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Game-Based Learning in the Social Studies Classroom

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Field Based Educational Research

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Dr. Carlson

Fall 2013

Introduction

Game-based learning began in the early 1980s and has steadily grown and evolved (Johnson, Adams & Haywood, 2011). Recreational gaming, as it is sometimes referred to, is very common within most households. Specifically, about 86% of American children between the ages of eight to sixteen play video games within most homes (Hamlen, 2009, p. 2). “When children play, they learn. This concept may seem straightforward and oversimplified, but it is reality. From peek-a-boo to video games, people have learned from play for eons. Somewhere along the k-12 continuum, teachers lose sight of play as a catalyst for learning” (Annetta, Mangrum, Holmes, Collazo, & Cheng, 2009, p. 1092). Most of the empirical researchers found that computer assisted instruction with emphasis on computer-based learning when connected to the content is a very effective instructional tool and increases motivation and achievement of the students (Tarng & Tsai, 2009; Acikalin, 2010).

Researchers such as Sardone and Devlin-Scherer (2010) have found that students can learn a variety of skills through game-based learning, which appears to enhance problem solving, critical thinking, and creativity for users. As Martin (2008) asserted, games are changing in order to help students learn more easily. Tasi, Yu, and Hsiao (2012) stressed that one of the most powerful attributes of computer games is instantaneous feedback which motivates students to persevere in learning the content by providing a rewarding and engaging environment. The research found that using information available from research on educational and recreational gaming, educators can motivate students to learn important content.

Video games can provide children with a mix of what Piaget (1962) called practice games, symbolic games, and games with rules. Games can give children practice with

eye-hand coordination; facilitate social interaction through multiplayer chat and voice-over internet protocol, and develop skills including pattern and rule generation, hypothesis testing, and generalization. (Annetta, Mangrum, Holmes, Collazo & Cheng, 2009, p.1093).

This research was conducted in a social studies classroom. The purpose of this study was to determine if using computer-based games to teach social studies increase students' learning achievement? The study also determined if the experimental group was motivated to learn through computer assisted instruction or if the control was motivated to learn when more conventional modes of learning are used. The results of the study could be used to guide educators when planning real world lessons that are computer based.

Review of Literature

Frye, Trathen and Koppenhaven (2010) expressed the importance of social studies' teachers taking responsibility for successfully teaching students the knowledge, skills, and values necessary to be effective citizens. Exemplary social studies' programs teach students to acquire, organize, interpret, and communicate information. Students process the information as they draw logical conclusions, problem-solve, make decisions and interact with others. Researchers such as Sardon and Delvin-Scherer (2010) believe computer assisted instruction through game-based learning can teach critical thinking skills by giving students these skills they need to be successful in the learning process.

Benefits of Computer Assisted Game-based Learning Instruction

Johnson, Smith, Willis, Levine, and Haywood (2011) examined students' behavior in a game-based learning environment to determine whether students who worked in a group or

individually displayed any differences in behavior. The researchers found that the students learned effectively through the use of video games in either situation. The report concluded by discussing how game-based learning continues to demonstrate its effectiveness. Also, through the results of the study, the researchers found that regardless of individual learning or group learning, games can easily be integrated into the classroom. The study revealed that learning did take place and students were engaged with the lesson content through the use of games.

A study conducted by de Frietas (2007) found that both leisure and proprietary games should be embedded effectively into practice and in accordance with sound pedagogical principles and design. "Today's games developed on game engines can be played on personal computers, on game consoles, on handheld devices, on mobile phones and using mixed interfaces, e.g. augmented reality and mobile devices, and can be created without the use of programming languages using editing tools and software development toolkits" (de Frietas, 2007, p. 58). This type of versatility provides students with easy access to game-based learning. Multiplayer online games, according to de Frietas (2007), are one of the most popular forms of modern gaming. These games allowed users to relive situations and conflicts in different settings and conditions in groups. These activities encouraged students to use cognitive tools such as discussion forums, bulletin boards, and concept mapping software that requires social interaction and collaboration between teachers and students. These games and activities provide students with important skills that help students to be more successful in the classroom and in the future.

