

Key Ingredients to Online Learning: Adolescent Students Study in Cyberspace – The Nature of the Study

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Being a conceptual humanist researcher, the nature of the study was based on a qualitative, descriptive case study. The purpose of this educational research was of a descriptive nature. By gathering information regarding the virtual high school, it was possible to determine how it influences students' attitudes towards learning, motivational issues, academic achievements, the structure of the virtual environment and strengths and weaknesses of web-based instruction.

PARTICIPANTS AND SETTING

A typical case sampling strategy was used for the study. Gall, Borg, and Gall (1996) explained that this selection "might be particularly useful in field tests of new programs. Developers and policy makers want their programs to be effective for the great majority of the individuals to be served by the program; otherwise, the program will not be considered cost-effective. Also, stories about typical cases might be useful for 'selling' the program to various constituencies" (p. 233). Since online high schools offer a new learning program, it is crucial to the success of these programs to further validate their efforts

through research. Therefore, the CyberSchool was considered a good match for this study. In the following paragraph brief descriptions of the school, the teachers, and the students are given.

CyberSchool's faculty consisted of 19 teachers of which 12 were invited to participate in this study. According to Turner's e-mail on December 27, 2000, there were approximately 86 students enrolled in the English courses. The number was based on the students' registration date since January 1, 2000. During the Fall Semester, 2000-2001, the CyberSchool was offering twelve English classes plus four English as a Second Language (ESL) classes as well as eight social studies courses. It was expected that the school would offer the same amount of classes for the second semester.

The study took place strictly in cyberspace. Besides e-mail addresses, no mailing addresses were available in the database. It was agreed on contacting students who took classes within the last year; roughly between Fall/Winter 1999 and Spring 2001. A total of 118 students were contacted by e-mail of which 32 students were over 18 years of age and 86 students were under the age of 18. About 15 e-mails were returned with the message "unknown percipient."

DATA SOURCES AND COLLECTION PROCEDURES

The following data sources were developed for this study: student and faculty questionnaires, telephone interviews, e-mail, one meeting with

the administrators, journal, evaluation surveys from CyberSchool's databank and CyberSchool course reviews. In addition, a pilot test was carried out prior to administering the survey. To analyze the gathered data, a reflective analysis was used. Gall et al. (1996) wrote that reflective analyses "help educators and policymakers understand the features and purposes of educational programs, products and methods," as well as making them aware of the new program's strengths and weaknesses (p. 580). Therefore, the reflective analysis was appropriate for the study, since the purpose of this study is to help educators, policy makers, parents and students understand the features, strengths and weaknesses of online high schools. When using reflective analysis in qualitative research, the researcher relied heavily on intuition and personal judgment when analyzing the data rather than "on technical procedures involving an explicit category classification system" (p. 570).

In practice, the analysis of the collected data was carried out as follows: first, the responses received were carefully read, the notes were taken and the information was highlighted. During this process, a journal was kept. The journal entries were very helpful in making connections between the responses read and the statements that aligned with the literature review. A second review followed the responses, notes, and journal entries, which were used and documented in an empirical chart. This chart was reflective of the themes that developed from the students' responses. To add to the study's usefulness and contextual completeness, the following measures were used: the journal entries, the meeting with Turner and his administrators, the e-mail correspondences with teachers, parents, and administrators, and notes from the research procedure were reread and compared to the survey responses.

When looking at the chosen method of research, it is essential to understand that it is more difficult to define reliability, because the data collected was largely subjective and depended solely on the students' attitudes and experiences in the virtual learning environment. For example, the students who filled out the questionnaire might have had a different view, feeling, or understanding of the virtual high school depending on their academic, social, and physical development. All these factors had to be taken into consideration when interpreting students' answers.

Furthermore, since the traditional view of validity and reliability did not apply to this study, it strongly relied on Altheide and Johnson's conception of interpretive validity.

According to Gall et al. (1996), Altheide and Johnson's conception of interpretive validity, "refers to judgments about the credibility of an interpretive researcher's knowledge claims" (p. 572). The focus here is on validity, not reliability and the following criteria was used to make the results trustworthy: usefulness, contextual completeness, researcher positioning, reporting style, triangulation, member checking, and generalizability.

"Change does not necessarily assure progress, but progress implacably requires change. Education is essential to change, for education creates both: new wants and the ability to satisfy them."

