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Abstract

Little research exists on the nature of the interactions between gifted students and technology, specifically the phenomenon of gifted adolescents using Internet-based learning tools. This qualitative study explores how students use the Renzulli Learning System (RLS), an online educational profile with a matching database that provides enrichment resources. The student sample included nine identified gifted and talented seventh- and eighth-grade students in an urban school district in Connecticut. Most of the students had been using RLS for about 2 years. The students participated in an electronic questionnaire and were interviewed during two semistructured interviews. The research questions were centered on how the students were using RLS at school. Student answers suggested several themes regarding the effectiveness of RLS as a tool for school success, its engaging quality, and selective independence.

Keywords

Renzulli, gifted, adolescent, online

Although the need for differentiated educational experiences for gifted students is well documented (e.g., Renzulli & Smith, 1979; Robinson, 1990; Tomlinson, 1997; VanTassel-Baska & Stambaugh, 2005), evidence indicates that differentiation is inconsistently implemented (Archambault et al., 1993; Moon, Tomlinson, & Callahan, 1995; VanTassel-Baska & Stambaugh, 2005). Teachers who wish to differentiate curriculum for high ability learners face barriers such as the lack of planning time, the need to modify curriculum, and the lack of training in meeting the academic needs of gifted students. (Tomlinson, 1994, 1999; VanTassel-Baska & Stambaugh, 2005; Westberg, Archambault, Dobyms, & Salvin, 1993). Online tools have the potential to address these barriers, enabling students of all ability levels and age levels to find content that can challenge them at appropriate levels. Classroom technology use has been linked to educational outcomes (Azzam, 2006; Bain & Ross, 2000; R. Cradler & Cradler, 1999; J. Cradler, McNabb, Freeman, & Burchett, 2002), but there has been almost no research on the use of specific technology tools with gifted students.

The Renzulli Learning System (RLS) is an interactive online 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 using RLS have opportunities to explore, discover, learn, and create using

current technology resources independently and in a pre-screened web environment. This qualitative study describes the use of RLS from the perspectives of gifted and talented students who use the system to complete school projects. 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.

Literature Review

There is no single definition of giftedness or gifted learners. The field of gifted education generally presents the belief that gifted individuals are those who have abilities in one or more domains that are sufficiently advanced as to require modifications in educational settings established for average students. For example, the federal definition of giftedness

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specifies a wide range of domains in which students could demonstrate high levels of talent or show the potential for such talent (U.S. Department of Education, 1993). While earlier definitions of giftedness were based almost exclusively on a general intelligence factor, often defined by IQ (Galton, 1962; Terman, 1926), newer conceptions expand that definition to other abilities and measures (e.g., Borland, 2003; Borland & Wright, 1994; Ford, 1998; Frasier et al., 1995).

For the purpose of this study, another expanded operational definition of giftedness is used. Renzulli (1978) defined gifted behaviors as the result of above-average ability, high levels of task commitment, and high levels of creativity combined and applied to any potentially valuable area of human performance. Under this definition, gifted learners are those who have the potential to demonstrate gifted behaviors in one or more areas, and the goal of gifted education programs is to develop such behaviors. This is also the definition of giftedness underpinning the RLS.

Meeting the Academic Needs of Gifted Learners

Exceptionally capable students exhibit characteristics that challenge the efficacy of the traditional American educational system (Karnes & Bean, 2001; Plucker & Callahan, 2008; Renzulli, Gubbins, McMillen, Eckert, & Little, 2009). Those that demonstrate advanced ability in one or more academic areas may be poorly served by age-based placement (Davis, 2006; Horowitz, Subotnik, & Matthews, 2009; Tomlinson, 1999), and asynchronous development of abilities may pose difficulties for strictly acceleration-based services (Karnes & Bean, 2001; Kearney, 1996). Gifted students may also differ from their peers in their preferred thinking styles (Sternberg & Grigorenko, 1993) and in their ability to make intuitive conceptual connections (Sak, 2004). The Council for Exceptional Children (2002) stated that, to serve gifted students appropriately, teachers should match their instructional strategies to the specific learning needs of the students and that the students should receive an appropriately differentiated curriculum or have access to the full range of curriculum (through distance education, acceleration, or other specially designed programs).