Oblinger and Oblinger (2005) characterized this generation as the Net Generation who need to be connected, need immediate feedback, need social interaction, and crave experiential learning which is provided to them by video games. Feedback is an extremely important factor in a student's experience of learning with the use of games. Students were observed (Charles,

Charles, McNeil, Bustard, & Black, 2011) using digital games and the authors noted how these games are extremely successful, since they provide immediate feedback to the students. Not only can feedback create intrinsic motivation, but it also provides understanding of the students' education levels. In this study, students were given points for their achievements which accumulated over time. This gave students a powerful presentation of their identity in regards to education and influenced students' motivation.

While observing the problem-solving skills of students, Kwon, Kumalasari, and Howland (2011) noted that strategies of self-explanation were used within the online learning environment of the participants. Specifically, students more effectively solved problems when given the option to generate their explanation freely in comparison to students who only had the choice of picking an explanation that was pre-made. Sardone and Devlin-Scherer (2010) stressed that problem-solving and critical thinking skills are considered to be among the most important skills in the 21st Century.

In a study using twenty-five students, Sardone and Devlin-Scherer (2010) noted the positive impact that digital games had on motivation, as well as the preservation of knowledge in comparison to instruction that is more conventional. The researchers measured problem solving skills and critical thinking skills. Findings indicated that students had developed the same skills while participating in four of the several offered games. These games were based on learning programs taught in the areas of geography and current events. As the students played along, they found their problem solving skills were encouraged. The students were able to solve unfamiliar problems in ways that were innovative.

Designing a digital game-based learning environment is often a difficult task. There are twelve key principles, reported by An and Bonk (2009), that are the frameworks for successfully designing optimal learning environments for digital games. These key principles include engagement, character adaptively, learning through failure, exploration, learning through doing, pausing to reflect, scaffolding, context, agency, and interaction which are all positive attributes in the learning process. An and Bonk (2009) further noted that learning should be made up of interaction, be action-oriented, problem driven and require exploration.

Sardone and Devlin-Scherer (2010) noted attributes in both creativity and innovation as products of game-based learning. The researchers observed that a game called Jackson Pollock/Splatter allowed students to develop a personal style of expression, and gave them the freedom to explore as they desired. The game: Renaissance Florence: Virtual Time Machine allowed the students to process the given information in a different and more creative way compared to how a teacher would provide the same bits of information using traditional delivery.

Game-Based Learning as It Impacts Intrinsic Motivation

Researchers Martens, Gulikers, and Bastiaens (2004) indicated that one common outcome in game-based learning is increased motivation. According to the researchers, motivation can be intrinsic, originating within the learner, or extrinsic, fostered from a source external to the learner (Dickey 2011, Suju'ee & Khine, 2009). Much of the research on game-based learning investigated intrinsic motivation. Suju'ee and Khine (2009) discussed the proper design of lessons from video games and mentioned the importance of finding out how each individual student learns and how they would like to learn. Students achieve worthwhile goals as they solve challenges, puzzles and quests in video games as multiplayer cooperation is forged. Turns can then be taken and information can be gathered on different issues together. The

researchers emphasized the aim of the educator should be the successful delivery of a lesson that keeps students motivated, enthusiastic, holds their attention and gives them the skills for success.

When students are explicitly told they are not participating in a game, they can be motivated by game-like attributes of a learning activity. Dickey (2011) described a study of a game comprised of a narrative design, rather than the more typical adventure type game. Though the instructor told students they were not participating in the game, the students perceived the activity as a game and a competition with elements that aroused their curiosity, and thus were intrinsically motivated by the game.

A study was conducted by Martens, Guliker and Bastaens (2004) where intrinsic motivation was examined. The researchers concluded that students learning in an electronic learning environment did not necessarily have higher intrinsic motivation. They did, however, react differently and were more likely to be curious when applying more exploration. Gerber and Scott (2011) asserted one of the fundamentals to the mission of formal education is that of critical thinking. Gerber and Scott observed the relationship between gamers and the use of critical thinking. Results indicated that the gamers who participated in games that were strategic scored higher by actively thinking and being open-minded during the game. Hupy (2011) discovered that a classroom filled with group-based competitive activities can be enjoyed more by students and that competitive learning can create the ideal learning environment.

