

Why Don't Students Use RadGrad? A Qualitative Study of Factors That Inhibit RadGrad Adoption

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1 Introduction

The demand for Computer Science jobs is growing rapidly and so is the demand for Computer Science degrees. However, just because an individual can obtain a degree in Computer Science, it does not indicate preparedness for a growing, yet demanding industry. In 2017, RadGrad was designed to address the shortcomings of the Information and Computer Science Department's ability to prepare its students for life after their undergraduate education [3].

Unfortunately, despite the intended benefits of RadGrad, student adoption is still relatively low after its first year of deployment. Approximately 65% of students use RadGrad less than two times a semester.

In order to address the problem of low system adoption, this study aims to answer the question: "Why don't students use RadGrad?" I will investigate this question by conducting a series of interviews with currently enrolled ICS students who use RadGrad once or less per semester.

For example, it is possible that students with low to mid level adoption levels do not think that RadGrad is worth the time investing into using the system. Full time students are required to take 12-18 credits, which, given the recommended time ratio of credit hours and 2 hours spent studying, totals to 36-54 hours spent on academics alone.

This study aims to come up with tangible reasons as to why students are not using RadGrad. RadGrad was launched in Spring 2018, and has been running for approximately 2 years. During the two year period between the launch and the present, the developers have introduced ways to capture usage statistics. By analyzing the captured statistics and conducting a qualitative study, this research aims to provide insight as to why students do not use RadGrad. These observations could lead to design changes or other actions that ultimately improve the adoption rate of RadGrad.

2 Related Work

After the deployment of the RadGrad system, 2 methods of data collection were implemented to gain insight into the reasons behind certain students' behaviour toward RadGrad [1]. An end of the year survey was conducted and received 28 student responses for the 2018-2019 Academic year. In the Summer of 2019, a peer to peer survey was conducted by student developers working on the RadGrad project and received 13 responses. Of the students surveyed, 72% of them found RadGrad to be useful. However, there were no mentions of system reported usage compared to the students who found RadGrad useful. Therefore, this finding doesn't necessarily indicate 72% of the respondents used the system, it only gives insight that a certain percentage of students find RadGrad to be useful.

A user's experience can be analyzed in many different ways. One such way is to conduct structured interviews with users or potential users. An effective way to discover a user's attitude toward a specific technology is to ask a series of open ended questions. By allowing for the user to craft their own response, the interviewer is more likely to hear the user's opinions and reasons behind said opinions. [2]

3 Research Design

We would like to improve the student participation in RadGrad, and by conducting this study we may be able to identify and examine barriers to adoption of RadGrad. The main research question I will be attempting to answer is: "Why don't students use RadGrad?"

We define low system adoption as 0-1 sessions per semester. We define a moderate level of adoption as 2-3 sessions per semester. We define a high level of system adoption as 4 or more sessions per semester. *Sessions* are classified as periods of activity delimited by 1 hour of inactivity. Having an hour of idle time

creates a new session. The purpose of defining levels of adoption by number of sessions is because a user's number of login events may not accurately reflect activity of the system.

According to data collected from RadGrad for Spring 2019 (2019-01-01 to 2019-05-31), out of 210 active students, 138 students are classified as having low system adoption. 57 students are classified as having moderate system adoption and 15 classify as having high adoption. In terms of percentage, 65.7143% have low adoption, 27.1429% have moderate adoption and 7.1429% have high adoption. These numbers have been calculated from session data for Spring 2019 (2019-01-01 to 2019-05-31) obtained on 2019-11-20 as reported by the RadGrad system.

For the Fall of 2019(2019-08-01 to 2019-12-31), out of 179 students (186 total then subtracted 7 which were test accounts, advisors and the administrator), 130 are in the low adoption category, 25 are in the mid adoption category and 24 are in the high adoption category).

73%are in low adoption, 14% are in the mid adoption category and 13% are in the high adoption category. Compared to the adoption percentages for the Spring of 2019, the percentage of students in the low adoption group has significantly increased.

This study will investigate why students don't use RadGrad by conducting a series of interviews with currently enrolled ICS students who use RadGrad once or less per semester. Each student will be interviewed and asked the same questions individually for approximately 20 minutes during which the audio of the researcher and the student will be recorded. During the interview, the researcher will ask a series of open ended questions to the student. After all the interviews have been conducted, the audio will be transcribed and then analyzed for key words and phrases.

The researcher will interview 15-20 students and each student will be interviewed individually in person for a total of 20 minutes. All interview audio will be recorded.

Each interview will be approximately 20 minutes and will consist of a series of open ended questions pertaining to RadGrad, with the focus of figuring out why students do not use RadGrad.

