”

However, subsequent interviews suggested there was more social connection than students realize. When asked directly if the students got their friends involved with them on projects through RLS, Cindy did respond that “after school, sometimes we play different games on Renzulli and stuff like that.” She also verbalized that her friends have similar academic goals and noted that she is “not looking to be the most popular person in the world. I just want friends who are honest and truthful and reliable people.” Alicia did mention using RLS with her aunt (age 14) “because I wanted to show her this Amistad video about Cinque and it was really quite interesting because it showed what happened at that time. It was a lot easier for her to understand it.” Students are socializing through these activities, perhaps without even realizing it.

Alicia thought that using RLS with a partner was more fun than using alone because “they’ll usually find something more interesting than you found and you get to share ideas.” Cheryl explained the relationship between her academic goals and personal goals: “If you’re not social that will probably hurt your academics. If you’re trying to enhance your social life it will likely

decrease in your grades and academics. That's probably what would happen. I think people want to be social." So while they did not tend to see RLS as having any effect or relationship on their social lives, they did see both as being important. This attitude is consistent with research on adolescents in general as well as on gifted adolescents. As noted in Chapter Four, moderately gifted adolescents do not differ significantly from the rest of the population in their socialization (Gross, 2001). Further, Delisle (1992) reminds us that adolescent youth are growing in their tendency to identify more with their peer group, so it makes sense that these students consider friendship to be important as would any adolescent. They just were not obsessed with having friends and tended to focus on their academics first. They were confident overall that they would have the friends they needed, with or without Renzulli.

Theme 4: Enjoyment and Fun

The 4th theme that became clear was that the students regarded RLS as adding an element of fun to school work. They all enjoyed doing hands-on activities within the sites. Each was able to recall a few activities and a few projects, but not as many as the researcher expected, considering that they used the program frequently over a two-year period and seemed to enjoy using it. A few students remembered doing projects on Shakespeare and on countries. Cindy remembered doing projects on Amistad and WWII. She was also able to recall in detail her conclusion from her Shakespeare project on whether Shakespeare was actually the author of his plays or if the true writer was Christopher Marlow or Edward De Vere. Rahul, whose favorite class is geography, did a project on Argentina using Renzulli and found it really interesting. Dari recalled creating her own tie dye t shirt while doing a study of the 60s and also learning about a country in South America. Cheryl remembered doing projects on a chocolate factory, astronomy, and how animals benefit our society (tests for makeup and furs). Her most pleasant RLS memory was of the chocolate factory. She did a lot of tasting and did experiments with students as to whether they liked bitter or sweet chocolate. Hayley remembered doing "the rocket ship because I had to build one. It was for TAG." She remembered Ellis Island too because she wrote about how the immigrants were amazed by being in America and having their freedom. Naomi remembered a virtual tour of the Galapagos Islands.

Wizard Project Maker was popular. Cindy explained, "I like the project wizard maker so you can work on your project and do activities." Cheryl liked the project finder. "You put in a topic and they give you a wide range of assignments you can pick from and there's a description on each one so if it fits you, you can read more about it." Outside of school assignments, Cheryl said that she sometimes went to Renzulli for fun, but not often. Hayley liked "the questionnaire at the end about how much you learned, how helpful it was and how I'd like to use it again." When asked how RLS could be improved, Hayley said she would add more websites to RLS to make it even better.

These students associated RLS with online learning because they were not using any other systems, so when asked about online learning, their comments actually refer to using RLS. Cindy thought online learning "is funner [*sic*] to learn because you know what you are looking for, you're interested and it's usually good information that will help you in the future." Rahul appeared to like thinking visually (researcher's interpretation) as he mentioned that he liked the videos, photos and slide shows that might be on RLS sites. He even offered, when asked how RLS could be improved, that RLS could have more visual aids and "maybe have at least one game so you can understand more about the assignments because sometimes it is just a page of reading." Fun is certainly a characteristic of learning that is desirable in getting and maintaining participation in learning. Administrators who are seeking ways to make learning more appealing, especially to high ability students who may be disenchanted with school, should take note of the ways that these students thought using RLS added fun to school.

Peripheral Findings

There were also three peripheral themes that emerged consistently among the students in their comments. These concepts were not a specific research focus of the study, but are considered worth mentioning as a way of understanding more fully how RLS is used by this sample population. The three findings were related to the family's influence on their school performance, their need to be independent yet have safety nets for achievement, and their confidence in their own abilities to do well both now and in the future.