There is disagreement within the field of gifted education as to what would constitute the best curriculum and instruction for gifted students (e.g., Borland, 2003; Renzulli et al., 2009). VanTassel-Baska and Brown (2007) identified six curricular models that showed some evidence of being effective with gifted learners. These models generally involved inquiry-based learning within academic disciplines or fields. The Schoolwide Enrichment Model (SEM; Renzulli & Reis, 1997), which is based on Renzulli's (1978) definition of giftedness and in turn is the foundation for the design of RLS, was one of the models with the longest history of use and research. In the SEM, a talent pool of students with the potential for gifted behaviors is identified through a variety

of measures (Renzulli, Reis, & Smith, 1981). Identified students are then eligible for a continuum of services, including differentiation based on assessed interests and learning styles. Curriculum compacting also is used to eliminate instruction in material already mastered and allows for substitute alternative learning activities (Reis, Burns, & Renzulli, 1992; Renzulli & Smith, 1979). A major goal of SEM is for identified students to complete Type III projects: investigative activities and artistic productions in which the learner assumes the role of a firsthand inquirer: thinking, feeling, and acting like a practicing professional, with involvement pursued at a level as advanced or professional as possible (Renzulli, 1977). Research on the SEM has demonstrated improved teacher attitudes toward student work as well as long-term effects of Type III projects on students' later career choices and productivity (Delcourt, 1994; Hébert, 1993; VanTassel-Baska & Brown, 2007).

Barriers to Differentiation in the Regular Classroom

Although there is a general consensus in the gifted education literature that some form of differentiation is necessary to meet gifted students' learning needs (Council for Exceptional Children, 2002; Kearney, 1996; Levande, 1999; Renzulli & Smith, 1979; Robinson, 1990; Tomlinson, 1994, 1997; VanTassel-Baska & Stambaugh, 2005), and teachers may agree that addressing academic differences is important for success (Hootstein, 1998), differentiation has not been implemented consistently. 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 et al., 1993) and found that third- and fourth-grade teachers made only minor modifications in the regular curriculum to meet the needs of the gifted students, regardless of whether they taught in public or private schools or the location and ethnic diversity of the school. Moon et al. (1995) found that 50% of the teachers they surveyed did not differentiate instruction. VanTassel-Baska and Stambaugh (2005) noted that the pattern of research findings stayed consistent for over a decade. As a result, gifted students are often not challenged in the classroom (Tomlinson, 1997), and they 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).

Several reasons for the lack of differentiation for gifted students have been identified. Structural reasons include too little planning time, lack of administrative support, large class sizes, and pressure to focus on low-achieving students (National Association for Gifted Children, n.d.; Tomlinson, 1994, 1999; VanTassel-Baska & Stambaugh, 2005). Teachers may be unclear about their professed beliefs regarding individual differences, perceive no need to differentiate for

advanced learners, or even hold negative attitudes toward gifted students (Borland, 1978; Knapp, 2012; Lortie, 1975; Moon et al., 1995; Robinson, 1990; VanTassel-Baska & Stambaugh, 2005; Winner, 1996). Finally, there are obstacles related to teacher knowledge and skills. Teachers may receive very little training in the needs of gifted students, be unable to manage effectively a differentiated classroom, have insufficient subject matter knowledge for in-depth explorations, or be uncomfortable modifying a predesigned curriculum (Stigler & Hiebert, 1999; Tomlinson, 1994, 1999; VanTassel-Baska & Stambaugh, 2005; Westberg et al., 1993). Some of these obstacles may be addressed through professional development (Hultgren & Seeley, 1982; Reis & Westberg, 1994; Reis et al., 1993), but others could benefit from making additional tools available to teachers.