—Henry Steele Commager

Online education is part of the quintessential change in education and it holds many promises to educators, parents, students, and administrators. And even though virtual high schools are not trying to replace the traditional schools, they are seen as the future of education, because they offer an alternative to many of the problems, such as: teacher shortage, limited access to advanced classes, limited financial means, and the school districts capabilities, especially in rural areas. Virtual high schools also meet the needs of a growing student population that asks for quality and flexibility in their education.

Furthermore, distance education programs provide an option to the rapidly growing student population who looks for academic programs that meet their needs and at the same time keep them enrolled in their local public schools. Since high schools are just beginning to use a virtual delivery system, there appears to be a great need for documentation and validation of the effectiveness of distance learning for adolescent students. In this article, the findings of a recently conducted case study on CyberSchool in Eugene, Oregon, one of the first fully operational online high schools in America are discussed. This study revealed that the key to successful online learning for adolescent students lies within motivational issues and highly structured courses. From this study, three major topics relating to adolescent students who study in cyberspace evolved: motivational issues, the importance of strong support for online learning programs and highly structured courses.

MOTIVATION – THE KEY INGREDIENT TO ONLINE LEARNING

Cornell and Martin (as cited in Khan, 1997, p. 93) write in their paper, "The Role of Motivation in Web-Based Instruction" that motivation in distance education is of great concern to online edu-

cators. Turner and Layton address the same concern at our meeting in Eugene. They recall that the first courses offered were a complete disaster; over 80% of the students dropped out or did not finish their course work (personal communication, April, 2001). Motivational issues play a major part in the students' failure to complete the course. The question is: What motivational strategies work best with young adolescents?

According to Moore and Keasley (1996), it is estimated that 30 to 50 % of all online students who enroll in cyber courses drop their classes (p. 35). Research points to three factors that are instrumental for students to complete their online courses:

1. students desire to complete the course;
2. successful completion of other online courses; and
3. submit homework on or before the due dates.

Researchers argue that these factors could help in determining what kind of students will be able to complete distance learning classes (Kahn, 1997, p. 94).

In addition, the results of this research point to other components, which strongly influence students' motivation. These include: teacher support, peer interaction and technology support. Cornell and Martin (as cited in Khan, 1997, p. 94) also acknowledge the importance of the degree of interaction that is provided and available to students, effective course design, and the role of the course facilitator may influence students' motivation. The two authors explain:

Regarding interaction, students typically prefer to interact with the instructor, other students, and the instructional media by asking questions, giving presentations, and having discussions rather than listening to a lecture or having limited involvement and interaction (Martin & Bramble, 1996). The student study guide can play a role in creating student involvement by providing students with specific questions to answer and assignments to complete. In addition, it is the responsibility of the instructor to provide adequate and immediate feedback to students to keep them on track and facilitate their completion of the course. (p. 94)

The findings of the study confirmed that the key ingredient to online learning lies solely within motivational issues, which start with the highly self-motivated student, but go far beyond that. Therefore, motivation had to be seen as an umbrella term, because it plays such an integral part in every aspect of online learning starting from

online course development to the complex task of course facilitation. Motivation determines to a large extent the success of adolescent students who study in cyberspace. This has been clearly recognized and confirmed by CyberSchoolers shared experiences.

TECHNOLOGY AND ITS UPS AND DOWNS

Difficulties with technology added much stress and frustration to the life of the adolescent student who studied in cyberspace. Sometimes it is easy to forget that there are still many high school students who do not have access to a computer at home, which makes it difficult for them to keep up with the assignments. Hill (as cited in Khan, 1997, p. 77) confirms that the use of computer technologies is not yet that widespread and this can create challenging situations for the technology-novices who might experience intimidation and fear of the equipment. As reported by CyberSchoolers, old computers, slow modems, incompatible programs are all issues that can make life miserable in cyberspace. In addition to this, not being able to log on to the listserv, losing work in cyberspace, and not being able to download programs are real issues cyberstudents have to deal with. As Hill writes, "Perhaps the biggest challenge associated with the technological side of the Web are the frustrations that often accompany technical difficulties. In addition to frustrations created from lack of knowledge in relation to hardware and software, frustrations can also mount from an inability to connect to the network or in the need to wait while information downloads to the desktop" (p. 77). Therefore, a strong support system is a necessity in the virtual learning environment.