Family motivation

When asked about what motivates them to achieve in school, all students noted the influence and importance of family on their desire to achieve in school (which in their eyes meant to get good grades). Cindy felt that it was important to do well in school for her parents because that is something “I can do to give back to them.” Alicia associated competition with family. “I like to do better than my aunt (age 14) and my best friend. When they do better, they always just talk about it and I like having better grades because it shows that I’m trying harder. It’s kind of good competition between [*sic*] all three of us.”

Hayley liked that RLS helped her with her grades and in her interview said, “My parents want me to have a good life and I want to have a good life so I know I have to work hard now. I look forward to using Renzulli. It’s fun.” Naomi was also motivated by her parents who are immigrants. “They’re from Nigeria and I think about their struggle to come to America. I think if my parents can do all that and still be in their right mind I think I can at least pull through school.” The importance of family influences was noted previously in Chapter Four (Bloom, 1985; Haynes & Comer, 1996; Walberg, 1984) and is verified here further through these additional student comments.

The independence paradox

Another finding that was notable, partly so because it appeared contradictory, was that these students preferred to try to achieve independently but they all also made comments about the need to be networked, to have friends in the right places, and to work together beyond the school experience. They essentially wanted to have a support group they could depend on, but *only* when they needed it. This finding is consistent with literature that notes the adolescent’s need to be networked and autonomous at the same time. In the literature review, it was noted that adolescence is a period of change and transition from childhood to adulthood (Edwards & Kleine, 1986), suggesting the need for adolescents to be child-like in their need for support but adult-like in their need to be independent. Further, there is a gradual decreasing dependence on adults as youth tend to identify more with their peer group (Delisle, 1992). Finally, Buescher’s (1986) list of the needs of most adolescents included their needs to experience real

independence, to emulate a variety of adult and leadership models, and to be able to cope while building real-life skills all support the paradox of these students wanting to fly solo with a safety net.

When asked whether she does any online projects with her parents, Alicia pointed out several reasons for wanting to be independent, “I don’t like her doing projects with me because I feel like I’m not doing everything that I should be doing and that she’s doing more of it and it’s not as impressive if I were to get an A.” But it’s not just the grades. She further stated, “I like to learn by myself because it gives me more satisfaction.” However, on the interdependent side, Alicia wanted to be as social as possible so she could know more people “and the more people I know, the more help I can get when I need it. Like my mom, she knows people who work in zoos and if I know more people like that they can help me get ahead in my career.”

Hayley, who stated that she never wanted to be popular but has many friends, and who said she wanted to have good friends around to support her, also seemed nagged by the seemingly unlikely event that she might need those friends for academic support. “I want to be the best I can be so maybe my friends can help me if I ever had bad grades.”

Cheryl liked using RLS by herself too. “I’m more of an independent worker, because when you have to deal with other people not wanting to do something, that becomes a problem.” Cheryl confirmed in her interview her need for independence while admitting to the possibility of also needing support at the right times. “I would like to see how much I can do first. Then I’d want to do all the corrections and then do final copies of it. Maybe not at the beginning but at the end of the project.”

Naomi embraced the independence she gained through RLS, “I used to be completely dependent on the teacher and if the teacher didn’t say it, I’m not going to do it. Your wish is my command. Renzulli gives me more independence because you use your imagination and knowledge to do what you’re doing.” But later in her interview, she also alluded to the potential need for a helping hand. “I try to be nice to everyone. I think having a lot of friends is really helpful. They all have their own different ways of helping you out.”

Positive self images

As the students talked about motivations, the future, and goals, they expressed self confidence and strong academic self-images as a result of being successful in school, which was partly due to their successes with RLS. Cindy wanted to attend the High School for Global studies, where she would be the valedictorian, attend an Ivy League school such as Harvard or Yale and then go to law school to become a corporate lawyer. Alicia also wanted to be a valedictorian and then attend North Carolina State University to study Agra Science. She wanted to open a zoo for endangered animals. Cheryl stated that she wanted to have the highest possible GPA as a senior and wanted to continue her perfect attendance. She eventually wanted to be a psychiatrist. Mark wanted to go to MIT where “you have to use computers a lot, so Renzulli might help me do better than I would have without it.”

Naomi also noted her high goals and how Renzulli might assist her in her career choice. She asked, “Why settle for less when you can have more? I want to go to Yale and be in the medical field. I want to do research on nerves and how the brain works. There was one project where I got to do a virtual brain transplant on Renzulli.”

Hayley saw herself in the future as a role model student for everyone in the school. “I want to go to college. I want to go in science, mostly environmental science.”

Dari thought that “without good grades you won’t be able to get a good job in the future and it (RLS) really helps because it helps me get good grades and I also got to learn a little bit about Ellis Island.” On the other hand, Dari wants to be a lawyer because she likes to debate. She doesn’t think Renzulli helps her with that goal because Renzulli “is more about creativity, hands-on projects and not political issues.”

