Investigation of the Student and Teacher Opinions about the Screencasting Centered Course

Necmi Esgi[1], Tugba Kocadag[2]

The Department of Comp. of Inst. Technologies Education,
Gazi Osman Paşa University,
TURKEY.

[1] necmiesgi@gmail.com, [2] tugba.kocadag@gmail.com

ABSTRACT

The current study aimed to analyze student and teacher opinions that participated to a screencasting centered undergraduate course. To achieve this, screencasts about Photoshop software were created using Camstudio Open Source (camstudio.org) application and also the students were asked to create their own screencasts. In addition, the produced screencasts were shared by the instructor via YouTube (www.youtube.com) social media site. 46 students and the instructor were interviewed about the screencasting activities of the course. Majority of the students reported that, screencasting could be used by anybody computer literate, sharing these screencasts on social media make learning compelling, using them via social media makes it accessible in an unlimited way, and makes pinpointing easy about anything they wanted to learn. Furthermore, many students claimed that prolonged use of computers was boring and there were inadequate instructor-student and student-to-student interaction. Both instructor and students argued that this method could be used in any topic recording of screen is possible.

Keywords: Analyses, instructor, opinion, screencast, screen casting, student

INTRODUCTION

Screencasting can be described as simultaneous digital sound and video recordings of computer screens (for example mouse movement and clicks) (Peterson, 2007; Winterbottom, 2007). According to Peterson (2007) screencasts can be recorded and edited easily. Screencasts, which can be described as digital recordings of computer screen output, can be helpful to students especially in technical disciplines when student's cognitive loads needed to be considered (Oud, 2009; Wang, 2013). Screencasts can be both used in face to face and distance education environments (Lang and Cecucci, 2013, Jordan et al., 2012). Since screencasts are easy to produce, easy to edit, interesting, and beneficial to learning process they are being used for educational purposes.

Most often, instructors create screencast for their courses; later they play it in their classes and upload them to social media sites to share. (Brown, Luterbach and Sugar, 2009; Pinder-Grover, Green and Millunchick, 2011; Sugar, Brown and Luterbach, 2010). Students create their own screencasts and upload them to social media sites to as another use of screencasting. In both instructor produced and student produces screencasts, the producers have to add their voice comments, media, presentations and other materials related to drill and practice in to the screencasts (Brown-Sica, Sobel and Pan, 2009; Paul, 2009).

Screencasts facilitate students while they are learning a new application or when they need to self-regulate their learning process in their own pace. Students also learn how to create digital records of their computer activity and how to share them on social network sites. Screencast can be used to provide application drills with extra information to novice learners (Renkl, 2005; Oud, 2009). An example demonstration can teach learners about a problem or a process

ISSN: 2307-3721, e ISSN: 2307-3713

(Große and Renk, 2007; Renkl and Atkinson, 2002). Screencasting have been used widely in higher education in variety of disciplines such as statistics (Lloyd and Robertson, 2012), mathematics (Feinstein, 2009; Loch, 2011; Mullamphy, Higgins, Belward and Ward, 2010), chemistry (O'Malley, 2010; Haxton and McGarvey, 2011), physics (O'Malley, 2011; O'Malley, 2012), and engineering (Galligan and Hobohm, 2013; Hartnett and Thompson, 2010).

In a study conducted by Tekinarslan (2014) the course instructor and the college students' experiences were reported. In a Database Application course screencasts of database application were shared with 52 college student participants in order to determine instructional and learning activities. Qualitative data were collected form 43 participants via observations, online discussion logs, and written documents. Inductive content analysis method was used to analyze the collected data. Results indicated that screencasting method was beneficial for most of the students. Also screencasting method was found to be effective in improving students' database application knowledge and skills. Although screencasts had many advantages, some students expressed that it was not sufficient for complex (advance) database applications.

Feinstein (2009) used technology in variety of ways in his classroom; for example he used a tablet pc and a projector in classroom to make presentations. He recorded his screen as screencasts (all the screen activity during the class) and shared these screencasts with other presentation materials with the students online in order to attract more students to online component of the course. He also made some of the screencast available as open learning resources. Feedbacks for this type of technology applications were very positive.