Meeting Gifted Learners' Needs Through Technology

Individualized learning via the Internet holds promise as students pursue study based on interests and skills rather than on age (Anderson, 2004; J. Cradler et al., 2002; Field, 2009; Leu, Leu, & Coiro, 2004; Renzulli & Reis, 2007; Sheffield, 2007). Students already use the Internet and other technology for a variety of purposes. In 2005, children ages 8 to 18 typically spent approximately 8.5 hr each day using media; 2 hr of that time was spent using multiple media and more than 1 hr was spent using a computer (Roberts, Foehr, & Rideout, 2005). Furthermore, a 2005 Pew Study reported that 87% of adolescents aged 12 to 17 used the Internet, and half of those used it daily (Lenhart, Hitlin, & Madden, 2005). Students who use the Internet at home are frustrated because they cannot use technology how, when, and where they want in their classes (Project Tomorrow, 2006), and they believe that technology can enrich their learning experience (Lenhart et al., 2005; Project Tomorrow, 2006; Sheffield, 2007). Schools' technology infrastructure is also growing. By June of 2000, more than 95% of U.S. schools and 72% of classrooms had access to online Internet technology (CEO Forum on Education & Technology, 2000). According to Azzam (2006), more than half of teachers use technology in their classroom instruction.

Research has linked technology and educational attainment in U.S. classrooms. For example, Bain and Ross (2000) found that careful alignment between content-area learning standards and carefully selected technology can significantly increase student achievement scores. When evaluating the results of a school system's technology grant, R. Cradler and Cradler (1999) reported that teachers observed significant changes in their students' skills and knowledge acquisition upon completion of their first multimedia 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" (J. Cradler et al., 2002, p. 47), suggesting that

engagement in technology results in positive gains, measurable and assumed. However, little research has explicitly focused on gifted students' learning through technology. 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: flexibility of time and place of learning, vast quantities of content, varied formats of content, and rich contexts of synchronous and asynchronous communication. This study explores gifted students' use of a particular online system (RLS) that possesses these capacities and addresses some of the barriers to differentiation listed in the previous section.

Method

In this study, qualitative procedures were used to investigate the phenomenon of engagement in gifted adolescents. The focus of this basic, interpretative qualitative study was developing an understanding of students' interpretations of working with RLS and the meaning that "attributed to their experiences" (Merriam, 2009, p. 23) with RLS. The information gathered from the students enabled a first step to understanding how students engage and react to participation in an online learning system.

The central question of this study was related to gifted adolescent students and their engagement with an online enrichment program called the RLS. The following research questions guided this study:

Research Question 1: How are the selected adolescents using RLS?

Research Question 2: What are the perceived effects of using RLS on school behaviors?

Nine middle school students in Grades 7 and 8 were selected to participate in this study. These students attended a public school in an urban district in Connecticut, had been identified for the school district's gifted program, and were currently using RLS. The students' gifted teacher selected the students based on a set of researcher-created criteria, including usage of RLS, participation in the gifted program, and exhibiting a range of school behaviors indicative of engagement in the regular core curriculum.

The selected public school system has about 23,000 students, one of the largest school systems in Connecticut. The per capita income for this district was US\$16,306 in 2000. In 2005-2006, more than 95% of the students were eligible for free or reduced lunch, as compared with the state average of 26.9%. The district is diverse in race and ethnicity with a 90% minority rate in 2005-2006, and this district is far below the state average on Connecticut's Mastery Test. The K-8 school visited in this study is in the largest city in the state with a population of 140,000. The gifted program occupies a room in a trailer behind the school, along with two other classrooms.

Table 1. Participants' Demographics.

Alias	Ethnicity	Gender	Grade	Age
Rahul	Black	Male	8	14
Mark	Black	Male	8	13
Cindy	Black	Female	8	13
Alicia	Hispanic	Female	8	13
Jamil	Black	Male	7	13
Dari	Black	Female	7	13
Hayley	White	Female	7	12
Cheryl	Black	Female	7	13
Naomi	Black	Female	7	13

The students were identified for the gifted program on the basis of teacher recommendation, academic and effort grades, Connecticut Mastery Test scores, and online quarterly assessments. Students met as a team with the gifted program teacher 1 day per week and attended regular classes the remaining 4 days per week. Transportation to one of the two schools with gifted programs was provided for all of the district's identified students. A child was required to meet academic and behavioral standards to remain in the gifted program.