Finally, Jamil (lowest rank on the teacher’s engaged list) stated that his first choice as a career was to be a professional basketball player and his second choice was to go into the auto industry designing cars. All the students presented future scenarios that were ambitious, consistent with research on the positive academic self concepts that gifted students have of themselves (Kulik, 1992). The females did seem to have a bit higher academic self-concept in

their future aspirations, consistent with research noted previously in Chapter Four, that gifted girls demonstrate higher academic competence beliefs than gifted boys (Chan, 1996; Freeman, 2003).

Consideration of Findings

In essence, RLS appeared to be regarded as a tool for achieving an end, the end being to get good grades. The students saw Renzulli as an easy and efficient way to help them do better projects which resulted in good grades. Good grades were seen by these students as evidence of success. In these students' eyes, good grades with subsequent success in school equated to success in life. They liked using Renzulli because it did help them complete school projects with a higher level of quality than they would easily be able to do otherwise. They enjoyed using it also because they found the activities interesting.

Their involvement with RLS can also be described in terms of what was not the case. They did not seem to see it influencing aspects of their lives beyond school. They did not use it very often for fun outside of school projects or simply to learn about topics unrelated to school assignments. They did not associate it with an effect on their social lives and parents were not involved in the technical aspects of their interactions with RLS or with the content, for the most part.

Implications

As mentioned in the introduction of this dissertation, teachers and administrators need to know how and why students work within a program such as RLS if such programs or their characteristics are to be replicated, refined, and improved. The study sought to describe how gifted adolescents engage with one on-line learning program and if and how it is or is not incorporated into their lives. Online learning is here to stay, and students need good tools for managing the vast amount of information available to them in today's world and for achieving school success.

This study has demonstrated how participants in this study used RLS. Their descriptions and comments indicated that they perceived this online learning system to be helpful in achieving good grades, in enjoying the learning process, and in reinforcing their positive self-images related

to their high levels of ability and potential. The implications for teachers and administrators include:

1. A need to continue to develop more online learning systems so that the utility manifested by RLS can be duplicated and enriched. These students clearly desired a learning tool that is easy and fun to use and that is also useful in attaining their goals. Teachers and administrators have a responsibility to seek and provide such tools for bright students.
2. Methods to assist students in incorporating technology tools into their lives beyond the school connection so that they do not just perceive learning tools like RLS as only for school and can increase their knowledge and expertise in any area they wish.
3. Strategies to assist families in using systems such as RLS to enable them to be active participants in the learning of their children, by monitoring their progress and motivating them at home as well as at school.
4. Professional development to assist teachers in ways that they might use RLS and other online learning systems in differentiating educational programs for gifted students to help these students function within the core curriculum at a level commensurate with their abilities
5. The development of external sophisticated assessments of the efficacy of on-line learning systems
6. A continued need to listen to the voices of our young people as they strive to communicate to teachers and administrators what their needs, desires, and preferences are as they develop into young adults so that educators and parents can continue to provide programs and strategies that challenge and excite highly able young minds

Limitations

The results of this study are limited to the sample used for the study. Any implications to other groups of varying abilities and ages must be interpreted with caution. The themes of this study are based on the responses of 9 adolescent students in an urban, mid-sized New England city in 2009. Additionally, these results are based on the participation of students identified for and participating in a program for gifted and talented 7th and 8th grade students. Further, data was

gathered over a short period of time at the end of a school year by one researcher, using limited data gathering systems such as interviews, surveys, login records, and informal observation. Finally, interpretations are limited to the kinds of data available to the researcher which manifested in students' written and oral responses to written and oral questions, informal observations at the school, informal discussions with the TAG teacher and district director of evaluation, and RL logs of student usage after school. Additional sources of data, such as teacher lesson plans, would have verified and strengthened the information provided. However, most of the information and resulting interpretations of data were fairly straightforward and consistent with the literature. All these considerations should be taken into account when attributing any stated results to other groups or ages.

Further investigation of Research Questions

The investigation of the 5 research questions led to further questions that would be interesting to investigate in future research. Some of them are posed here.

-How could parents be more engaged in the Renzulli Learning System with their children? In this study the researcher noted that parents appear to be supportive of this program but did not take advantage of the access they have in monitoring their children's use of the program. Perhaps a study could be conducted with parents to learn more about what their needs are in this respect or what could be done to support them in becoming more involved.