Trail and Hadley (2010) conducted a case study about the use of screencasting in a blended learning environment to teach technology literacy skills. A college librarian and a faculty member in the speech pathology and audiology program conducted this study to assess the effectiveness of online tutorials for an undergraduate course. In addition to static assessment tools such as knowledge and skill tests; authentic assessments such as rubric assessment for course projects should be used according to this study.

In the study conducted by Loch and McLoughlin (2011), instructional design approaches to screencasts and of self-regulated learning models were investigated. Instructional design of screencasts for improving cognitive and metacognitive skills of student to understand advance mathematical concepts was proposed based on self-regulated learning theory. In the literature, there are also studies suggesting using screencast is beneficial for students (Betrancourt, 2005; Carr and Ly, 2009; Oud, 2009; Pinder-Grover, Millunchick and Bierwert, 2008; Pinder-Grover, Millunchick, Bierwert and Shuller, 2009; Razik, Mammo, Gill and Lam, 2011; Rose, 2009; Thompson and Lee, 2012). Hove and Corcoran (2008) conducted a screencasting study and found that it improved the performance of students with participation problems; also Grabe and Christopherson (2008) found that there was a positive correlation between screencasting use, and test scores. Also screencasting was suggested as a method that students can learn in their own-pace (Pinder-Grover, Millunchick and Bierwert, 2008). In the literature, it is suggested that effective learning with multimedia could be facilitated by producing screen casts, playing, pausing and using other controls on them (Betrancourt, 2005; Mayer, 2006; Oud, 2009; Veronikas and Maushak, 2005; Davis and McGrail 2009, Liou and Peng 2009). Also screencasting materials can be accessed and used online at any time (Pinder-Grover, Millunchick and Bierwert, 2008). Utilization of screencasts in the teaching learning process forces students out of passive mode and encourages them to study and learn in an active learning process (Oud, 2009; Pinder-Grover, Millunchick and Bierwert, 2008). Screencasts could be used as tools to demonstrate difference ways of problems

ISSN: 2307-3721, e ISSN: 2307-3713

solving, supplementary to procedural sheets and to teach higher-order conceptual knowledge (Lloyd and Robertson, 2012).

In *Flipped Learning*, which is one of the contemporary concepts in learning, learning concept is moved from classroom environment in to individual learning environment by using technology. Classroom becomes a space for the reinforcement of skills and knowledge acquired previously (Sever, 2014). In this model, which is very suitable for effective screencasting utilization, students learning process was enhanced. Mull (2012) defined flipped learning as a model that students come to class prepared by watching videos, listening podcasts, reading articles, or solving problems utilizing previously gained knowledge. Milman (2012:85) added effective use of classroom time to Mull (2012)'s definition. According to Milman (2012:85) flipped learning idea requires instead introducing a concept in classroom transfer of conceptual information via video lectures, screencasts or vodcasts and effective classroom time should be use collaborative interactive activities. The most important goal for using this model is to improve the quality of face to face education (Bergmann and Sams, 2012; Bergmann and Sams, 2014:30; Sams and Bergmann, 2013:16). Screencast videos can be both acquired online or prepared by the teachers. Videos are open to access so that students can use them wherever they want to use such as home, study room, bus or even in a hospital (Musallam, 2010:57). It can be said that screencasts always and everywhere are open to access.

Based on the related literature it can be said that screencasts are providing opportunities to learners by enabling them to replay, pause, rewind and skip forward during the learning process. Screencasts are especially important for students, when faced with a new content, or when the steps of the process are important or when the study requires sequential processes.

STATEMENT OF THE PROBLEM

This study aimed to contribute to the literature about student and instructor opinion investigations by selecting a unique course, a group and a program. 46 students and their instructor at Gazi Osman Pasa University College of Education spring 2014 semester Computer II course participated to this study. The course was centered on screencasts about "Photoshop" and activities in and out of classroom related to screencasts. These screencasts were shared via YouTube (www.youtube.com). Participant's experiences using the screencasts on YouTube and other activities related to course were reported in this study. The screencasts of the Photoshop software was created using the Camstudio Open Source application.