Students involved in the study ranged in age from 12 to 14 (four eighth graders and five seventh graders). Of the nine students, three were male and six were female. Among the eighth graders, the genders were evenly split. There were four females and one male in the seventh-grade group. (see Table 1.)

RLS

The RLS was designed to assist teachers with differentiating or individualizing assignments for students based on interests, learning styles, and expression styles. The program focuses on understanding what each student's interests, learning styles, and expression styles are and then providing a list of thousands of activities and assignments that the student can engage in that reflect the student's individual needs and preferences. The program is student centered and focuses on the development of a product. When students first log in to RLS, they are given a questionnaire that identifies the students' top 3 interests, top 3 learning styles, and top 3 expression styles. Based on that information, a profile is developed and a list of educational resources (from over 400,000 screened resources) is populated to match each student's profile. Teachers can then guide students through self-directed learning projects or assignments utilizing sources from the student's personalized list of educational resources.

Data Collection

Data was collected through an online questionnaire and in-depth interviews with selected students, using a semistructured

protocol. Each participant completed an electronic questionnaire (Appendix A) before being interviewed. The responses to the questionnaire helped the first author assess the appropriateness of the interview questions, and provided primary data directly from the hands of the participants. An interview then was conducted in school during 1 week, and subsequent interviews were conducted within 2 weeks following the first interviews. Student quotes used in this discussion derive from the interviews.

The first interview (Appendix B) established a base for understanding and established trust. The second interview enabled elaboration of comments and questions addressed in the first interview and sought the participants' checks on the first interview through specific questions (i.e., What did you mean when you said . . .?). The interviews, lasting from 30 min to 45 min were taped and transcribed as soon as possible following the interview. The first author took notes on the students' responses in addition to relying on the tapes. The interviews took place in an empty classroom in the school. The first author continuously rephrased the students' responses and asked if she was conveying the meaning that they intended. All students agreed that the rephrasing was accurate, indicating that the researcher had accurately interpreted their answers.

Data Analysis

When reviewing the data gathered in answer to the research questions, the first author noted recurring themes that emerged. The initial open codes were developed based on participant responses to the questionnaires, and to notes from the interviews (Creswell, 2007). Once the interviews were transcribed, the first author indicated which text segments represented the open codes. After an analysis of all the transcribed interviews the first author developed analytic codes (Creswell, 2007) pertaining to the research questions and occurring across most of the participants. The following three codes were developed into three of the major themes:

1. RLS is a desirable tool for getting good grades;
2. RLS is for school use only, not for beyond school assignments;
3. RLS is enjoyable.

For example, Mark's statement, "I really don't use other programs because rls gives me all the information that I need" was coded as "RLS is a desirable tool for getting good grades."

Validity

Researcher effects were checked by having two others (a psychologist who has worked in the field of gifted education and a master teacher of urban gifted children working

in a context similar to the sample) review the study and findings. Both readers concurred that the findings were consistent with their experiences working with similar students in similar situations.

Finally, the first author's orientation to RLS was important in contributing to the study's trustworthiness. The researcher believes that RLS is an effective way to enhance and enrich learning for gifted students. With that understanding, the researcher reflected on the transcripts and observations to put aside as much bias as possible in understanding and describing the phenomenon.

Results

Three major themes emerged from the data gathered through the research questions. One additional finding emerged from the content of student comments.

Theme 1: RLS is a Useful Tool for Attaining Good Grades

The first, most dominant theme emerged from students' perceptions of need and desire to attain high grades, and the use of RLS 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. 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." 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."

In addition to the assistance that RLS provided for them in their projects, students noted that they gained general knowledge as well, which helped them be more successful in school. 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." 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!"

Theme 2: RLS is Just for School

The second notable theme that emerged focused on how students viewed RLS 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. 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."

Theme 3: Enjoyment and Fun

The third theme that became clear was that the students regarded RLS as adding an element of fun to schoolwork. They all enjoyed doing hands-on activities within the sites. Each was able to recall a few activities and a few projects. Cindy remembered doing projects on Amistad and WWII, and she was able to recall deducing from her Shakespeare project on whether Shakespeare was actually the author of his plays. Rahul, whose favorite class is geography, did a project on Argentina. Dari recalled creating her own tie-dye T-shirt while doing a study of the 1960s and also learning about a country in South America. 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."

