You Tube As A Learning Tool

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ABSTRACT

This paper expands upon previous research conducted on the effectiveness of implementing Microsoft MovieMaker (a digital video editing program) into the classroom. Sixty-one graduate and twenty undergraduate students from King's College and Rowan University took part in this study. Using the MovieMaker software to design student created tutorials on material learned in class, participants uploaded finished movie tutorials to the Internet-based website "You Tube" with the goal of providing classmates with a distance education learning program. With the ability to create and upload coursework using graphics and animation, new opportunities exist for teachers and trainers to expand their teaching methodologies while catering to a variety of learning styles. The purpose of this study was to investigate student perceptions of the effectiveness of the You Tube tutorial project on their learning so that a future educational workshop to teach the basics of creating and uploading student video tutorials may be implemented. A survey containing both quantitative and qualitative components was administered at the completion of the You Tube project to assess student perceptions of this teaching strategy. Quantitative analysis involved the use of frequencies and descriptive statistics, while qualitative analysis consisted of grouping open-ended responses into the following themes: 1. Application of You Tube; 2. Major Strengths of the You Tube Project in the Learning Process; 3. Instructor Effectiveness in the Learning Process; and 4. Suggestions for Improvement to Enhance Learning. Results showed that the You Tube tutorial methodology had a significant positive effect on perceived student learning.

Keywords: You Tube, Learning, Tool, Education, Internet, Technology, Classroom, Teaching, Strategies

INTRODUCTION

$\mathcal{T}$he increase in the hardware and software capabilities of interactive media has facilitated an increase in the use of technology in learning environments (Owens & Dwyer, 2005). Moreover, a proliferation of computer learning environments is capitalizing on ever expanding technologies and transforming present learning industries. For a generation of young people, technology, particularly the Internet, has assumed a substantial stake in their social and educational lives. A recent survey conducted by the Pew Internet & American Life Project (Hitlin & Rainie, 2005) found that roughly 21 million youth between the ages of 12 and 17 (approximately 87% of the entire age bracket) use the Internet. Of these 21 million online teens, approximately 78% (about 16 million students) indicate that they use the Internet at school.

Research has shown that computer-based instruction enhances learning and fosters positive attitudes toward instruction (Kulik & Kulik, 1985), as well as offers the opportunity for conceptual understanding through visualization. Visualization is a powerful instructional tool which has been found to be an effective cognitive strategy to facilitate learning (West, Farmer, & Wolff, 1991). However, research has shown that before evaluating the effectiveness of a picture, one must first determine whether a textual passage alone elicits adequate internal imaging (Dwyer, 1978). If learners adequately image internally, the inclusion of visuals will probably not result in any additional learning gains. Dwyer (1994) has reported that student achievement improves when visual cues properly designed and positioned are integrated into instruction. One strategy for enhancing the instructional impact of static visualization is adding visuals in motion (animation). In contrast to static presentations, animated presentations can enhance a figure's prominence (Hannafin & Peck, 1988). This was evident in the previous study using Microsoft MovieMaker, as student feedback on the use of this animated program as a learning tool indicated a significant positive effect on perceived student learning (Owens & Fralinger, 2007). Therefore, researchers are

increasingly exploring whether animation in instruction can improve learning.

PROBLEM STATEMENT

Cognitive theory, particularly cognitive information processing, is the theoretical basis of this study. Cognitive information processing is a branch of cognitive psychology that considers how people take in, process, and act on information and focuses on attention, perception, and memory (Ausubel, 1968). Research suggests that there are limits to the amount of information that learners can attend to and process effectively. Learners need to be actively engaged in processing information, to transfer it from short-term memory to long-term memory, and recall of information is facilitated when the learned material is encoded in some way (Gagné, 1985). The key factors for effective encoding of information include ensuring that the material is meaningful and that activation of prior knowledge occurs. Animation strategies, as selected for this study, may provide a more intense interaction between the learner and the content and thereby facilitate the encoding process.