-How could teachers use RLS to individualize the core curriculum for gifted students in all their classes, not just TAG projects? Teachers seemed to use the program well for special projects and as a research tool and appeared to have a positive feeling about it. Surely there is more opportunity to use it to achieve other goals of gifted education in areas of rigor, individualization, and challenge. Perhaps a study directed at teachers regarding their understanding and usage of RLS and of gifted students would reveal useful information in this area.

-How do students distinguish friendships and socialization from working on projects and doing research together? These students felt that RLS had little to no effect on their socialization; however, they seemed to talk about working together and playing together in similar contexts.

More study is needed to clarify the demarcation or lack of such between academic pursuits with peers and behaviors associated with friendship.

-Why do adolescent students see a tool like RLS as strictly a “school only” tool? These students clearly enjoyed using RLS at school to achieve their academic goal of successfully earning high marks, but there was very little use of RLS to gain knowledge for its own sake or to pursue individual interests outside of school assignments. Gifted students are certainly capable of using such a tool for such endeavors and such effort would likely serve them well in future academic pursuits and in career choice and exploration.

These are just some of the questions that come to mind as the study comes to a conclusion. It is likely that the reader may discern additional potential areas for future study as well.

Recommendations

The themes and implications that emanated from this study suggest several recommendations that educators, particularly school administrators, should consider in enhancing their own venues for gifted students, whether at the individual, class, school or district levels. Four recommendations are listed here to prompt such thinking. Interested educators can easily transfer these ideas into action plans at the local level.

1. Professional development in schools using the RLS program

For any new strategy or program to succeed, ongoing professional development in learning communities is critical as noted by Knapp (1997). Firestone, Schorr, and Monfils (2004) found that teacher and district collaboration is necessary for schools to be able to modify the learning environment for all students consistently across grade and content areas so that there is continuous support for initiatives (such as those required for differentiation) as they may require flexibility within the traditional curriculum and school framework. Further, Newmann, King, & Youngs (2000) found that if there are not high expectations on a district level and if there is also not a community of teachers within a school who are committed to modifying the educational program for gifted students, such reform is not likely to happen. This researcher believes that teachers must practice using the materials of a new program being implemented, such as RLS.,

must work in teams, have peer and leader support, and have opportunity to practice and assess ways they are using the program.

2. Parent workshops on using RLS at home

This study showed a group of parents who were intensely supportive of the academic success of their students, even without knowing much at all about the program. Parents should have opportunities as well to learn more about the program, practice with it, have an avenue for support and questions, and interact with their children online.

3. Expanding the concept of getting good grades into lifelong learning

Administrators should work within their professional communities in local schools to expand the concept of getting good grades into lifelong learning so that students understand that learning is for a lifetime, that learning is fun and useful, and that the tools they are gaining now can help them in all areas of their lives. The goal is much broader than the next report card. Students need to be encouraged to use tools like RLS beyond the school day or year.

4. Professional development on differentiation

Clearly there is a need to continue to help teachers to be more effective with their efforts towards differentiation (Tomlinson, 1999). In this study, the teachers could have used RLS to better differentiate their instruction. Administrators need to provide teachers with more tools like RLS and more ongoing, meaningful training and practice, along with their support to try new approaches, while allowing teachers the opportunity to make mistakes and then make improvements.

There is much good news for educators, and for administrators in particular, to take from this study. In this technological age, there are many ways that schools can employ tools and strategies to deal with the individual needs that students bring to school. This study examined one tool, the Renzulli Learning System. The students who used RLS believed it was very beneficial. RLS made good advantage of the influence of the digital age, and combined technology with addressing the needs of high achieving students while incorporating the all-important fun factor. Administrators can easily incorporate such tools into their individual school and district educational plans.

Teachers can also benefit greatly from any tool that assists them in meeting the broad range of abilities, interests, and performance levels in today's classrooms. School administrators have a wonderful opportunity to provide teachers with ongoing professional training, to establish peer support in using new tools, and to encourage teachers to be creative in their incorporation of new strategies and tools with an emphasis on meeting the needs of gifted and talented students.

Other good news is that parents, with very little direction from the schools, are providing great support and motivation for their academically talented children. One can only imagine what achievements could be attained by students if parents were given encouragement, tools, training, and support in their efforts to motivate their children. Administrators have a great opportunity here to build upon the home support that already exists for these students through various channels of communication that exist already with parents and through new structures that could be put in place within each school.

Finally, there is great promise in the students themselves. These students clearly appreciate a good tool that helps them and is enjoyable. They also want to succeed and have very positive images of themselves both now and of who they will be in the future. Educators and others should be inspired by the strengths and ambitions of these young people as they enter into their young adult lives, striving to be the best they can be, using the resources available to them. It is the hope of this researcher that the successes described here within the phenomenon of the Renzulli Learning System are an inspiration to all educators as they continue to find and create resources that will stimulate, organize, and challenge young gifted minds.