Although implementation is a concern of game-based learning, Gibson and Nocente (1999) noted that availability of computers is increasing throughout the school system and Acikalin (2010) also noted that access to the Internet is increasing. Can the advantages of video

games be properly utilized within the classroom setting? Brom, Sisler, and Slavik (2010) conducted a study and observed students and teachers interacting with a game called Europe 2045. The study demonstrated the acceptance of the game by both the students and the teachers as a learning tool. The game enabled learning objectives to be formulated as students were given solving options.

Researchers assert that implementing game-based learning to support education is vital for student achievement. Students become intrinsically motivated and have shown an enhanced level of various attributes such as problem-solving, critical thinking, creativity, innovation, and communication. de Freitas (2007) explained while there are a few issues that exist with game-based learning, such as educators finding the proper design to create an ideal game-based learning environment, this type of learning opens up new opportunities for reconsidering how students learn. de Freitas (2007) further asserted that the main obstacles that prevent gaming or game-based learning from becoming more popular in the learning environment is the lack of empirical data to support the fact that gaming works and the lack of understanding about how these games might be used most effectively in practice. Schools cited the lack of access to equipment and in particular, the availability of up-to-date graphics and video cards. This makes it difficult for teachers to run games on their own personal computers, which presents educators with another huge obstacle in K-12 educational environments, higher education, and in further education as well.

Barab (2005) emphasized that educators need to learn to adapt to this style of learning within the classroom setting and have flexibility with their planning. This would encourage more teachers to become familiar with game-based learning and to implement and promote game-based strategies in their classrooms because the evidence points towards its considerable

benefits. Students will stay actively involved in learning when they are faced with a challenge and game-based learning presents them with one challenge. Therefore it is imperative for studies to be conducted to answer the effectiveness of game-based learning.

Statement of the Problem

Does using computer-based game to teach social studies increase students' learning achievement and motivation to learn when compared to more conventional modes of learning?

The researcher hypothesizes that the students who learn through the use of a computer-based game will have increased achievement and exhibit more motivation to learn.

Method

Subjects

There are a total of 940 students at Cedartown Middle School, a Title-I school. Sixty-eight percent of the students are eligible for free and reduced meals. The school consists of three percent Asian, thirty-seven percent Black, twelve percent Hispanic, forty-four percent white, and three percent Multiracial. The research subjects were sixth grade regular education social studies students. This was a convenience sample group. There were a total of 20 students participating and their average age was 12 years old. On average the students played 14.8 hours of video games per week in the experimental group while in the control group they played an average of 16 hours a week. In third period, the experimental group included one African American male, four Caucasian males, three Caucasian females, and two Hispanic males. In seventh period, the control group included six Caucasian males, two Caucasian females, one Hispanic Female, and one African American female. There were several other students in both third and seventh periods, but due to the lack of student involvement there were only a total of

six males and four females participating from the control group and the same for the experimental group. The lack of involvement was because students did not return their letters. Parents either did not agree to the participation in the research or students never returned the appropriate permission necessary to participate. All the students that participated in the study indicated that they would be willing to complete the activities again.

Design

The research design used was a quasi-experimental research. The dependent variables were achievement and motivation. The independent variable was the type of learning - traditional and computer assisted instruction using game-based learning.

Instrumentation

A twenty-nine question pretest and post-test was administered to all participating students on the physical and political features of Latin America. The pretest and post-test were created by the researcher and were based on the Georgia Performance Standards. The Department of Education from the State of Georgia requires teachers to teach using the Georgia Performance Standards. The standard used for this research was SS6G1: The student will locate selected features of Latin America and the Caribbean. The validity of the test is based on content validity where the instructional objectives based on the standards were covered. The pretest was administered before the treatment/instruction began and the post-test was administered at the conclusion of the treatment. Students have been administered this test in previous years, and it has been proven to be reliable due to student success rates. Students this school year have been administered similarly formatted tests on different contents. The results on prior administrations of the pretest and post-test yielded that there was a correlation between the prior students'

achievement and current students' achievement. The directions were located at the top of the test document. An answer sheet was provided to each student. The tests were given in a controlled environment free from distractions. Both groups were given the same instructions.