METHODS

Participants

Participants in this study were composed of students (n=46) and their instructor. During the Computer II course, the Photoshop picture editor software was thought using screencasting method. All the students participated in to the study were freshmen Guidance and Psychological Counselling program students and 25 were female and 21 were male.

Data Collection

Qualitative research approaches were used in this study. This approach requires analyzing data collected through interviews, documents, and participant observations (Creswell, 2013; Glesne, 2010). In this study, participants' experiences regarding the screencasting utilized course were analyzed.

ISSN: 2307-3721, e ISSN: 2307-3713

Participant Observation

First, screencasts for the Photoshop software were created by the instructor. Then these screencasts were shared in the classroom and online with the students. Each week a different screencast was shared. After viewing the screencasts, students created their own screencasts. Also these screencasts were shared on YouTube to make it available constantly and gather student comments. The researcher took observation notes of in-class and online activities of the students.

Document analysis

The Student created screencasts, sent emails, and the social media contributions were reviewed.

Interview

The Interview form, composed of five questions, was sent to students; and 46 participants voluntarily returned their answers via email. Students answered the following questions.

1. What are the advantages and disadvantages of screencasting method?
2. Are there any benefits of sharing screencasting via social media, and if there are what are those?
3. Did you felt any discomfort from being constantly on computer and online throughout the course work?
4. Did you find answers to all your screencasting related questions throughout the course?
5. While creating your screencasts, did you encounter any difficulties?

Data Analyses Procedures

Researchers collected all the interview forms, written observations notes and other student outputs. Then these data were organized and coded into different groups. During this process, coding groups such as learning experiences, advantages and disadvantages, and time were used. During the coding any data that couldn't be coded into one of the coding groups were removed. Data in each coding group was included into related folder (Glesne, 2010; Jones, Torres, and Arminio, 2006). Findings were reported based on these coding groups.

RESULTS

Teaching Experiences with Screencasting

Teaching students the Photoshop picture editor via screencasting method includes straight forward step by step computer activities. The instructor, weekly, prepared the required preplanned screencasts. These screencasts were delivered to the students during the lab activities. After completing the lab training the students created similar screencasts themselves. Also, the instructor prepared screencasts were shared on social media for viewing and commenting. The students commented, contributed, and critiqued the work on social media based on their production experiences and instructional activities.

This process repeated in each week. First, the instructor prepared the screencast for the intended content and shared in lab with the students, and asked them to watch it. Then gave them homework to create their own screencasts about the same subject until next class, and contribute to comment section on the social media for the instructor created screencasts. This cycle continued until the end of semester for six weeks. Student created screencast was collected at the beginning of the class by the instructor.

ISSN: 2307-3721, e ISSN: 2307-3713

If we need to simply summarize our process; first, the instructor started the Camstudio screencasting software, then the computers' microphone and camera were checked to ensure they were ready for recording. After that recording was started with the Camstudio program and the Photoshop was started and the functions performed with the Photoshop were explained as if somebody was next to the instructor. After recordings were over the recorded videos (avi or another video format) were delivered to the students in classroom. Also these videos were shared using previously announced user account on YouTube social media site for students to comment and contribute. In addition the links were sent to the students email addresses and their comments were monitored. Also the students could share their own screencasts on the social media and create their own tutorial collections on YouTube.

After viewing the instructor prepared screencasts at laboratory, the students were asked if they had any questions or problems about the content covered; majority of the students (n=44) responded that they understood the material and they did not have any problems about the programs functions. Similarly most of the students (n=43) reported that they did not have any problems creating their own screencasts. Few students (n=2) reported that they had technical difficulties about recording audio on their computers.