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APPENDIX A: Online Questionnaire

Name _____ Age _____ Grade _____

Thank you for taking a few minutes to help me understand how you use the Renzulli Learning System (RLS). Please give me as much detail as you can, even if you are not sure what you're writing is directly related to the question. I will follow up with you in our interview with ideas or statements that I would like you to help me understand more thoroughly.

The first section will help me understand how you use RLS. I have listed some questions to help you think of details, but feel free to add whatever else you wish. You may skip any questions you feel do not relate to your situation.

1. How long have you been using RLS?
2. Did you start using RLS at school or at home first?
3. Do you use RLS in both places now? If so, please share how much time is spent in each place using RLS.
4. Do you use other online learning programs? If yes, please name them. If yes, did you use them prior to RLS, and are you using additional learning systems now?
5. Were you given instruction in using RLS or did you teach yourself how to use it?
6. How do you use RLS? For school assignments? For school based independent study? As part of a gifted program curriculum? Core curriculum? For enjoyment or personal growth? Other?
7. Please describe how you feel when you are engaged in an RLS activity. If you use RLS at home and at school, please describe any differences in how you feel when you are using RLS in the different settings.
8. Do other students use RLS at school with you? If yes, at the same times or at different times? Do you share what you are doing with each other?

The next few questions ask you to think about how RLS is related to school behaviors.

9. If you use RLS at school, how does using it affect your feelings about school?
10. Do you believe using RLS at school helps you be more satisfied with school or less satisfied? Please explain why or why not.
11. Do you believe that using RLS helps you be a better student? If yes, in what ways? Possibilities include being smarter? More knowledgeable? More independent? More computer literate? More capable of being a successful student now or in the future?
12. Do you believe that using RLS has improved your grades or marks in school now? Do you believe it will in the future? Is getting higher grades or marks in school a goal for you?
13. Do you believe that using RLS has made you more involved in school assignments, extracurricular academic activities, and/or classroom discussions or less so?

The next set of questions asks you about any social effect that using RLS might have for you.

14. When you use RLS at school, do you believe that doing so has increased or decreased your social interactions with other students? Why?
15. When you use RLS at home, do you believe that doing so has had any effect on your social interactions or relationships at home? How so?
16. What do you believe about your need for or ability to make friends at school? How does participating in online learning of any kind impact your social experiences? Has RLS specifically had any affect on your social life?
17. If you believed that participating in an online learning program was harmful to your social life, what would you do with that belief?

I'm also interested in what your parents think about your use of RLS.

18. Do your parents encourage you to use RLS at home? At school?
19. How much do your parents know about RLS?
20. To your knowledge, what opinion do your parents have about your use of RLS?
21. Do your parents affect how much or in what way you use RLS? If so, how?

Finally, I'd like to hear about your teacher or teachers in regard to using RLS.

22. Has a teacher been instrumental in your use of RLS? How so?

23. What is your current teacher's or teachers' attitude or opinion, in your estimation, of your use of RLS?

24. If you have a teacher who actively incorporates RLS in your educational program, how is it used?

25. Has a teacher encouraged you or enabled you to use RLS outside of school? In what way?

26. Has a teacher discouraged you from using RLS in any situation? If so, please describe.

27. Do you believe your teacher or teachers think that using RLS has been helpful in achieving academic success? Please explain how or how not. Do you believe your teachers think that RLS has been helpful in areas other than core academics? Please explain.

Thank you again for sharing your thoughts with me to help me understand how you learn and how you like to learn in regard to this online learning system. I will follow up with you on some of your ideas when we talk.

Barbara Swicord

For researcher use only: Research questions and related numbers of survey questions and interview questions

1. How are the selected adolescents using RLS? (questions 1-8)

2. What are the perceived effects of using RLS on school behaviors? (questions 9-13)

3. How do students perceive that using RLS has affected their social behaviors? (questions 14-17)

4. What are students' perceptions of their parents' understanding of RLS? (questions 18-21)

5. What are students' perceptions of their teachers' understanding of RLS? (questions 22-27)

APPENDIX B: Interview Protocol

The first interview protocol will be loosely set up to follow the online questionnaire, but many of the specific questions will derive from the answers given to the questionnaire.