Specifically, the purpose of this study was to investigate student perceptions of the effectiveness of the You Tube tutorial project on their learning so that a future educational workshop to teach the basics of creating and uploading student video tutorials may be implemented.

SIGNIFICANCE OF THE STUDY

YouTube is no longer a place for entertainment alone. Now, it has become a house of learning as the University of California (UC), Berkeley has become the first university to transfer its entire course lectures and special events on YouTube.

Visitors can view more than 300 hours of videotaped courses and events on youtube.com/ucberkeley without paying any charge. These videos cover lectures from bioengineering to peace and conflict studies. Building on its initial offerings, UC Berkeley will continue to expand the catalogue of videos available on YouTube. The UC Berkeley has launched the educational technology services (ETS), which delivers course and event content as podcasts and streaming videos. However, limited research exists on the use of "You Tube" as a learning tool in the classroom. The current study investigated You Tube as a learning tool and evaluation of classroom experiences. By using both quantitative and qualitative methods to obtain student perceptions of the effectiveness of uploading student created tutorials to the Internet as a learning tool, this study adds to the knowledge base of the existing literature. Further, qualitative analyses provide more detailed explanations and insight into student perceptions, which is needed when establishing guidelines for future implementation.

QUANTITATIVE METHODS

Data obtained from each of the 81 completed surveys were coded and entered into the Statistical Package for Social Sciences (SPSS 9.0) computer software program. Data analysis included primarily descriptive statistics. Descriptive statistics are procedures used for classifying and summarizing, or describing, numerical data (Hinkle, Wiersma, & Jurs, 1998). By using descriptive statistics, one is able to describe distributions and individual scores, and determine the relationship between variables (Hinkle, Wiersma, & Jurs, 1998). In this study, descriptive statistics including frequencies, means, medians, modes and standard deviations were calculated and used to examine scores for the questions presented in the survey to the students.

QUALITATIVE METHODS

Qualitative research has been defined in a variety of ways. In one definition, Strauss and Corbin (1998) identified qualitative research as: Any type of research that produces findings not arrived at by statistical procedures or other means of quantification. It [qualitative research] can refer to research about persons' lives, lived experiences, behaviors, emotions, and feelings as well as about organizational functioning, social movements, and cultural phenomena (p.10-11). These authors elaborated that qualitative research is best used when the methods are: (a) complementary to the preferences and personal experiences of the researcher, (b) congruent with the nature of the research problem, and (c) employed to explore areas about which little is known. Miles and Huberman (1994)

expressed an expanded position and indicated that qualitative research is conducted to: (a) confirm previous research on a topic, (b) provide more in-depth detail about something that is already known, (c) gain a new perspective or a new way of viewing something, and (d) expand the scope of an existing study. Based on this collection of reasons, qualitative methods were appropriate for this study. The current study adds to the knowledge base of animation and the learning process and establishes guidelines for further exploration.

POPULATION

Sixty-one graduate students at King's College and twenty undergraduate students at Rowan University during the spring 2008 semester participated in the study.

METHODOLOGY AND PROCEDURES

This research was conducted during the spring semester of 2008. Students were informed that their performance would be graded. The overall objectives were to:

- research product development and end use of animation applications
- make abstract concepts visible through technology
- select, implement and adapt animation to teaching methodologies and integrate a variety of software, applications, and learning tools
- assist learners in organizing and analyzing complex information
- improve learners' knowledge and usage of the Internet
- amplify students' means of expression through the use of animation and the Internet
- collaborate to enhance student/teacher capabilities and improve student learning
- enable students to develop polished products through technology

THE SESSIONS

At the beginning of the semester, students were taught how to use the Microsoft MovieMaker software over a period of three class sessions. They were then divided into groups of four or five, assigned a topic from the course syllabus, and required to upload a movie 5 to 10 minutes in length to the You Tube website. The objective of the movie was to produce a distance education instructional tutorial to teach other students the educational content of topics covered over the course of the semester. The movies produced included but were not limited to the following:

1. Cellular metabolism
2. Reproduction
3. The Digestive System
4. The Urinary System
5. Education and Learning Theories
6. Technology and the Teacher
7. College Students Need to Vote
8. Diversity in the Classroom

The students required three weeks of class time (six classes at 75 minutes each) to create the movie tutorial plus approximately 30 hours outside the classroom.