Learning Experiences with Screencasting

Most of the students (43 out of 46) defined the screencast method as a linearly progressing method with simple steps and easy to understand. Also majority of the students (43 out of 46) reported that creating their own screencasts were an easy and enjoyable process. One of the students, "A" stated that:

> *"I think the screencasting method is very effective method and it could, easily, be used for many courses. I believe the application that was used for screencasting had an easy to use and simple interface. Although I did not have a great deal of technical knowledge I did not have many issues while watching the screencasts and creating my own. I tried to add different sound effects to my screencasts at home, and I really enjoyed it."*

Majority of the students (44 out of 46) claimed that using social media with screencasting method contributed to learning in general and individual learning. Student "B" stated that:

> *"As a regular user of social media, I think sharing course material on social media is pleasing process. Also, I think having access to material without time constraints contributed to my learning. Although I thought that the covered content Photoshop was difficult initially, screencasting helped me to learn it."*

Student "C" stated that:

> *"I think exchanges on the social media helped us to improve the material that was created. Similar to open source coding various opinions were collected and the material was improved. As a result screencasting has benefits both to material development and learning."*

Majority of the students reported that they could find answers to all of their questions using screencasts. Also many students stated that even they did not receive immediate response they could find answers to questions about the software on YouTube comments section which was operating like a forum.

"D" stated that:

> *"I did not have a lot of questions while we used screencasts in classroom because when they recorded the screencasts they included information about all the menus and functions. As a result I didn't have any questions about that, I only had a question about*

ISSN: 2307-3721, e ISSN: 2307-3713

the part that I was curious about and I could find an answer on YouTube comments. I think screencasting method is appealing and enjoyable."

Fourth of the students (11 out 46) reported that screencasting method was a good instructional method however, since it required long periods of computer use, it could became boring. Student "E" whom was one of these students expressed his/her thoughts this way:

"Overall, I was pleased with the screencasting method; I didn't have any issues with creating my own screencasts or sharing them on social media. However I am not using the social media often and I don't use computers unless I need them, naturally I don't see myself as a technophile."

Advantages of Screencasting as an Instructional Method

Vast majority of the interviewed students (44 out of 46) stated that being able to use screencasting method without much technical knowledge as an ordinary user is an advantage. Additionally, majority of the students (38 out 46) said that creating their own screencasts was a good practice and some students (30 out 46) thought it ensured complete learning. Furthermore, most of the students said that being able to repeat the instructions were instrumental in reinforcing the learning. Student "F" explained his/her opinions in the following manner:

"I believe being thought first by the instructor, and able to review the same content anytime I wanted, facilitated my learning. Also, I believe, applying what I have learned at home with my own computer reinforced my learning."

Student "G" said that:

"I think it is very enjoyable to have classes that utilize screencasting method; I believe it could be a good alternative to traditional methods. It is very difficult to learn without reviewing the same subject couple of time, especially in computer related content. However, I saw it was easy to review the content as many times as I wished."

Disadvantages of Screencasting as an Instructional Method

Most common (40 out of 46) disadvantages of screencasting that students report were time spent on computer (20 min or more), being boring due to the nature of computer based learning, and lack of personal interaction. Student "H" described her thoughts this fashion:

"I don't use computers and related technologies unless I had to, as a result I am not able to concentrate 20 minutes or more in front of a computer, since the method does not have human interaction, it becomes boring. People oriented methods are more appealing to me."

Another disadvantage that students (37 out of 46) reported was not being able to receive immediate response about the things they want to understand. It does not matter how complete the screencasts were they can't address all the questions students might ask. This comes across as a weakness of the method. Students could ask their question on the social media to their peers, or in classroom to instructor.

DISCUSSION AND CONCLUSIONS

The current study aimed to analyze the student and instructor opinions on screencasts about the Photoshop software and sharing them on the social media as part of Computer II course at college level. Based on the qualitative data analysis, similar to previous studies (Tekinarslan, 2014; Galligan and Hobohm, 2013; Alvarez, 2012; Heilesen, 2010; Winterbottom, 2007)

ISSN: 2307-3721, e ISSN: 2307-3713

majority of the students had positive opinions about the method. Vast majority of the students reported the screencasting method both as producer and learner was simple and linear in structure and, as a result it was user friendly. They mentioned that producing their own screencasts were both a creative and an enjoyable process.

Similar to some of the previous studies (Brown-Sica, Sobel and Pan, 2009; McGarr, 2009) the student opinions suggested that using social media to share screencasts improves both learning and access to instruction. Majority of the contributions and comments made by the students on social media addressed the issues and questions that were not covered or asked in the classroom. The students suggested that screencasting addressed almost all of their questions however they could find answers through social media comments for remaining unanswered questions.