Developed by cognitive psychologists Edward Deci and Richard Ryan, an Intrinsic Motivation Inventory (IMI) was administered to the experimental and control groups at the conclusion of the research. There were a total of twenty-five questions. The questions were divided into three subscales. The survey was printed out, and students answered the questions with a pen by rating their feelings based on the seven point Likert scale. The questionnaire was deemed reliable because it had been used by other researchers in prior studies (e.g., Ryan, 1982; Plant & Ryan, 1985; Ryan, Connell, & Plant, 1990; Deci, Eghrari, Patrick, & Leone, 1994, Ryan & Deci, 2000). The directions were provided on the top of the survey, and students took the survey in an environment free of bias and distractions. Once completed, students placed the survey in an envelope to ensure security. A study by McAuley, Duncan, and Tammen (1987) examined the validity of the IMI and found strong support for its validity. A study by Deci, Eghrari, Patrick, and Leone (1994) used the activity perception part of the Intrinsic Motivation Inventory to determine that a task with a computer was more engaging than a traditional learning task.

Procedures

To begin the study, permission was obtained from the principal of Cedartown Middle School. The letters were approved by the principal prior to being sent home to the students and parents seeking permission. Once permission was granted, the Minor's Assent Letter (Appendix A) and the Parental Informed Consent Letter (Appendix B) were sent home with the students. The importance of the letters being returned and whether or not they wanted to participate was

stressed. Once the permission letters were returned, the pretest (Appendix C) was administered to the participating students. The pretest was administered on the first day of research. The test was printed out and an answer document was provided for the students to use to write their answers (Appendix D). The research study included students from third and seventh period. The students had 45 minutes to complete the pretest. The treatment and control groups were taught about the physical and political features of Latin America. Both groups received the same content, only the mode of instruction changed. In-class times on tasks were equal. Each class was given equal time on instruction. Class time consisted of 45 minutes of instruction presented daily for a period of ten days. After the completion of the pretest the students in the control group were taught the traditional way using paper, pencil, textbooks, and atlases. Students were asked to color and label maps. They cut up the maps and made a puzzle to help them learn the location of each of the features. Students were also quizzed by the teacher by pointing to blank maps and having the students identify the political and physical features. Students created acronyms to help them remember the location of countries.

The treatment group played games on the computer and followed the Sheppard Software recommendations. Sheppard Software is a computer assisted game-based instruction that can be accessed via the Internet and online and is free. The software is a drill and skill computer assisted game-based instruction. The game began with a tutorial that showed the students how to use it and discussed what they would learn. The students completed the tutorial first before beginning the games. Then they continued with Levels 1-9 playing the games while increasing their knowledge. The higher the level, the higher the required score was to continue. Students played the games and had several chances to get the answer correct. This taught them how to learn through failure. Through the use of the games students gained immediate feedback.

The students went through the games and played the different levels. The game is set up as a matching game. The game provided additional information about each country and its physical features. This included the same information and items that students learned in the control group using traditional instruction. Students matched the correct outline of the country to the area. Students were given a country's name and were asked to match the country to its corresponding outline. Students were given a print out of a map so they could label it as they were playing the game. This gave them something tangible to study just like the control group had. Once the unit was completed, both groups were given the same posttest (Appendix C). Both groups were given the Intrinsic Motivation Inventory: Activity Perception Survey to gauge their motivation to learn while playing the games (Appendix E). The information gathered from the students was not made available to anyone else. The students were given a number or letter to represent them at the beginning of the study. This was the way the researcher protected the students.

Data Analysis

Achievement

A mean score was determined for each group for the pretest and posttest. An Analysis of covariance (ANCOVA) was computed using the posttest scores (achievement) as a dependent variable and the pretest as the covariate.