DATA COLLECTION

Marshall and Rossman (1999) suggested that data collection methods in qualitative research could be categorized into four types: (a) participation in the setting, (b) direct observation, (c) in-depth interviews, and (d) document analysis. For the purpose of this research, we utilized student written reports as the primary method of qualitative data collection. Coffey and Atkinson (1996) suggested that data collection and analysis are best conducted simultaneously in qualitative research to allow for necessary flexibility. Data collection and analysis

occurred in a cyclical process until concepts and themes became detailed and redundant and new information ceased to emerge (Miles & Huberman, 1994). The majority of the responses were in the form of statements written in the comments section. Therefore, we targeted all 81 students who participated in the exercise. The logic behind this decision was to gain an in-depth understanding of participants' perceptions of their experiences in developing a tutorial and posting it on the You Tube website. To gain a detailed depiction of participants' perspectives related to their tutoring experiences, we electronically administered the following survey:

1.   Was the You Tube tutorial design process interesting?
      ☐ YES   ☐ NO   ☐ Don't know/Not applicable/Refuse

2.   Did you understand what you were supposed to learn?
      ☐ YES   ☐ NO   ☐ Don't know/Not applicable/Refuse

3.   Were the materials directly related to the objectives?
      ☐ YES   ☐ NO   ☐ Don't know/Not applicable/Refuse

4.   Were the development exercises relevant?
      ☐ YES   ☐ NO   ☐ Don't know/Not applicable/Refuse

5.   Would you use You Tube in the classroom as a learning tool?
      ☐ YES   ☐ NO   ☐ Don't know/Not applicable/Refuse

6.   Did you expand your technology skills by using You Tube?
      ☐ YES   ☐ NO   ☐ Don't know/Not applicable/Refuse

7.   Did you receive sufficient feedback on your final results?
      ☐ YES   ☐ NO   ☐ Don't know/Not applicable/Refuse

8.   Did you feel confident working in groups?
      ☐ YES   ☐ NO   ☐ Don't know/Not applicable/Refuse

Comments: Please offer additional comments, which may further clarify or elaborate your experiences with student created tutorials.

RESULTS

Study Sample

The study sample consisted of 81 subjects. Administration of the survey was done online at the end of the semester. This method of administration was used to ensure anonymity and encourage honesty of participants.

Analysis of the Data

The data obtained in this study were analyzed using both quantitative descriptive statistics (including frequencies, means, medians, modes, and standard deviations) and qualitative methodologies. Specifically, the researchers examined participant perceptions of the effectiveness of You Tube as a learning tool.

Coding System

The first 8 questions of the survey quantitatively assessed student perceptions and were treated as dichotomous "yes/no" variables (1=Yes; 0=No), with the third option of "Don't know/Not Applicable/Refuse" treated as a missing variable.

Frequency Distributions

As noted above, the purpose of this study was to investigate student perceptions of the effectiveness of the You Tube tutorial project on their learning so that a future educational workshop to teach the basics of creating and uploading student video tutorials may be implemented. A survey containing both quantitative and qualitative portions was administered to gather information on student perceptions. Below are frequency distributions of data obtained from the first 8 quantitative questions. Frequencies were calculated to determine the mean score for each issue. The mean score represents the average ranking given by respondents for each question. The mean scores and frequency distributions were used to determine with which statements respondents most strongly agreed. Overall, results indicated that the majority of respondents answered "yes" to each of the 8 questions concerning the effectiveness of the You Tube project, indicating positive perceptions of student learning. Figures 1 through 8 show the frequency of participant responses for these questions.

