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CS6460

Proposal

Description of the phenomenon to be investigated, including the research question to be answered.

On a high level, we are researching intrinsic and extrinsic motivators as they relate to MOOCs. We will seek to answer the question: “Does using one or some combination of strategies including alternate grading, peer reviewing, collaborative and cooperative learning, and gamification of a course result in an increase in motivation for students?” The null hypothesis would be that the factors being studied have no effect on student motivation. Chris Vaccarello will specifically be researching simple, cost-efficient ideas for incorporating games in MOOCs to reject the null hypothesis. This gamification will emphasize team participation because of the current lack of strong social environment in online classrooms. Chris Carter will be focusing on the effect of strategies such as peer review, collaborative and cooperative learning, and alternate grading strategies on student motivation

Description of background literature in the area that leads to your research question.

Games in the classroom are nothing new. They’ve proven to help students improve self-esteem, peer relationships, and learning (Nemerow, 1996; Persky, 2007; Mifsud, 2013). Many game-like simulations have already been successfully applied within MOOCs, but most of

the discussion revolves around what are called “serious games” which can be expensive to develop and implement (Freire, 2015). We want to focus on simple, team-centered games, because community (which is currently lacking in MOOCs) has also proven to be a powerful tool in facilitating learning (LaPadula, 2003; McLoughlin, 2002; Sadera, 2009; Gokhale, 1995).

DeLong, M., & Winter, D. (2002) note that there are at least two kinds of motivation at play in education: intrinsic and extrinsic. Intrinsic motivators are things like being naturally interested in a subject, enjoying the challenge of a subject, and generally just motivations that come from what the subject or activity is. Extrinsic motivators are instead things that students get for performing well. Examples of this include grades, approval of parents, money, or other rewards. Bain, K (2004) notes that there has been a lot of research to show that “extrinsic rewards can have a negative impact on intrinsic motivation”. Therefore, one could see grades as a negative aspect in education, and often students are more focused on getting a good grade in a class than focusing on the content. Brookhart (2008, p. 8) states that teachers have observed that if a student receives a paper back with a grade and a comment, they tend to pay attention to the grade and ignore the comment. In this we can see that the extrinsic reward, the grade, has become more important than learning what they did well, and what should be improved on. The grade has lessened the intrinsic motivation to learn the subject matter. Ally, M. (2004) notes that: When learning online, learners should be given the opportunity to reflect on what they are learning, collaborate with other learners, and check their progress. Self-check questions and exercises with feedback throughout a lesson are good strategies to allow learners to check how they are doing, so they can use their metacognitive skills to adjust their learning approach if necessary. (p29)

These metacognitive strategies have been shown to have a correlation with increased performance and motivation (Vandergrift, L. 2005), and these correspond well to the concepts

presented in peer review, collaborative learning, and cooperative learning. These strategies therefore may have some value in detracting from grades' importance and leading to better motivation in a course.

Description of the research methodology that will be used, including the independent and dependent variables, internal and external validity, and the connection between these details and the research question.

Ideally, we would create an experiment and run trials in order to answer the research question. We don't have the time or resources to set that up. Instead we will rely on survey data from our classmates. Several MOOC gamification ideas will be discussed in this survey, in addition to presenting alternate grading, peer feedback, and collaborative and cooperative learning as possible strategies to be included in a course. These ideas are the independent variables. We will likely present each as a separate strategy initially and gauge the change in student motivation. If certain strategies have a possible synergy, such as peer review and collaborative learning, we will also present this combination and gauge the results from using both together. The dependent variables will be the motivation level reported by the survey respondents in response to each of the proposed changes, and combinations of some of the changes. In scientific terms, the experiments will be "The Effect of [alternate learning strategy] on Student Motivation", with the survey answers replacing what would ideally be trial results.

To address internal validity, we will write survey questions as direct as possible so the cause and effect relationship we're interested in is obvious. The external validity of the research will not be ideal because we're only surveying 1 class from 1 MOOC program. There will be no random sampling.

The connection between the research question and the survey questions will be obvious. "Would you be more motivated to learn if _____ was implemented?", with blank being an alternate learning strategy, is an example of a question that could be asked.

Description of the data that will be needed or obtained, including spring-back plans if the data cannot be obtained.

The data will be obtained via survey and, if time permits, interviews. The survey will likely be distributed to the class via Piazza and possibly Slack. There should be no need for spring-back plans for the survey; these are generally very quick and easy to organize and we have a viable respondent pool in the form of classmates on Piazza. Whether or not the interviews happen will depend on the volume of data we expect to get from the surveys; if the volume is large and will take a lot of time to analyze, we may need to consider scaling back or cutting interviews in the interest of diverting resources to survey results analysis. However, efforts will be made to complete interviews, as they allow for more back and forth between the researchers and the subject, and allow us to delve for more specific responses and follow-up questions than may not have been possible in a survey.

Milestone 1 deliverable:

Due by July 1st, 2018, a draft survey will be designed and published for review. Interview script will be designed and published for review if scope allows.

Milestone 2 deliverable:

Due by July 15th, 2018, share current conclusions, observations, and plans for ongoing analysis leading up to the final deliverable.

Task list (complete by):

- 6/17/18: Continue researching topic and start project - Chris Carter will be looking specifically at collaborative/cooperative learning strategies and peer review in order to propose elements to be evaluated in the survey. Chris Vaccarello will be doing the same with gamification strategies.
- 6/24/18: Weekly Status Check 1 - Both authors will deliver a write-up in mentor thread discussing findings and perhaps some preliminary ideas for course elements to reflect the use of their elements.
- 6/24/18: Separate questions to be asked into 2 groups (survey and interview).
- 7/1/18: Weekly Status Check 2 - Describe progress on creating the survey draft for review, and any progress or impediments to developing interview scripts. Submit consent form draft for interviews.
- 7/1/18: Milestone 1: Draft survey will be designed and published for review, interview script will be designed and published for review if scope allows.
- 7/8/18: Distribute survey to the class, begin recruiting interviewees
- 7/8/18: Weekly Status Check 3 - Deliver some preliminary results for the survey, indicating response quantity and some initial takeaways. If interviews have been performed, also include some preliminary analysis of this data. Perform further research if needed to enforce patterns that might be noticed at this point.

- 7/15/18: Weekly Status Check 4 - More detailed takeaways should be noted at this point from both the survey and interviews, if performed. Continue to perform supporting research as patterns are noticed.
- 7/15/18: Close survey, wrap up interviews.
- 7/15/18: Milestone 2: Share current observations and plans going forward for final deliverable.
- 7/22/18: Weekly Status Check 5 - Initial draft of final report. By this time, information should be gathered enough to describe the abstract, background, experiments, results, and initial conclusions.
- 7/22/18: Review and incorporate peer feedback and record presentation on paper.
- 7/29/18: Final Project
- 7/29/18: Project Paper
- 7/29/18: Project Presentation

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