THE HIGHLY-SELF-MOTIVATED, SELF-DIRECTED STUDENT

In the students' responses, almost every student stressed the importance of being a disciplined, self-motivated student, regardless of whether or not the students considered themselves one. In addition, there was an overall consensus among students that most of their friends or peers would not be able to succeed in the virtual classroom, because they were not dedicated and disciplined enough to work in such an environment. The students' views are supported by current research and therefore, many online high schools have developed a survey for students to determine whether or not they can function in cyberspace (Weiner, 2002, p. 45).

There is no question that these surveys are very important, however, based on CyberSchoolers' responses, these surveys should only be seen as

an indication of the kinds of learning characteristics that are important in the virtual classroom. It is possible for students to learn and develop responsibility, organizational skills, self-discipline and a love for learning even without these characteristics. The online learning environment has the power to do just that. Based on the findings, many students, even the ones who considered themselves highly motivated and self-disciplined, learned in the virtual classroom (and for some students it was a painful process), the real meaning of being a responsible, self-directed student with a strong work ethic. And because of this challenging experience, the majority of students would not recommend online courses, unless they considered the person a self-motivated student. They did not recognize that this is something young people can learn.

THE NEED FOR STRUCTURE IN THE VIRTUAL CLASSROOM

For course developers and educators this is an important concept to realize: the majority of our students in high schools are not independent students, however, given a meaningful and structured learning environment, it is possible for them to become one. Online education has the power to teach students to become independent learners. However, researcher Kerka (1996) argued that students might not receive the structure they need in order to succeed in an online learning environment (p. 2).

Many CyberSchoolers who were in need of more structure supported Kerka's concern. They realized that without a structured learning environment it is extremely difficult, if not impossible to reach that goal. Without the necessary structure, it was too tempting for many CyberSchoolers to procrastinate. Therefore, many of them recommended to their teacher and to the CyberSchool's administration to bring more structure to their classes by clearly stating expectations, outlining course requirements, offering time sheets and study guides and above all, setting more concrete deadlines. To offer students a Student Study Guide or Study Schedule will help them stay on task. According to Khan (1997), "the student study guide can play a role in creating student involvement by providing students with specific questions to answer and assignments to complete. In addition, it is the responsibility of the instructor to provide adequate and immediate feedback to students to keep them on track and facilitate their completion of the course" (p. 94). Some CyberSchool teachers have already incorporated these learning tools in their courses, which was greatly appreciated by their students, even by

the most self-motivated and disciplined ones.

Many educators and researchers believe that the cognitive flexibility theory, which stresses real-life context, interrelatedness, case-based instruction, multiple presentations of content and taking responsibility for one's own learning, is the building block for web-based instruction. This gives the students the structure they need and at the same time the freedom to create and evolve as a student (Khan, 1997, p. 120). Additionally, current research indicates that a connection can be drawn between the elements of the cognitive learning theory, to make the learning material relevant, realistic, and meaningful to the students, and the components that dominate the virtual classroom. By doing so, Jonassen and his colleagues (as cited in Khan, 1997, p. 120) argued that these kinds of learning environments "encourage the growth of student responsibility, initiative, decision making, and intentional learning; cultivate an atmosphere of cooperative learning among students and teachers; and utilize dynamic, generative learning activities that promote high level thinking processes." The majority of CyberSchoolers communicated the need for a meaningful, structured curriculum; and the ones who received it, expressed how much they appreciated it and how much it helped them to grow as a student.

SOCIAL LIFE IN CYBERSPACE

The research findings confirmed that social interactions among peers are just as important in the virtual classroom as they are in the traditional one. Layton (2000) pointed out that the digital child or online student might seem to work alone, but actually learns in groups, and loves to share his/her information and new gained knowledge with others. Learning is seen as a collaborative and social effort – not solitary and competitive (pp. 23-24). If social interaction is limited, CyberSchool students felt a great sense of frus-

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tration and loss. There is no doubt that loneliness and the feeling of isolation can be just as devastating and stressful to adolescents in the virtual classroom as in the traditional one. Some CyberSchool classes encouraged interaction with their peers, others did not, and students really missed the social aspect of learning.

Current research supports that adolescent students learn best in a collaborative and active learning environment, which plays a major role in distance education and is based on the Constructivist View of Learning. According to Woolfolk (1998), "the Constructivist perspectives are grounded in the research of Piaget, Vygotsky, the Gestalt psychologists, Bartlett and Bruner, as well as the edu-

cational philosophy of John Dewey" (p. 227).