Figure 1 represents question #1 (Was the You Tube tutorial design process interesting?). Responses for this question yielded a mean score of .93, indicating that most participants responded "yes". The standard deviation was .26, signifying that responses to this question had little variability around the mean. Thus, the majority of respondents felt the You Tube process was interesting.
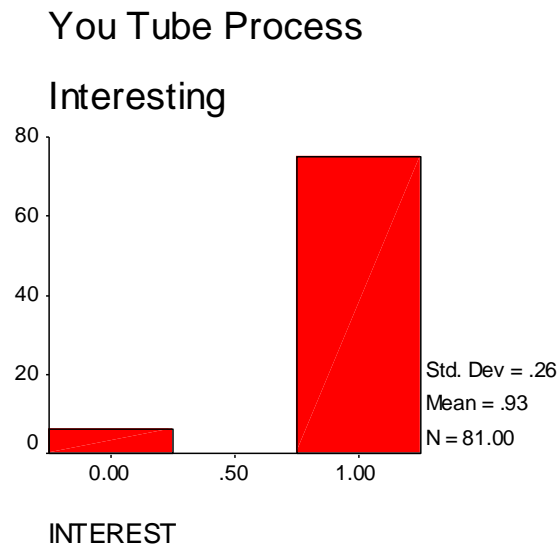

Figure 1. You Tube Process Interesting.
The mean score was .93 and the standard deviation was .26, indicating a majority of "yes" responses.

Figure 2 represents question #2 (Did you understand what you were supposed to learn?). Responses for this question yielded a mean score of .95, indicating that most participants responded "yes". The standard deviation was .22, signifying that responses to this question had little variability around the mean. Thus, the majority of respondents understood the material learned from the tutorials uploaded to You Tube.
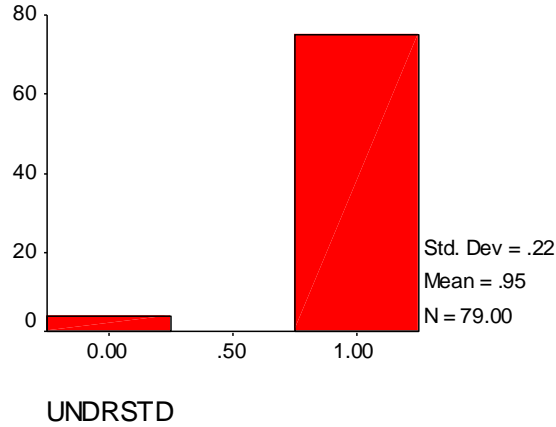
Understanding of learned material

Std. Dev = .22
Mean = .95
N = 79.00

UNDRSTD

Figure 2. Understanding of Learned Material.
The mean score was .95 and the standard deviation was .22, indicating a majority of "yes" responses.

Figure 3 represents question #3 (Were the materials directly related to the objectives?). Responses for this question yielded a mean score of .99, indicating that most participants responded "yes". The standard deviation was .11, signifying that responses to this question had little variability around the mean. Thus, the majority of respondents felt the materials of the You Tube project were directly related to the objectives.
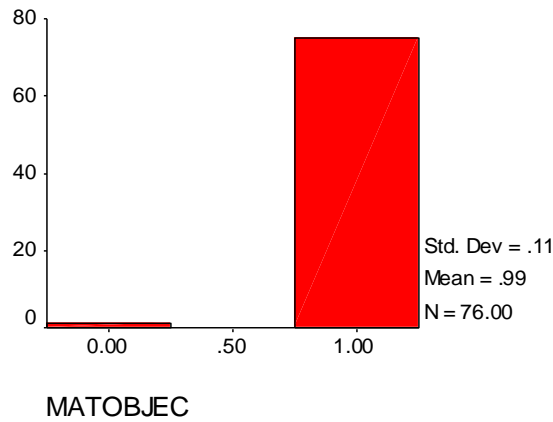
Materials Related to Objectives

Std. Dev = .11
Mean = .99
N = 76.00

MATOBJEC

Figure 3. Materials Related to Objectives.
The mean score was .99 and the standard deviation was .11, indicating a majority of "yes" responses.