Table 1

Results of the ANCOVA and Descriptive Statistics for the pretest and post test

Convenience Sample	Mean	Standard Deviation
Experimental Group (Game Teaching)	Pretest: 32	Pretest: 7.14
	Posttest: 83.20	Posttest: 11.98
Control Group (Traditional Teaching)	Pretest: 28.90	Pretest: 10.82
	Posttest: 60.70	Posttest: 26.42

Once the mean and standard deviation were determined (Table 1) the researcher used Excel 2010 to do the ANCOVA. The adjusted achievement mean was 81.33 for the game-based learning group and 62.57 for the traditional learning group. After the mean was adjusted the Degrees of Freedom=5.25, $p = .035$. Even before adjustment the experimental group had a significantly higher mean, but when adjusted the gap was closed.

Intrinsic Motivation Inventory

The Intrinsic Motivation Inventory was administered to ten students in the experimental group and ten students in the control group. There were a total of twenty-eight questions. Students used a seven point Likert scale ranging from 1 (“Not at all True”) to 7 (“Very True”) to answer the questions. The students were given forty-five minutes to complete the survey. Question numbers 8, 12, 14, 18, 20, and 24 are reversed (R) in order to make those questions comparable to the other questions in the survey. The R indicates the reverse scored items. The student response to that item was subtracted from eight.

Table 2

Descriptive Statistics for t-test results for subscale 1, subscale 2, and subscale 3

Outcome	Experimental		Control		n	95% CI for Mean Difference	t	df
	M	SD	M	SD				
Subscale 1	47.1	10.02	38.2	9.15	10	17.9133, -0.1133	2.1009	18
Subscale 2	46.2	8.496	43.3	7.73	10	10.53021, -4.7321	2.1009	18
Subscale 3	42.2	11.10	34.6	14.42	10	19.6892, -4.4892	1.3208	18

*p < .05.

There are no statistical significant differences at the .05 level of significance between the experimental and control groups on sub scores 1, 2, and 3 on the Intrinsic Motivation Survey. The results show that both groups were intrinsically motivated, however the experimental group was more intrinsically motivated when completing the computer based instruction through the use of games.

Discussion

The researcher conducted a study on using computer assisted instruction through the use of games in the 6th grade social studies classroom. Students learned via computer assisted technology or traditional means of learning. The hypothesized relationship was shown in the data. The students in the experimental group that played the games through computer assisted technology achieved more and were more intrinsically motivated to complete the assignments than the control group even though there was not a statistically significance. The control group increased their posttest scores significantly, as well as the experimental group. The students had forty-five minutes of learning daily for ten days. On the eleventh day students took a motivational survey and a posttest.

Conclusion

The researcher hypothesized that the students learning through the use of a computer-based game would have increased achievement and exhibit more motivation to learn. The data supported the hypothesis for achievement and confirms that it was true; however, it did not support the hypothesis for motivation. According to Martens, Guliker and Bastaens (2004) students in an electronic learning environment do not always have increased motivation. The responses from the motivational survey did not statistically indicate that the students in the experimental group were more motivated to learn than the control group. The means from the data indicated that the experimental group achieved more than the control group. The study's results determined that the students in both groups increased their achievement from the pretest to the posttest, but the results indicated that the experimental group achieved more.

Implications

This research demonstrates how student learning is changing to meet the demands of the 21st Century. According to the data, it is evident that students can learn well both ways; however the data also shows that students achieved more and were motivated when engaged in computer assisted instruction through the use of games. Teachers need to include a balance of technology and traditional means of learning in their everyday lessons. It is important that students earn immediate feedback and when using games they get the immediate feedback they desire. This allows them to be more motivated in their learning and take a more active role. Even though the statistics do not show a significant difference the experimental group did increase their scores.

Administrators need to be more open to the idea of students playing games in the classroom. Students enjoy using the computers as a means to learn. They often times learn more

while using technology than they realize. Schools need to have more technologies accessible to make learning fun.