Theme Four: The Independence Paradox

Another finding that was notable, partly so because it appeared contradictory, was that though these students preferred to try to achieve independently they 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.

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, she alluded to the potential need for a helping hand. "I think having a lot of friends is really helpful. They all have their own different ways of helping you out."

Discussion

RLS appeared to be regarded as a tool for achieving an end, the end being to get good grades. The students saw RLS as an easy and efficient way to help them get good grades, which was for them evidence of success in school and in life. They liked using RLS because it did help them complete school projects with a high level of quality. As with the teacher

comments in the J. Cradler et al. (2002) study on the use of multimedia projects, students in this study reported increased ability in research and organizational skills.

Students in this study indicated that they were able to work on individualized interest projects, a positive change from findings pointing to a lack of differentiation in most classrooms (Archambault et al., 1993; Moon et al., 1995; VanTassel-Baska & Stambaugh, 2005). Students fondly recalled a diverse number of research topics pursued through the use of RLS including projects focused on the geography of Argentina, events in the 1960s, and questions of authorship for the works credited to Shakespeare. The personalized list of electronic resources provided by RLS enabled students to pursue in-depth projects on topics of interest in an organized and efficient manner without the teacher needing to have in-depth knowledge of each of the topics or go searching for quality resources for each topic.

RLS provides two of the four aspects of online learning that Anderson (2004) identified as important for gifted students: a large quantity of resources and varied formats of resources. Students not only appreciated the wide variety of resources, but also appreciated that the resources were of high quality, enabling them to complete projects in a more efficient manner. Students often reflected that the resources were just what they needed and that the format of RLS enabled them to organize their findings. However, Anderson also stated that gifted students appreciate flexibility with time and place to complete assignments; but students in this study tended to only work on RLS projects while at the gifted program site, and not at home.

These gifted students' 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, did not use it very often for fun outside of school projects or simply to learn about topics unrelated to school assignments.

The results of this study are limited to the sample used for the study. The themes of this study are based on the responses of nine adolescent students in an urban, midsized New England city in 2009. In addition, these results are based on the perceptions of students identified for and participating in a program for gifted and talented seventh- and eighth-grade students. Furthermore, data was gathered over a short period of time at the end of a school year by one researcher. Finally, interpretations are limited to the kinds of data available to the researcher, which were students' written and oral responses to written and oral questions, informal observations at the school, and informal discussions with the gifted program teacher and district director of evaluation. 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.

Conclusion

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.

This study demonstrated how gifted adolescents perceived one online learning system to be helpful in achieving good grades and enjoying the learning process at school. The themes and implications that emanated from this study suggest some recommendations that educators and school administrators should consider in enhancing their own venues for gifted students, whether at the individual, class, school, or district levels. For an online learning system to be used extensively by gifted students, students need to be encouraged by gifted program teachers and regular classroom teachers to use the program. In addition, some gifted students need to be encouraged to view the learning process as a lifelong endeavor.

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 RLS, which students found to be beneficial. Teachers can benefit from any tool that assists them in meeting the broad range of abilities, interests, and performance levels in today's classrooms. School administrators have an 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. Online learning, such as RLS, is still a rich area for future research. For example, how can teachers use RLS to individualize the core curriculum for gifted students in all their classes? Why do adolescent students see a tool like RLS as strictly a "school only" tool, especially when it is accessible from home and elsewhere? It is likely that the reader may discern additional potential areas for future study as well.

Finally, there is great promise in the students themselves. These students clearly appreciated a good tool that helps them and is enjoyable. They also wanted to succeed and had very positive images of themselves and their future successes. 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. Hopefully, the successes described here within the context of the phenomenon of the RLS are an inspiration to all educators as they continue to find and create resources that will stimulate, organize, and challenge young gifted minds.

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 effect 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.

Appendix B

Interview Protocol

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)

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.

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