Figure 4 represents question #4 (Were the development exercises relevant?). Responses for this question yielded a mean score of .91, indicating that most participants responded "yes". The standard deviation was .29, signifying that responses to this question had little variability around the mean. Thus, the majority of respondents felt the exercises used in the development process of the tutorials and subsequent upload to You Tube were relevant to the project.

Relevance of Development
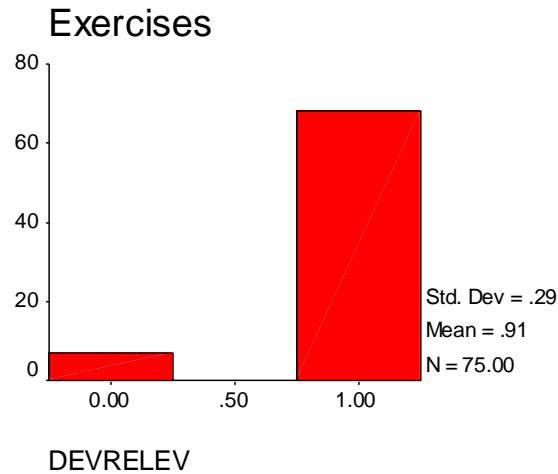
Exercises

DEVRELEV

Figure 4. Relevance of Development Exercises.
The mean score was .91 and the standard deviation was .29, indicating a majority of "yes" responses.

Figure 5 represents question #5 (Would you use You Tube in the classroom as a learning tool?). Responses for this question yielded a mean score of .73, indicating that more than half the participants responded "yes". The standard deviation was .44, signifying that responses to this question had some variability around the mean. Thus, although the majority of respondents felt they would use the You Tube project in their own classroom, some respondents stated they would not use this methodology.
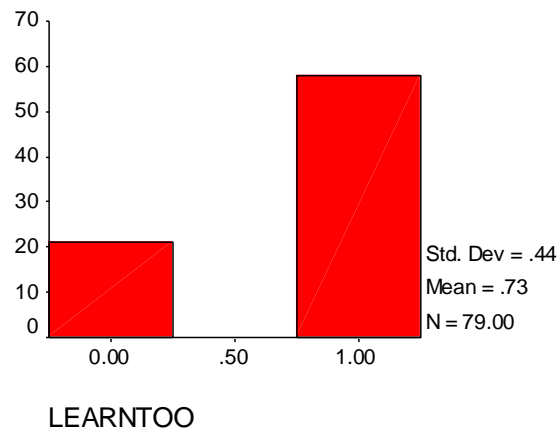
Use of You Tube in

the Classroom

LEARNTOO

Figure 5. Use of You Tube in the Classroom.
The mean score was .73 and the standard deviation was .44, indicating a majority of "yes" responses.

Figure 6 represents question #6 (Did you expand your technology skills by using You Tube?). Responses for this question yielded a mean score of .94, indicating that most participants responded "yes". The standard deviation was .25, signifying that responses to this question had little variability around the mean. Thus, the majority of respondents felt they expanded their technology skills with the You Tube project.
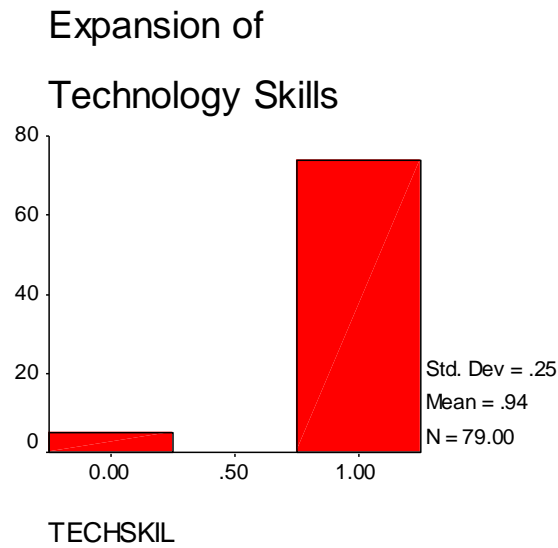
Expansion of
Technology Skills

Figure 6. Expansion of Technology Skills.
The mean score was .94 and the standard deviation was .25, indicating a majority of "yes" responses.