Limitations

One limitation that was noted was the fact that students would not turn in their permission form, which lead to a smaller sample size. Due to the small sample size the data were limited for analysis and it is difficult to make sound conclusions relevant to the population. If the sample size is larger in size, then the statistical significance would have more value. A recommendation to prevent this would be to provide a longer period before the study begins to allow students to provide adequate documentation.

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Appendix A

**COLLEGE OF EDUCATION: DEPARTMENT OF INSTRUCTIONAL TECHNOLOGY**

MINOR'S ASSENT

Hello,

I am Shannon Magnacca a graduate student at Georgia Southern University and I am conducting a study on game-based learning in the social studies classroom.

You are being asked to voluntarily participate in a project that will be used to learn about using games in the social studies classroom to increase motivation. If you agree to be part of the project, you will play a game learning about Latin America or learn through traditional means of teaching. You will take a pretest at the beginning of the research and a post test at the conclusion. You will also complete a survey and I will observe you during your game play. After we have played the games, you will have an opportunity to watch a movie and have popcorn. It will take ten class days at 45 minutes per day for you to do this project.

You do not have to do this project. You can withdraw whenever you want. If you do not want to play the game, it is ok, and you can go back to your classroom, and nothing bad will happen. You can refuse to do the project even if your parents have agreed you can. You may put a blank survey in the collection envelope with the other surveys if you choose not to participate.

None of the teachers or other people at school will see the answers to the questions that I ask you. All of the answers that you give me will be kept in a locked cabinet in a room at Georgia Southern University, and only I or Dr. Randal Carlson will see your answers. We are not going to put your name on the answers that you give us, so no one will be able to know which answers were yours.

If you or your parent/guardian has any questions about this form or the project, please call me at 770.749.8850 or my advisor, Dr. Randal Carlson, at rcarlson@georgiasouthern.edu. Thank you!

To contact the Office of Research Services and Sponsored Programs for answers to questions about the rights of research participants please email IRB@georgiasouthern.edu or call (912) 478-0843. This project has been reviewed and approved by the GSU IRB under tracking number H13375.

If you understand the information above and want to do the project, please sign your name on the line below:

Yes, I will participate in this project: _____

Child's Name: _____

Investigator's Signature: _____

Date: _____

Appendix B

**COLLEGE OF EDUCATION: DEPARTMENT OF INSTRUCTIONAL TECHNOLOGY**

PARENTAL INFORMED CONSENT

Dear Parent or Guardian:

My name is Shannon Magnacca. I am your child's social studies teacher. I am currently working on my Educational Specialist Degree at Georgia Southern University. A study will be conducted at your child's school in the next few weeks. The purpose of this research is to find out if game-based learning increases motivation in the social studies classroom. Participate in this research will include completion in pre and posttest, a survey and teacher observation.

This letter is to request your permission to allow your son or daughter to voluntarily participate in a research study. There is, of course, no penalty should you decide not to allow your child to participate or remove your child from the participation of the research study. Your child's participation in this study is completely voluntary. The risks from participating in this study are no more than would be encountered in everyday life; however, your child will be told that he or she may stop participating at any time without any penalty. Your child may choose to not answer any question(s) he/she does not wish to for any reason. Your child may refuse to participate even if you agree to her/his participation.

The benefits to the participants include seeing if there is an increase in motivation in their learning and seeing if they retain the necessary information. The benefit to society is that the students are learning intrinsic motivation that allows them to work independently and complete their work.

This research study will take place during the school day in their social studies class. It will last for about ten school days. The sessions will last about 45 minutes each day for ten days and will be supervised by me. To begin the students will take a pretest. Once the pretest is complete the study will begin. And your student will learn either through computer-based games or traditional means of learning. Once the ten days are complete a posttest will be administered to measure achievement. Also, an Intrinsic Motivation Inventory will be administered to measure motivation. Your child's participation and name in this study will be kept strictly confidential. Dr. Dawn Williams' principal at Cedartown Middle School has approved this study.

In order to protect the confidentiality of the child, a number and not the child's name will appear on all of the information recorded during the experiment. All information pertaining to the study will be kept

in a locked filing cabinet in an office at Georgia Southern University. No one at your child's school will see the information recorded about your child.