Fourth of the students reported that this method became boring after 20 minutes since it required computer use. This could be due to students' previous experience with traditional education and learning habits, structure of the course or students' individual learning styles. Also another disadvantage reported by the students was reducing interpersonal interaction among peers due its nature. These findings were similar to Winterbottom's (2007) research findings.

Considering all its advantages and disadvantages screencasting method is a good method for student achievement and motivation, however it should be recognized that it is not the only good model both in classroom and online. This method can be used as an alternative method to add new experiences to learning groups, ensuring change and avoiding dullness and bring energy and life to course. As an instructor even part of the course can be thought with this alternative method to bring additional benefits to learners. Designing screencasts using different learning approaches and comparing them to each other could contribute to the field as a good research practice in the next step.

ISSN: 2307-3721, e ISSN: 2307-3713

REFERENCES

[1] Alvarez, B. (2012). Flipping the Classroom, Homework in class, Lessons at home, *The Education Digest, 77(8)*, 18-21.

[2] Bergmann, J., & Sams, A. (2012). Flip *your classroom: Reach every student in every class every day*. International Society for Technology in Education.

[3] Bergmann, J., & Sams, A. (2014). Flipped learning: Maximizing face time, *T+D*, *68*(2), 28-31.

[4] Betrancourt, M. (2005). The Animation and Interactivity Principles in Multimedia Learning. In *Cambridge Handbook of Multimedia Learning*, Edited by Richard E. Mayer, 287-96. Cambridge: Cambridge University Press.

[5] Brown, A., Luterbach, K., & Sugar, W. (2009). The current state of screencast technology and what is known about its instructional effectiveness". *Proceedings of Society for Information Technology & Teacher Education International Conference*, 1748-1753. Retrieved December 12, 2014, from http://editlib.org/p/30870/

[6] Brown-Sica, M., Sobel, K., & Pan, D. (2009). Learning for All: Teaching Students, Faculty, and Staff with Screencasting, *Public Services Quarterly, 5*(2), 81–97.

[7] Carr, A., & Ly, P. (2009). "More than words": screencasting as a reference tool. *Reference Services Review*, *37*(4), 408-420.

[8] Creswell, J. W. (2013). Qualitative inquiry and research design: Choosing among five approaches (3rd Ed.). Thousand Oaks, CA: Sage.

[9] Davis, A. & McGrail, E. (2009). Proof-revising' with Podcasting: Keeping Readers in Mind as Students Listen To and Rethink Their Writing. *Reading Teacher 62*(6), 522-529.

[10] Feinstein, J. (2010). Using a tablet PC and screencasts when teaching mathematics to undergraduates, This case study in the More Maths Grads collection Maths at University: reflections on experience, practice and provision, editors Mike Robinson, Neil Challis & Mike Thomlinson. UK: University of Nottingham

[11] Galligan, L., & Hobohm, C. (2013). Students using digital technologies to produce screencasts that support learning in mathematics. In *36th Annual Conference of the Mathematics Education Research Group of Australasia (MERGA36): Mathematics Education: Yesterday, Today and Tomorrow, 7-11 Jul 2013, Melbourne, Australia*.

[12] Glesne, C. (2010). *Becoming qualitative researchers*: An introduction (4th Ed.). Boston: Pearson.

[13] Grabe, M., & Christopherson, K. (2008). Optional student use of online lecture resources: resource preferences, performance and lecture attendance. Journal *of Computer Assisted Learning, 24*, 1–10.

[14] Große, C. S., & Renk, A. (2007). Finding and fixing errors in worked examples: Can this foster learning outcomes. *Learning and Instruction*, *17*(6), 612-634.

[15] Hartnett, E., & Thompson, C. (2010). From tedious to timely: Screencasting to troubleshoot electronic resource issues. *Journal of Electronic Resources Librarianship*, *22*(3-4), 102-112.

[16] Haxton, K. J., & McGarvey, D. J. (2011). Screencasting as a means of providing timely, general feedback on assessment. *New Directions*, *7*, 18-21.

ISSN: 2307-3721, e ISSN: 2307-3713

[17] Heilesen, S. (2010). What is the academic efficacy of podcasting? *Computers and Education*, *55*, 1063-1068.