Figure 7 represents question #7 (Did you receive sufficient feedback on your final results?). Responses for this question yielded a mean score of .94, indicating that most participants responded "yes". The standard deviation was .24, signifying that responses to this question had little variability around the mean. Thus, the majority of respondents felt the feedback they received sufficient feedback on their finished projects.

Feedback on
Final Results
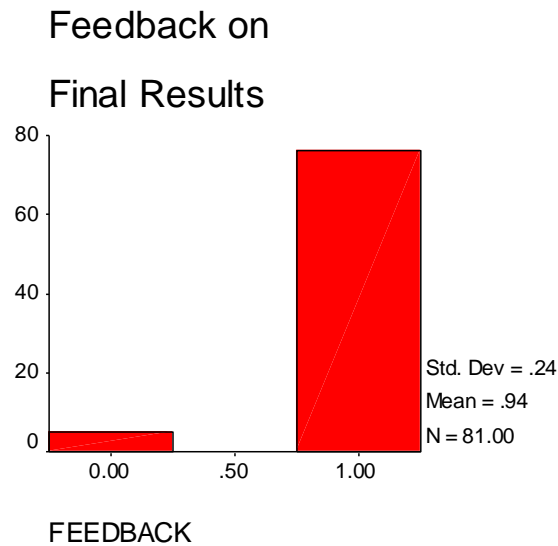
Figure 7. Feedback on Final Results.
The mean score was .94 and the standard deviation was .24, indicating a majority of "yes" responses.

Figure 8 represents question #8 (Did you feel confident working in groups?). Responses for this question yielded a mean score of .78, indicating that most participants responded "yes". The standard deviation was .42, signifying that responses to this question had some variability around the mean. Thus, although most respondents felt confident working in groups, some did not feel confident with the group process.
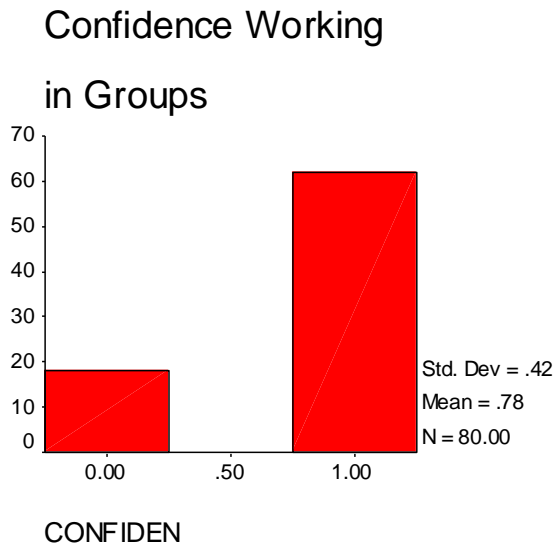
Confidence Working in Groups

Figure 8. Confidence Working in Groups.
The mean score was .78 and the standard deviation was .42, indicating a majority of "yes" responses.

**Summary of responses of King's College graduate students
regarding the effectiveness of You Tube as a learning tool**

1. **Application of You Tube Project**
   - You Tube is useful in classrooms because of the advancing of technology.
   - I like doing the tutorials instead of just lecturing and tests. I would use You Tube in a classroom; it would be a good way to break up the class and keep students interested. There are many educational videos that would aid in teaching different lessons.
   - I liked the You Tube tutorial and think it could be used in high school classrooms.
   - You Tube was interesting and showed me a lot, but I do not think I will use it in my elementary classroom; seems to be more of a secondary lesson.
   - I think that the You Tube presentation was very helpful and an interesting tool to make the classroom environment a little more entertaining.
   - I liked doing the You Tube as a student, but I do not see how it would help me in the classroom. I like when the teacher does the teaching standing in front of the class. I would not like watching a video.
   - I don't know if I'll use You Tube in my classroom or not because it's hard to take seriously. There are so many useless videos on You Tube, and anyone can post a comment which, I think, lessens the quality of the video.
   - I believe that You Tube can be extremely helpful in the classroom when used properly. For example, the teacher should be the only one that can access it on the computer to use because You Tube can easily be used as a distraction. Also, the teacher should always view the video before presenting it to a class because anything can appear in the videos.
   - I would use You Tube in my classroom because the use of technology in classrooms is increasing and You Tube would be helpful when teaching students.