If you have any questions or concerns regarding this study at any time, please feel free to contact Shannon Magnacca, Instructional Technology major, at 770.530.7491, or Dr. Randal Carlson, advisor at rcarlson@georgiasouthern.edu.

To contact the Office of Research Services and Sponsored Programs for answers to questions about the rights of research participants please email IRB@georgiasouthern.edu or call (912) 478-0843. This project has been reviewed and approved by the GSU IRB under tracking number H13375.

If you are giving permission for your child to participate in the experiment, please sign the form below and return it to your child's teacher as soon as possible. Thank you very much for your time.

Shannon Magnacca

Dr. Randal Carlson

Instructional Technology

College of Education

Professor of Instructional Technology

Investigator's Signature _____

Child's Name: _____

Parent or Guardian's Signature: _____

Date: _____

Appendix C Physical Features of Latin America

Directions: Write your name at the top of your paper. Please use the answer document provided to you to name the physical features of the Latin America. Next to the number on the answer sheet, write the name of the physical feature represented by the number on the map.



Appendix C Continued
Pretest and Posttest
Political Features of Latin America

Directions: Please use the answer document provided to you to name the countries of the Latin America. Next to the number on the answer sheet, write the name of the country feature represented by the number on the map.



Appendix D: Answer Document

Name: _____ Date: _____

Directions: Write the name of the physical feature next to the number it corresponds to on the map.

1.
2.
3.
4.
5.
6.
7.
8.

Directions: Write the name of the Political feature next to the number it corresponds to on the map.

1.
2.
3.
4.
5.

6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.

Appendix E

Intrinsic Motivation Inventory: ACTIVITY PERCEPTION QUESTIONNAIRE

The following items concern your experience with the task. Please answer all items. For each item, please indicate how true the statement is for you, using the following scale as a guide:

1	2	3	4	5	6	7
Not at all True			Somewhat true			Very True

1. I believe that doing this activity could be of some value for me.
 1 2 3 4 5 6 7

2. I believe I had some choice about doing this activity.
 1 2 3 4 5 6 7

3. While I was doing this activity, I was thinking about how much I enjoyed it.
 1 2 3 4 5 6 7

4. I believe that doing this activity is useful for improved concentration.
 1 2 3 4 5 6 7

5. This activity was fun to do.
 1 2 3 4 5 6 7

6. I think this activity is important for my improvement.
 1 2 3 4 5 6 7

7. I enjoyed doing this activity very much.
 1 2 3 4 5 6 7

8. I really did not have a choice about doing this activity.
 1 2 3 4 5 6 7

9. I did this activity because I wanted to.
 1 2 3 4 5 6 7

10. I think this is an important activity.

1 2 3 4 5 6 7

11. I felt like I was enjoying the activity while I was doing it.

1 2 3 4 5 6 7

12. I thought this was a very boring activity.

1 2 3 4 5 6 7

13. It is possible that this activity could improve my studying habits.

1 2 3 4 5 6 7

14. I felt like I had no choice but to do this activity.

1 2 3 4 5 6 7

15. I thought this was a very interesting activity.

1 2 3 4 5 6 7

16. I am willing to do this activity again because I think it is somewhat useful.

1 2 3 4 5 6 7

17. I would describe this activity as very enjoyable.

1 2 3 4 5 6 7

18. I felt like I had to do this activity.

1 2 3 4 5 6 7

19. I believe doing this activity could be somewhat beneficial for me.

1 2 3 4 5 6 7

20. I did this activity because I had to.

1 2 3 4 5 6 7

21. I believe doing this activity could help me do better in school.

1 2 3 4 5 6 7

22. While doing this activity I felt like I had a choice.

1 2 3 4 5 6 7

23. I would describe this activity as very fun.

1 2 3 4 5 6 7

24. I felt like it was not my own choice to do this activity.

1 2 3 4 5 6 7

25. I would be willing to do this activity again because it has some value for me.

Yes No

26. What is your gender?

Female Male

27. How old are you?

10 11 12 13 14

28. How many total hours per week do you play games?