[18] Hove, M. C. & Corcoran, K. J. (2008). If you post it, will they come? Lecture availability in introductory psychology. *Teaching of Psychology*, *35*(2), 91-95.

[19] Jones, S. R., Torres, V., & Arminio, J. (2006). *Negotiating the complexities of qualitative research in higher education: Fundamental elements and issues*. New York: Routledge.

[20] Jordan, C., Loch, B., Lowe, T., Mestel, B., & Wilkins, C. (2012). Do short screencasts improve student learning of mathematics? *MSOR Connections, 12*(1), 11-14. **doi:10.11120/msor.2012.12010011**

[21] Lang, G., & Ceccucci W. (2013). Clone Yourself: Using Screencasts in the Classroom to Work with Students One-on-One. *Proceedings of the Information Systems Educators Conference. San Antonio, Texas, USA*.

[22] Liou, H.-C., & Peng, Z. -Y. (2009). Training Effects on Computer-Mediated Peer Review. *System, 37*(3), 514-525. **doi:10.1016/j.system.2009.01.005**

[23] Lloyd, S. A., & Robertson, C. L. (2012). Screencast tutorials enhance student learning of statistics. *Teaching of Psychology*, *39*(1), 67-71.

[24] Loch, B. (2011). Screencasting for Mathematics Online Learning: A Case Study of. *Teaching Mathematics Online: Emergent Technologies and Methodologies: Emergent Technologies and Methodologies*, *43*.

[25] Loch, B., & McLoughlin, C. (2011). An instructional design model for screencasting: Engaging students in self-regulated learning. *Changing Demands, Changing Directions. Proceedings ascilite Hobart*, 816-821.

[26] Mayer, R.E. (2006). Ten research-based principles of multimedia learning. In *Web-based Learning: Theory, Research, and Practice*, edited by Harold F. O'Neil, and Ray S. Perez 371-90. Mahwah, NJ: Lawrence Erlbaum Associates.

[27] McGarr, O. (2009). A Review of Podcasting in Higher Education: Its Influence on the Traditional Lecture. *Australasian Journal of Educational Technology, 25*(3), 30–321.

[28] Milman, N. (2012). The flipped classroom strategy: what is it and how can it be used? *Distance Learning*, *9*(3), 85-87.

[29] Mullamphy, D., Higgins, P., Belward, S., & Ward, L. (2010). To screencast or not to screencast. *ANZIAM Journal North America*, *51*, C446-C460.

[30] Mull, B. (2012). Flipped learning: A response to five common criticisms. November Learning. Retrieved September 09, 2013 http://novemberlearning.com/resources/articles/flipped-learning-a-response-to-five-common-criticisms-article

[31] Musallam, R. (2010). The effects of screencasting as a multimedia pre-training tool to manage the intristic load of chemical equilibrium instruction for advanced high school chemistry students. Yayınlanmamış Doktora Tezi, San Francisco Üniversitesi.

[32] O'Malley, P. J. (2010). Combining a Tablet personal computer and screencasting for chemistry teaching. *New Directions, 6*, 64-67.

[33] O'Malley, P. J. (2011). Combining screencasting and a tablet PC to deliver personalised student feedback. *New Directions, 7*, 27-30.

ISSN: 2307-3721, e ISSN: 2307-3713

[34] O'Malley, P. (2012). Screencasting and a Tablet PC–an indispensable technology combination for physical science teaching and feedback in higher and further education.

[35] Oud, J. (2009). Guidelines for effective online instruction using multimedia screencasts. *Reference Services Review, 37*(2), 164-177.

[36] Paul, B. (2009). Assessing Homegrown Library Collections: Using Google Analytics to Track Use of Screencasts and Flash-Based Learning Objects Journal of Electronic Resources Librarianship, *21*(1), 75–92.

[37] Peterson, E. (2007). Incorporating screencasts in online teaching. *International Review of Research in Open and Distance Learning, 8*(3). Retrieved June 20, 2014, from http://www.irrodl.org/index.php/ irrodl/article/view/495/935

[38] Pinder-Grover, T., Green, K. R., & Millunchick, J. M. (2011). The efficacy of screencasts to address the diverse academic needs of students in a large lecture course. *Advances in Engineering Education, Winter 2011*, 1-28.