2. **Major Strengths of the You Tube project in the Learning Process**
   - I liked the tutorial. I thought it have us a chance to be creative and have fun with assignment.
   - I like hands-on learning, so being able to do the You Tube project helped better my understanding of the material.
   - I think You Tube is a great teaching tool because it provides easy access to so many potentially good resources such as news clips, interviews, and documentaries. These things would be excellent

supplements in a history class.
- Making the You Tube video was a straight-forward process - develop an idea into an organized script, and then shoot the clip.
- The You Tube project was very fulfilling and rewarding. Since I use You Tube often, learning more about it helped me to know how to do more things with it.
- I believe the You Tube project was essential for our learning needs as we proceed in our path to become teachers. It opened up more options to make learning fun.

3.   Instructor Effectiveness in the Learning Process
- It would be better if the instructor provided more information on how to upload videos to You Tube.
- We didn't receive much instruction on picking our movie topic, which felt awkward.
- Professor is a guide on the side.
- Professor has knowledge of subject.
- The instructor gave good feedback.

4.   Suggestions for Improvement to Enhance Learning
- More introduction
- Less group interaction
- Uploading the video was not as simple as it initially seemed. Sometimes our group would get only video and no audio, and vice-a-versa. The technological mistakes and mishaps forced us to take several additional class periods to complete and upload the clip. I believe that the tutorial did not give effective solutions and strategies to solve this problem. If you give this particular project to your future classes please make sure that the group that provides the tutorial gives detailed instructions as to how to get around these problems. A broader recommendation would be to require that all tutorials are submitted to the instructor for approval before being uploaded to You Tube.

The above responses from students are typical statements of the way in which the You Tube project has been received by learners. A common difficulty for graduate students was the time and effort needed to create the movie and upload it to the Internet, placing a burden on an existing heavy teaching workload and personal life.

<u>**Summary of responses of Rowan University undergraduate students**</u>
<u>**regarding the effectiveness of You Tube as a learning tool**</u>

1.   Application of You Tube Project
- Everything was very helpful for the exams and very good to view and use in a school classroom.
- The project provided a different way to learn, which will be helpful in the classroom.

2.   Major Strengths of the You Tube project in the Learning Process
- I liked the You Tube activity; I felt it made me understand more of the criteria, like it was an extra study guide.
- I thought this was a fun way to combine humor with a serious class project. As long as that remains in the project it will be successful.
- This was a good way to study for exams. It gave us a fun way to understand the information that was given to use.
- You Tube was a good additional resource to have for learning the subject matter.
- I've learned a lot by watching others tutorials. I enjoyed making my own tutorial as well.

3.   Instructor Effectiveness in the Learning Process
- Instructor explained project well.
- Instructor was available to help.

4.   Suggestions for Improvement to Enhance Learning
- I just felt that the part where you need a You Tube membership was the hardest; other than that it was

a fun way to learn.
- It was hard to get everyone in our group together to work on it.
- I think we should be able to grade specific members in the group. I believe some members did more work than others and that should be reflected in the grades.

LIMITATIONS OF THE STUDY

A limited number of problems did surface throughout the project. These included:

1. The fact that MovieMaker can only be developed on one computer.
2. The need for outside classroom technology such as digital cameras.
3. Training in video production and digital picture taking.
4. Technical difficulties when uploading to the You Tube website.