One of the implications of this view is that students should learn skills and knowledge in a meaningful context, with connections to "real-life" situation, in which they can demonstrate their new knowledge and skills. Furthermore, Vygotsky, who based his theory on Dialectical Constructivism, believes that knowledge is socially constructed and built on what participants contribute and construct together. He emphasizes collaborative construction of social interaction by elaborating on each other's ideas, working as a team, as well as posing alternative ideas (p. 277). The results of this study show how important it is for students to interact with each other by collaborating on ideas and building on them.

If done right, effective web-based instruction allows students to get to

know each other (an important part of their social development), draw appropriate knowledge from many sources, as well as experience personalized instruction, which contributes to the students' growth in intellect and character. CyberSchool students, who expressed those needs loud and clear, have confirmed this. Interaction between teacher and students, as

well as peer interaction are important to the CyberSchoolers' academic success as well as personal growth.

When looking at Erikson's psychosocial development of adolescents, one of the problems he considers during this time, is the fraternity/sorority mentality and shared intolerance adolescents' display in regard to the social scene, which often adds major stress to teenagers, especially those who long to belong (Papalia, 1996, p. 628). These kinds of stress symptoms can be minimized or even eliminated in a virtual classroom. Many CyberSchoolers expressed in the evaluations that they have greater freedom expressing themselves without the fear of being judged by their friends. As one student wrote, "It [the online learning environment] lets me do my work more freely instead of forcing me to restrict myself because of what the rest of the class might think of me" (Weiner, 2002, p. 160).

The same holds true for students of different ethnic groups. The differences in culture and race are not as obvious in a virtual classroom as in a traditional one and prejudice and discrimination have no room to spread so freely. This in return will allow students to focus on their academic goals and help them communicate with each other in a more open and honest way and continue to break down the walls of sterility and prejudice. Many students felt that way. They appreciated the fact that they were able to communicate with other students from around the world. They felt that by sharing their thoughts and ideas with one another; they were expanding their understanding of different cultures and perspectives.

Unfortunately, many students found themselves isolated from their peers. Therefore, some students recommended setting loose deadlines to ensure that all students are on the same lessons to share their thoughts with one another.

By giving students the option to complete the course within one year, it automatically limits students' interaction. There are three different types of communication options available for online courses. Most online classes fall into these three categories: unscheduled asynchronous, scheduled asynchronous, or full synchronous. Based on this research, the Concord Consortium (1997) identified CyberSchool as one of the online schools that offer scheduled asynchronous courses (p. 1). However, the findings in this study indicate that CyberSchool offers unscheduled asynchronous courses. The main difference between the unscheduled asynchronous courses and the scheduled one is that students in the scheduled online courses study course materials at the same time (usually from a day to a week) but have the convenience of logging in at any time, any place

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within the given time period. Unfortunately, this is not the case at CyberSchool, where the students have up to one year to complete the class, which allows for little interaction with peers. As a matter of fact, this open time frame is one of the major complaints CyberSchoolers voiced, because, not only does this system foster limited student interaction, it also invites them to procrastinate in their course work.

TEACHER-STUDENT COMMUNICATION

The roles of the teacher/facilitator in the online learning environment are of utmost importance. CyberSchool teachers who connected with their students, who offered structured, well-designed lessons, and who responded immediately to students e-mails, created a positive learning environment, in which students felt comfortable and successful. The opposite held true for students who had limited contact with their teachers, these students were often frustrated and disillusioned with distance education.

The goal in an online learning environment is to personalize the course as much as possible. It is the teachers' job to make certain that high school students can handle the responsibility of learning online by providing a "sense of community and connectedness that is the heart of schooling" (Harrington-Lueker, 1997, A29). Furthermore, it is the instructors' responsibility to thoughtfully design the course, to provide a high degree of interaction between students, to act as a facilitator and to motivate the students by using a variety of teaching strategies. Based on the students' responses, to create a sense of community and belonging is of utmost importance to the students' well-being in the course.

