Project Proposal

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Motivation and Context

Our interest in researching the issue of retention in online learning was motivated by retention data found while completing assignment 2 for this course. Data from 2012 showed that approximately 5% of students enrolled in Coursera courses successfully completed them (Koller, Ng, Do, & Chen). Additional studies over the years have demonstrated a higher percentage of dropouts in online courses compared to traditional classroom environments (Hiltz, 1997; Phipps & Merisotis, 1999).

There have been a number of studies which delve into the various factors that contribute to a student's decision to drop an online course (Diaz, 2002; Park & Choi, 2009). These factors include the support received by the student from family members or from their employer. Research findings (Swan, 2001) "point to three factors that contribute significantly to the success of online courses. These are a clear and consistent course structure, an instructor who interacts frequently and constructively with students, and a valued and dynamic discussion."

The data from these and other studies is driving us to ask and attempt to find a new answer the question, "How can the retention of students in online learning be improved?"

Our steps towards finding an answer to this question will require a deeper dive into the research that has been performed in this area over the years. We will examine the various solutions that have been recommended by prior research into the retention issue and the use of Virtual Reality technology (VR). We will then explore the possibility of using Virtual Reality technology to improve the retention of students in an online environment.

Methodology

This study attempts to investigate how to improve retention for online students. Additionally, the study aims to investigate whether the use of Virtual Reality in online courses influence student's decisions to continue online programs. A qualitative method will be used with case studies from literature research and survey results collected from a population of employees from a US corporation who participated in a massive open online course (MOOC) certification degree program. Note that the US corporation and MOOC will remain anonymous and be referred to as company A and MOOC X respectively. The following are the questions this study seeks to answer:

1. How can the retention of students in online learning be improved?
2. Does the use of Virtual Reality (VR) technology improve the retention of online students?

For this study the definition of retention is "the progressive reenrollment in college, whether continuous from one term to the next or temporarily interrupted and then resumed" (Pascarella & Terenzini, 2005)

The data represented in this research correspond to 4838 employees (students) who participated in a MOOC certification process between 1 January 2017 and 1 May 2018. We have obtained an anonymized list of these students which contains the following information:

- course name i.e., nanodegree student is attempting to achieve;

- enrollment date i.e., date student enrolled in the course; and
- enrollment Status i.e., enrolled, unenrolled, graduated.

Using this data, for each course, we will calculate the

- total number of students in each course and
- percent of students enrolled, unenrolled and graduated for each course.

Through voluntary sampling at company A we will ask those students who have unenrolled from a program offered by MOOC X to participate in a survey and answer questions based on their experience with a 2-minute VR session. In particular, we will ask if they would have been more likely to continue in the MOOC X course if VR was part of the pedagogy. The VR session is available as an in-house training demo developed by company A's educational business unit.

We will qualitatively analyze the results of the survey and the associated data and assess, course by course, if the VR experience influences retention of the student population.

Spring-Back Plans

If voluntary sampling participation at company A results in insufficient participation, our alternative course of action will be to use the OMS CS6460 student population and have them demo an online VR video and from that experience, survey them.

Deliverables

Deliverable	Due Date
Five Weekly status reports	June 25, July 2, 9, 16, 23
Intermediate Milestone #1 – Research Methodology Preview	July 2
Intermediate Milestone #2 – Preliminary Results	July 16
Final Paper	July 30
Final Presentation	July 30

Weekly Milestone Calendar

Week 6 (Week of 06/18/2018)
- Project Proposal

Week 7 (Week of 06/25/2018)
- Weekly Status Check 1

Week 8 (Week of 07/02/2018)
- Weekly Status Check 2
- Intermediate Milestone 1

Week 9 (Week of 07/09/2018)
- Weekly Status Check 3

Week 10 (Week of 07/16/2018)
- Weekly Status Check 4

- Intermediate Milestone 2

Week 11 (Week of 07/23/2018)
- Weekly Status Check 5

Week 12 (Week of 07/30/2018)
- Final Project
- Project Paper
- Project Presentation

Tasks
1. Create the project proposal. – Phil/Charles
2. Submit the project proposal. – Phil
3. Revise and edit project proposal as needed after mentor review – Phil/Charles
4. Research and summarize the leading recommendations for improving retention in online learning. – Phil
5. Research and summarize previous use of VR for education. - Charles
6. Prepare weekly status check 1. - Charles
7. Submit weekly status check 1. - Charles
8. Define and type up the research methodology for the project. - Charles
9. Submit Intermediate Milestone 1 - a preview of our research methodology. - Charles
10. Review peer feedback for Intermediate Milestone 1 – research methodology. – Phil/Charles
11. Adjust plan based on peer feedback for Intermediate Milestone 1. – Phil/Charles
12. Prepare weekly status check 2. - Phil
13. Submit weekly status check 2. - Phil
14. Prepare weekly status check 3. - Phil
15. Submit weekly status check 3. - Phil
16. Prepare weekly status check 4. – Phil
17. Create the survey. - Charles
18. Recruit participants for the study. - Charles
19. Analyze and document the survey results. – Charles
20. Document and submit Intermediate Milestone 2 - preliminary results of our research for review.
21. Review peer feedback for Intermediate Milestone 2. – Phil/Charles
22. Adjust plan based on peer feedback for Intermediate Milestone 2. – Phil/Charles
23. Submit weekly status check 4. - Phil
24. Prepare weekly status check 5. - Charles
25. Submit weekly status check 5. - Charles
26. Write the abstract for the paper. - Phil
27. Write the introduction for the paper. – Phil
28. Write the conclusion for the paper. - Phil
29. Write the research methodology section of the paper. - Charles
30. Write the research results section of the paper. - Charles
31. Type and organize all acknowledgments and references for the paper. - Charles
32. Prepare the final paper. – Phil/Charles
33. Review and edit final paper. - Phil

34. Submit the final version of the paper. - Phil
35. Determine the format and tools needed to create the required presentation. – Phil/Charles
36. Create the presentation. – Phil/Charles
37. Review and edit the presentation. – Phil/Charles
38. Submit the final presentation. - Charles

Intermediate Milestones

Intermediate Milestone #1

Our first intermediate milestone will provide a preview of the research methodology chosen for this project. This preview will include any surveys or questionnaires presented to our target user community. In addition to the initial version of our survey, we will also lay out our plan to recruit participants for our desired and spring-back plans. This milestone will be delivered on July 1st.

Intermediate Milestone #2

The second intermediate milestone for our project will consist of our preliminary data, early conclusions, and observations. We will also discuss our plans for continued analysis or additional research to perform before delivering the final deliverable. This milestone will be delivered on July 15th.

References

Diaz, D. P. (2002). Online drop rates revisited. The Technology Source, May/June. Retrieved July 26, 2006, from http://technologysource.org/article/online_drop_rates_revisited/

Hiltz, S. R. (1997). Impacts of college-level courses via asynchronous learning networks: Some preliminary results. Journal of Asynchronous Learning Networks, 1(2), 1–19.

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Park, J.-H., & Choi, H. J. (2009). Factors Influencing Adult Learners' Decision to Drop Out or Persist in Online Learning. Educational Technology & Society, 12 (4), 207–217.

Pascarella, E., & Terenzini, P. T. (2005). How College Affects Students. In *A Third Decade of Research* (Vol. 2). San Francisco: John Wiley & Sons.

Phipps, R., & Merisotis, J. (1999). What's the difference? A review of contemporary research on the effectiveness of distance learning in higher education. Washington DC: Institute for Higher Educational Policy.

Swan, Karen (2001) Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses, Distance Education, 22:2, 306-331, DOI: 10.1080/0158791010220208