Questions:

1. You told me how long you have been using RLS. Can you be more specific about how much time per week or day you use RLS, other systems, or just the internet for browsing?
2. Tell me more about how you got started using RLS? Has your use increased or decreased over time? Have you increased efficiency in your usage time?
3. Please describe the typical setting for using RLS at home and at school? What time of day is it? What is going on around you? Are you alone or with people?
4. How would you compare RLS with other learning systems you have used or are using? What would you change or improve about RLS? About others? What do you particularly like or dislike about RLS? About online learning in general?
5. How simple or hard do you find RLS to use? How much time did it take to become proficient in getting the best use out of it?
6. Tell me about any particular studies you have done through RLS and for what purpose. Have you done extensive studies or do you prefer to do small, frequent projects in many areas?
7. What motivates you to participate in RLS? Do you look forward to it or is it just another task to do? What was the most pleasant memory you have while using RLS?
8. Do you like using RLS by yourself? Do you like learning by yourself or in a group when you are doing online activities?

The next few questions look at how RLS is related to school behaviors.

9. Tell me more about how you feel about school when you are using and when you are not using RLS.
10. Tell me more about how satisfied you are with school as far as RLS is concerned.
11. Tell me more about the growth or skills you think you have gained by using RLS.
12. What motivates you to be successful academically? Tell me more about your academic goals and how you think online learning might impact your goal achievement.
13. How do you think RLS is related to school in the traditional sense of what school is?

The next set of questions asks you about any social effect that using RLS might have for you.

14. Tell me more about your social interactions at school and the effects that using online learning might have on them for you.
15. Tell me more about your social life with classmates after the school day. Do you get your friends involved with you on projects through RLS?
16. Tell me more about your personal social goals. How related are these goals to your academic or intellectual goals?
17. Tell me more about how online learning might harm social relationships for you or for others.

I'm also interested in what your parents think about your use of RLS.

18. Do your parents actively do things to get you to use RLS or not to be online?
19. Have your parents participated in the parent component of RLS?
20. What else would your parents say about RLS?
21. Have your parents engaged in an RLS activity or project with you?

Finally, I'd like to hear about your teacher or teachers in regard to using RLS.

22. Tell me more about what role this teacher plays in the school and in your educational program.
23. What else might your teacher say about RLS?
24. Tell me more about how RLS is used for you, where, when, how often, how successfully?
25. Would you want a teacher to be more involved in helping you work on online projects outside of school? Why or why not?

26. Have you had any negative experiences with a teacher due to RLS activity?
27. Tell me more about the impression you have regarding your teacher's opinion, use, or attitudes about RLS.

Thank you very much for sharing more of your ideas with me.

**APPENDIX C: Letter to Superintendent and Research Proposal Information for District
used in study**

Superintendent
Public School District
CT

April 8, 2009

Dear Superintendent,

I am writing to ask permission to conduct research in your school district that would involve adolescent students who are currently using the Renzulli Learning System and who are also identified as gifted and talented, according to your district criteria. This research is needed for fulfillment of my doctoral studies at Rutgers University in New Brunswick, NJ.

I was referred to your district, and specifically to _____, by _____ at the University of _____, who is a member of my doctoral committee and who felt that your students would be a good match for this study. I made an initial contact with _____ who believes that such a study is feasible. She referred me to you as the next step in the process. I have attached a research summary sheet with examples of the permissions from parents and students that would be required prior to conducting the research. I would also need the permission of the teacher(s) of the students I would be interviewing in addition to a formal letter of approval from you.

Please read the enclosed information which I hope will explain the study sufficiently. I am happy to answer any questions you might have and provide any further information you might wish. I am eager to begin and complete this study and hope to be able to work with your school district in this process. I am also available to meet with you should you wish to discuss in person. I live and work in Stamford, so getting together would not be a problem.

Thank you so much for considering my proposal. As timing is critical in order to accomplish my research by the end of the school year, I do hope to hear from you at your earliest convenience.

Sincerely,



Barbara Swicord
President, SIG

Research Proposal Information

Title of Research Study: A phenomenological study of gifted adolescents and their engagement with one on-line learning system

Purpose of the study: To understand the engagement aspect of what happens when gifted adolescent students participate in an online learning system, particularly the Renzulli Learning System. Interviews, observations, logs and questionnaires will be used to elucidate the nature and extent of students' engagement with this type of online learning format.

Principal Investigator: Barbara Swicord is a doctoral student at Rutgers University in the Graduate School of Education, Department of Educational Administration and Supervision, New Brunswick, NJ. She works full time as President of the Summer Institute for the Gifted headquartered in Stamford, CT. She is seeking a sample of students for the study. She can be reached at bswicord@giftedstudy.com, (203-399-5021 or 732-690-4633)

District: This school district was recommended by a committee member at the University of _____ as it is within driving distance of the investigator, identifies students for giftedness, and uses the Renzulli Learning System on an extensive basis. The professor is a member of Barbara's Doctoral Committee. The RLS office staff recommended the district's Evaluation Supervisor in the School District as the contact person.