The previously discussed teachers' responsibilities in an online learning environment are grounded in the cognitive learning theory, which requires the instructor to change his/her role in the online classroom from a didactic one to a classroom facilitator, who guides, mentors, and coaches students, by keeping an open communication through immediate feedback (Khan, 1997, pp. 120-121). While some CyberSchool teachers did a tremendous job facilitating their classes, others did struggle with this concept, especially in regard to developing an active student-teacher dialogue, as well as encouraging peer interaction, and providing immediate feedback. The lack of teacher-student communication was a major concern for the CyberSchoolers and many of them highly recommended improving teacher-student communication, by requiring teachers to contact students at least once a week. At the same time, a few students struggled as well with the new teacher's role, by

refusing to take responsibility for their own learning. They wanted teachers to tell them what to do, instead of looking for information on their own. However, many of the students recognized the advantage of becoming independent students, and preferred researching information rather than filling out worksheets.

When working with adolescents in cyberspace, it is helpful to keep Layton's profile of the digital child in mind. Layton (2000) described the digital child as being intellectually more open, more tolerant, more adventurous, as well as holding stronger views and expecting instant gratification when compared to most 20th century children (pp. 23-24). The description of the digital child, especially in regard to "instant gratification" fits many CyberSchool students. Over and over, students complained that it took their teachers too long to respond to their questions and assignments. Students were frustrated if they had to wait longer than two days for their teachers to respond, and some students had to wait one week or longer to receive feedback. As pointed out by some students, the long wait was not very conducive to their learning and led to great frustration and dissatisfaction. A high degree of student-teacher interaction, including frequent feedback and summaries to the students, are a necessity in the virtual classroom, otherwise the students felt ignored, lonely and lost in their courses.

But it was also interesting to see how many CyberSchoolers made excuses for their teachers not responding promptly. The excuses ranged from the teacher being sick, to having technical problems, to having too many students in the class, and finally to being overworked. Equally interesting was to read the recommendations or improvements they made in this regard. A few students recommended keeping classes small or hiring only teachers who do not hold another teaching position. Unfortunately, the way most of the online schools are currently funded and run, there is very little hope of hiring teachers strictly for an online teaching position. Which

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means, teaching online is and will continue to be for many teachers, a second job, and time constraints will continue to be a serious problem.

Finally, teachers have the power of creating a democratic online learning environment where students feel safe enough to communicate their thoughts and ideas. In this environment students are not afraid of being judged by the color of their skin, but by what they have to bring to the discussions. Many CyberSchoolers confirmed that they experienced greater freedom in their cyberclasses and as a result, enjoyed learning with people from around the world.

Distance education consultant Derry (as cited in Khan, 1997, p. 391) succinctly and precisely wraps up the discussion by stating in her article "Introducing Online Educational Alternatives into K-12 World,"

Although technology plays a critical role, the success of a web-based course lies in the way the instructor and students approach and interact with the finite content of the course and the infinite territory of the Web. This is truly where web-based instruction transcends the traditional educational formats. Students now have access to a number of resources right at their fingertips. If they learn how to explore and manage the availability of this knowledge, they can experience a very new kind of independent learning. In addition, if teachers shed their old paradigms that espouse teaching as the dissemination of knowledge, they can operate from a new paradigm that allows for the exploration and construction of knowledge, in a constant and evolving dynamic.

Other researchers, such as Cornell and Martin (as cited in Kahn, 1997, p. 94) also insist that strong support, which includes the degree of interaction between peers and instructor, the role of the site facilitator, organizing the course into self-contained segments, providing frequent summaries and reviews, offering a student guide, and personalizing the learning environment by getting to know the students through introductions, play a major role when it comes to motivating students in cyberspace.

FINAL REFLECTIVE THOUGHTS

We are just beginning to discover how invaluable online learning for adolescent students is and the failings that go with it. More research has to take place to strengthen these programs and to make them as universal as possible. Many of the issues and complaints circled around one theme and that was that students were not being given the full attention of their

teachers. They looked on their teachers as part-timers and this maybe the greatest weakness of online learning. As the study revealed, a strong interaction between teacher and student, as well as peer interaction is of extreme importance to a positive online learning experience. When young people sense that they are not the first consideration, they tend to become frustrated as communicated by the CyberSchool students. From this we can understand the value of committed teachers that have the time to work with this powerful, new educational tool.

When we can solve this problem, which is obviously closely related to appropriate funding, we can leap to new levels in cyberspace. Adolescent students are ready to learn in cyberspace, they need the appropriate support and guidance as discussed and revealed in this research study. Every time a CyberSchool student experienced a strong relationship and open communication with their teachers, they seemed to love the experience of studying in cyberspace. We can never lose touch with what is really important, whether it is traditional school or virtual school, there must be a sense of positive human interaction between teachers and students. 🌐

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