[39] Pinder-Grover, T., Millunchick, J. M. & Bierwert, C. C. (2008). Work in progress: Using screecasts to enhance student learning in a large lecture Materials Science and Engineering course." *Paper presented at the 38th IEEE/ASEE Frontiers in Education Conference, Saratoga Springs, New York*, October 22–25, 2008. Retrieved June 20, 2014, from http://fe-conference.org/fe2008/ papers/1362.pdf

[40] Pinder-Grover, T., Millunchick, J. M., Bierwert, C. C., & Shuller, L. (2009). Leveraging Screencasts to Strategically Clarify Unclear Materials Science Concepts," Paper presented at the American Society of Engineering Education Annual Conference and Exposition, Austin, Tx, June 14–17, 200. Retrieved December 12, 2014, from http://soa.asee.org/paper/conference/paper-view.cfm?id=11336

[41] Razik, R., Mammo, Z., Gill, H. S., & Lam, W. C. (2011). Academic screencasting: internet-based dissemination of ophthalmology grand rounds. *Canadian Journal of Ophthalmology/Journal Canadien d'Ophtalmologie*, *46*(1), 72-76.

[42] Renkl, A. (2005). The worked-out examples principle in multimedia learning. In *Cambridge Handbook of Multimedia Learning*, edited by Richard E. Mayer, 229-45. Cambridge: Cambridge University Press.

[43] Renkl, A., & Atkinson, R. K. (2002). Learning from Examples: Fostering self-explanations in computer-based learning environments. *Interactive Learning Environments*, *10 (2),* 105-19.

[44] Rose, K. K. (2009). Student Perceptions of the Use of Instructor-Made Videos in Online and Face-to Face Classes, *MERLOT Journal of Online Learning and Teaching*, *5*(3). Retrieved July 07, 2014, from http://jolt.merlot.org/vol5no3/rose_0909.htm

[45] Sams, A., & Bergmann, J. (2013). Flip your students learning. *Educational Leadership, 70*(6), 16-20.

[46] Sever, G. (2014). Bireysel çalgı keman derslerinde çevrilmiş öğrenme modelinin uygulanması. Eğitimde Nitel Araştırmalar Dergisi - *Journal of Qualitative Research in Education, 2*(2), 27-42.

ISSN: 2307-3721, e ISSN: 2307-3713

[47] Sugar, W., Brown, A., & Luterbach, K. (2010). Examining the Anatomy of a Screencast: Uncovering common elements and instructional strategies. *International Review of Research in Open and Distance Learning, 11*(3)*,* 1-20. Retrieved December 12, 2014, from http://www.irrodl.org/ index.php/irrodl/article/view/851/1596

[48] Tekinarslan, E. (2014). Incorporating Screencasts in Teaching and Learning of Database Applications in an Undergraduate Course at a Turkish University. *International Journal of Social Sciences & Education, 4*(3).

[49] Thompson, R., & Lee, M. J. (2012). Talking with students through screencasting: experimentations with video feedback to improve student learning. *The Journal of Interactive Technology and Pedagogy*, *1*(1).

[50] Trail, M. A., & Hadley, A. (2010). Assessing the integration of information literacy into a hybrid course using screencasting. *Journal of Online Teaching and Learning*, *6*(3), 647-654.

[51] Veronikas, S. W., & Maushak, N. (2005). Effectiveness of Audio on Screen Captures in Software application instruction. *Journal of Educational Multimedia and Hypermedia*, *14*(2), 199-205.

[52] Wang, Y. D. (2013). The Practice and Evaluation of Applying PBL to e-Learning via Screencasting: Implications for Computing Courses. Information Systems and Technology for Organizations in a Networked Society, 130.

[53] Winterbottom, S. (2007). Virtual lecturing: Delivering lectures using screencasting and podcasting technology. *Planet*, *18*. Retrieved June 12, 2014, from http://www.gees.ac.uk/planet/p18/sw.pdf

ISSN: 2307-3721, e ISSN: 2307-3713