Time Frame: The study needs to be completed before the end of the 2008-2009 school year. Barbara's schedule can be flexible in that she controls her time, however, as the summer approaches, her schedule becomes less flexible, so expediency is highly desirable.

Students needed for sample: 8-10 students who are ages 10-14 with an even gender split, identified for a gifted program, though not necessarily participating in one, currently using the Renzulli Learning System, willing to speak with the researcher during school hours, and preferably identified by their teacher as students who are not always engaged in core curriculum.

Nature of the research: The researcher will meet the students, ask them to complete an online questionnaire, interview them initially and then again after observing them in the classroom and processing their initial responses. The researcher will also access the participation logs for the Renzulli Learning System for each student to get a sense of the amount and type of engagement they are investing in the system. The researcher will try to gather as much detail and information as possible to deepen the understanding of what happens in the online engagement of learning while using the Renzulli Learning System.

Permissions: Agreement to participate in the study is required by the school district superintendent, the teachers of the students involved, the parents of the students selected and the students. Letters of consent are attached.

Rutgers IRB: As of this date (4/7/09), Rutgers IRB has given conditional permission to proceed. Minor modifications were requested as a result of the original application review and those modifications have been submitted. Final permission is expected soon. Any questions about this research can be directed to the researcher, her advisor, Dr. Catherine Lugg, or the IRB, all of whose contact information can be found on the letters of consent.

APPENDIX D: Informed Consent and Student Assent

Parental Consent Form

You and your child are invited to participate in a research study that is being conducted by Barbara Swicord who is a student in the Graduate School of Education, Department of Educational Administration and Supervision at Rutgers University. The purpose of this research is to understand the engagement aspect of what happens when gifted adolescent students participate in an online learning system, particularly the Renzulli Learning System.

Approximately 8-10 students between the ages of 10 and 14 years old will participate in the study, and each individual's participation will last approximately 2 and a half to 3 and a half hours, depending on how much students wish to say in their interviews and on their questionnaires.

Participation in this study will involve the following:

- a. Each student completing an individual questionnaire online, taking approximately 45 minutes or less. The questionnaire can be completed online and emailed to the researcher at a time and place convenient to the student, within a two week time frame.
- b. Each student participating in two one-on-one interviews with the researcher at a time convenient to the student and school during the school day, in the school, at a location provided by the school administration, lasting one to one and one-half hours each on two separate days within a month's time frame. Students will not leave the school but will need to leave the classroom area for the interviews. The interview questions will address the nature of the students' usage of RLS, its perceived effects on the student's education, and students' beliefs and reactions to using online learning.
- c. The researcher reviewing the student's RLS logs after the interviews. By reviewing the logs, the researcher can view all of the activities and assessments that students have completed each day, week, or month. The researcher will see when the system has been used, how often, how long, and what times of day or days of the week.
- d. The researcher observing the student using RLS at a time convenient to the student during the school day. The researcher will be interested in all aspects of the online experience, including the student's affect while online, the decision-making process in deciding where to go online, the kinds of activities chosen, the level of engagement and focus, and the application to the traditional classroom curriculum. This will likely be one observation on the day of the interview at the school. The researcher will make notes during the observation, mentioning elements that coincide with published research as well as observations that veer from general understandings of students learning online at this age level. As this is a phenomenological study, the researcher will be open to any details that will appear to inform existing research.

This research is confidential. Confidential means that the research records will include some information about the students, such as gender, age, grade in school, and use of the Renzulli Learning System. I will keep this information confidential by limiting individual's access to the research data and keeping it in a secure location.

The research team and the Institutional Review Board at Rutgers University are the only parties that will be allowed to see the data, except as may be required by law. If a report of this study is published, or the results are presented at a professional conference, only group results will be stated. All study data will be kept for at least three years.

There are no foreseeable risks to participation in this study.

The benefits of taking part in this study may include the opportunity for students to think and reason about how they like to learn, be part of a research study, and contribute to the general knowledge of how and why students engage in online learning. However, you may find that you receive no direct benefit from taking part in this study.

Participation in this study is voluntary. You may choose not to participate, and you may withdraw at any time during the study procedures without any penalty to you. In addition, you may choose not to answer any questions with which you are not comfortable.

If you have any questions about the study or study procedures, you may contact me at (732) 690-4633 or by email at bswicord@rutgers.edu, or you can contact my study coordinator, Dr. Catherine Lugg at catherine.lugg@gse.rutgers.edu.