CONCLUSIONS

From this study, we found that the You Tube project design and development process experience connected with increased student perceptions of learning. The shared comments of participants produced an increased awareness of how students described their relationship with the project, how they gained learning strategies, and how they perceived derived benefits of tutorial learning through both the MovieMaker and You Tube processes. Responses of the King's College graduate students varied slightly from those of the Rowan University undergraduate students in the application and strengths of the You Tube project. Specifically, because most of the graduate students were also working in the field, they were able to see more potential benefits of incorporating You Tube into their respective professions. Further, the graduate students overall preferred to work alone rather than in groups, while most of the undergraduates felt that working in groups actually increased their learning of the material.

AUTHOR INFORMATION

Dr. Russell Owens holds a Doctorate in Instructional Systems Technology from Penn State University and a Supervisory Certificate in Education and a Masters Degree in Education from Millersville University. He is a full time faculty member at King's College Wilkes Barre PA. in the Education Department. Dr. Owens has presented or published over 15 papers. He has also developed unique computer programs for the development of the Screen Printing USA printing franchisees. Furthermore, he is listed in the Who's Who of the Business World.

Owens was named to the top 500 franchises of Entrepreneur Magazine for 1994 and 1998 and the Platinum 200 of Income Opportunities for 1998. He was interviewed and featured in Impressions Magazine, Signs of The Times, Northeast Business Journal, and local newspapers. Dr. Owens is a 1999, 2000 and 2005 member of the multi-million dollar roundtable of ASI and Counselor Magazine.

Dr. Barbara Fralinger holds a Doctorate in Health Sciences from Seton Hall University and a Master of Education Degree in Health Science from The College of New Jersey. She is a full time faculty member at Rowan University in Glassboro, NJ in the Health and Exercise Science Department. Dr. Fralinger has presented or published over 10 papers and obtained a grant award to implement fitness programs in southern New Jersey. She received the Seton Hall University research award for outstanding scholarly research and has co-written three technology articles with Dr. Owens.

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APPENDIX A

Frequencies

Statistics

		INTEREST	UNDRSTD	MATOBJEC	DEVRELEV	LEARNTOO	TECHSKIL	FEEDBACK	CONFIDEN
N	Valid	81	79	76	75	79	79	81	80
	Missing	0	2	5	6	2	2	0	1
Mean		.9259	.9494	.9868	.9067	.7342	.9367	.9383	.7750
Median		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Mode		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Std. Deviation		.2635	.2206	.1147	.2929	.4446	.2450	.2422	.4202

Frequency Table

INTEREST

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	6	7.4	7.4	7.4
	1.00	75	92.6	92.6	100.0
	Total	81	100.0	100.0	

UNDRSTD

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	4	4.9	5.1	5.1
	1.00	75	92.6	94.9	100.0
	Total	79	97.5	100.0	
Missing	System	2	2.5		
Total		81	100.0		

MATOBJEC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	1.2	1.3	1.3
	1.00	75	92.6	98.7	100.0
	Total	76	93.8	100.0	
Missing	System	5	6.2		
Total		81	100.0		

DEVRELEV

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	7	8.6	9.3	9.3
	1.00	68	84.0	90.7	100.0
	Total	75	92.6	100.0	
Missing	System	6	7.4		
Total		81	100.0		

LEARNTOO

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	21	25.9	26.6	26.6
	1.00	58	71.6	73.4	100.0
	Total	79	97.5	100.0	
Missing	System	2	2.5		
Total		81	100.0		

TECHSKIL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	5	6.2	6.3	6.3
	1.00	74	91.4	93.7	100.0
	Total	79	97.5	100.0	
Missing	System	2	2.5		
Total		81	100.0		

FEEDBACK

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	5	6.2	6.2	6.2
	1.00	76	93.8	93.8	100.0
	Total	81	100.0	100.0	

CONFIDEN

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	18	22.2	22.5	22.5
	1.00	62	76.5	77.5	100.0
	Total	80	98.8	100.0	
Missing	System	1	1.2		
Total		81	100.0		