If you have any questions about your rights as a research subject, you may contact the IRB Administrator at Rutgers University at: Rutgers University, the State University of New Jersey, Institutional Review Board for the Protection of Human Subjects, Office of Research and Sponsored Programs, 3 Rutgers Plaza, New Brunswick, NJ 08901-8559
Tel: 732-932-0150 ext. 2104, Email: humansubjects@orsp.rutgers.edu

You will be given a copy of this consent form for your records.

Sign below if you agree to allow your child to participate in this research study:

Parent(s) Signature _____ Date _____
Principal Investigator Signature _____ Date _____

This informed consent form was approved by the Rutgers University Institutional Review Board for the Protection of Human Subjects on April 4, 2010; approval of this form expires on April 4, 2010. Print date: April 2, 2009

Student Assent Form

You are invited to participate in a research study that is being conducted by Barbara Swicord who is a student at Rutgers University in New Jersey. This research is being done so that adults who work with young people can have a better understanding of how they like to learn by finding out more about how they learn through one particular method—the Renzulli Learning System. You are invited to participate because you are already using this system and your school administrators have recommended you for participation.

There will be about 8-10 students between the ages of 10 and 14 years old who will participate in the study, and each individual's participation will last approximately 2 and a half to 3 and a half hours, depending on how much you wish to say in your interviews and on your questionnaire.

If you participate in this study you will be asked to

- a. Completing a questionnaire online and email it back to the researcher. It should take approximately 45 minutes or less and you will have two weeks to finish it.
- b. Participate in two interviews with the researcher at a time convenient to you during the school day, in the school, at a location provided by the school, lasting one to one and one-half hours each on two separate days within a month's time frame. You won't leave the school but you will need to leave the classroom area for the interviews. The interview questions will ask you about how, when, why, and where you use RLS and how you feel about using online learning.

Also, the researcher would like to

- c. Review your RLS logs to see what you have been working on and when you have elected to use RLS.
- d. Observe you using RLS at a time convenient to you during the school day, most likely on the same day that you are interviewed. The researcher will be interested in how you use RLS, and what kinds of things you are doing while online. This will likely be one observation on the day of the interview at the school.

Your name will not be used in any published report. Only the researcher and the research directors at Rutgers University will be allowed to see the report. Eventually a report will be written that shares any new understandings gained from this study and educators and others interested in the subject will be able to read it.

The researcher doesn't think anything bad can happen by participating in this study. Good things that might happen include enjoyment from thinking about how you like to learn and being able to talk to someone who cares about that as well and by knowing that you have contributed to what adults are learning about good ways to engage, motivate, and teach students for the future. It's also kind of fun to be part of a research project.

You do not have to be in this study if you do not want to. You may choose not to participate, and you may withdraw at any time during the study without anything bad happening to you. In addition, you can choose not to answer any questions you don't want to answer. You will not get any gifts or money for participating.

If you have any questions about the study or study procedures, you may contact me, Barbara, at (732) 690-4633 or by email at bswicord@rutgers.edu.

You may also contact the Rutgers University research directors at: Rutgers University, the State University of New Jersey by phone at 732-932-0150 ext. 2104, or by email at humansubjects@orsp.rutgers.edu

You will be given a copy of this assent form.

Sign below if you agree to participate in this research study:

Student Signature _____ Date _____

Principal Investigator Signature _____ Date _____

This informed consent form was approved by the Rutgers University Institutional Review Board for the Protection of Human Subjects on April 4, 2010; approval of this form expires on April 4, 2010. Print date: April 2, 2009

APPENDIX D: Principal/Teacher Permission Form

School District Name
School District Address

Barbara Swicord
 Address

April 27, 2009

Dear Ms. Swicord,

This letter provides authorization for and awareness of your request to do human research in our school system in general and in the particular schools and classrooms noted below. The Superintendent has already given approval for our participation.

We understand that this research will involve no more than 10 adolescent students who are currently using the Renzulli Learning System and who are also identified as gifted and talented, according to our district criteria. Students and parents will sign Rutgers IRB approved consent forms.

We understand that this research will be conducted by the end of this school year. We understand that you will meet the students, ask them to complete an online questionnaire, interview them before and after observing them in the classroom.

We also understand that we can reach you at any time regarding this research at bswicord@giftedstudy.com, (203-399-5021 or 732-690-4633).

The parties signed below give their permission for the above mentioned research to be conducted in our schools and classrooms.

School _____

School Principal Name _____

Principal Signature _____

Teacher Name _____

Teacher Signature _____

Teacher Name _____

Teacher Signature _____