Questions

- What is your class standing?
- When did you start your ICS undergraduate curriculum?
- Last semester, how many times did you use RadGrad?
- How many credits did you take last semester?
- On average, last semester, how many hours a week did you work?
- Please describe your current work situation and how it relates to ICS.
- What kind of extracurricular activities do you participate in?
- Please describe you level of involvement of those extracurricular activities.
- When you think of career planning, what resources do you use?
- Where would you like to be in 5 years regarding your career?
- In the previous question, you stated where you would like to be in 5 years regarding your career. How do you plan to get to that place?
- What kind of internship opportunities are you interested in?
- Why did you choose to major in Computer Science?

- Please describe how useful you find RadGrad.
- How important do you believe GPA is to prospective recruiters?
- How will this experience help you in your future career?
- Have you talked with any mentors about your opportunities in ICS? Were your mentors professors, ICS alumni, academic advisors, friends?
- Was there a piece of advice you'd hear a lot of people give? If so, what is that advice?
- Do you feel that your degree plan has no direction? If so why?
- How often do you question why you are in college?
- What do you think the purpose of RadGrad is?

Sequence of Events

1. Obtain the anonymized user statistics of RadGrad for 2019-08-01 to 2019-12-31.
2. Calculate the percentage of low-adoption users. If the percentage of low adoption users decreases to below 30%, I may have to redesign my entire study.
3. Ask for email addresses of all low-adoption users.
4. Send mass email for participation in a RadGrad User experience evaluation. Highlight that they have been contacted because RadGrad wants to understand **why people are not using it**.
5. Conduct interviews.
6. Transcribe results.
7. Compose the schema of how the interview responses are interpreted.
8. Analyze the results of the interviews and draw conclusions.
9. Analyze the process of steps 1-9. If there are any enhancements the research design could benefit from, take those ideas into consideration for next iteration of the research.

Pilot Study

A pilot study will be conducted with 3-6 students. Ideally, there will be at least one student representing each adoption group. The pilot study will follow the sequence of events listed above. After the pilot study, the research design and sequence of events may need to be altered for optimization purposes.

The student responses of the pilot study may be used to draw conclusions but its purpose is to test and refine the research design method.

The pilot study was conducted on 5 students. Following the conclusion of the pilot study, there have been a few changes regarding how the participants are gathered, the method of incentive and the selection of questions asked during the interview.

Originally, only students in the low adoption group were emailed regarding the survey. However, the researchers only received 4 participants from that venture. The researcher personally reached out to one of the participants, due to the researcher already knowing this person, who had been sent the email but did not fully ascertain its contents. A follow up email was sent to students in the low adoption group who had not participated in the pilot study. Flyers advertising the study were made and posted in places with high traffic

of ICS students. The researcher has also attempted to gather participants through word of mouth by asking the pilot study participants to tell their peers about this survey. All advertising materials have emphasized the incentive in order to garner more participants.

The incentive for participation was a Jamba Juice or Starbucks drink of the participants choice. However, that has since been changed to a \$5 electronic gift card from either business. The researchers found this method of delivering the incentive easier to keep track of.

After the pilot study, the researchers refined the questions to include the following:

1. What is your class standing?
2. When did you start your ICS undergraduate curriculum?
3. Last semester, how many times did you use RadGrad?
4. Last semester, how many credits did you take?
5. Last semester, on average, how many hours a week did you work?
6. Please describe your work situation from last semester and how it related to ICS.
7. Last semester, what kind of extracurricular activities did you participate in?
8. Please describe your level of involvement in those extra curricular activities.
9. Where would you like to be in 5 years, regarding your career?
10. In the previous question, you stated where you would like to be in 5 years regarding your career. How do you plan to get to that place?
11. What kind of internship opportunities are you interested in?
12. How important do you think GPA is to job or internship recruiters?
13. when you think of career planning, what resources do you use?
14. Have you talked with any mentors about your opportunities in ICS? Were your mentors professors, ICS alumni, academic advisors or friends?
15. Was there a piece of advice you'd hear a lot from those mentors? If so, what is that advice?
16. Why did you choose to major in Computer Science?
17. Do you feel that your degree plan has no direction? If so why?
18. How often do you question why you are in college?
19. What do you think the purpose of RadGrad is?
20. Please describe how useful you find RadGrad for yourself, specifically.
21. Who do you see RadGrad being useful for?
22. Do you have any comments about RadGrad that you would like to share with me right now? Anything.

The results of the pilot study indicate that gamification, user experience and user interface may be the reason why student use of the system is low according to students in the low adoption group. However, only the pilot study has been completed due to disruptions by COVID-19 and 5 participants is too small of a sample size to make a conclusion. By concisely identifying low adoption reasons, this research can lead to RadGrad improvements, leading to an increase in users who will benefit from it, as RadGrad is to be launched to other departments in other colleges.

Due to social distancing guidelines in response to COVID-19, the study will no longer be administered through in-person interviews. The researchers are attempting to interview participants over the phone or through video chat, as those mediums may closely mimic the conditions of an in-person survey.

4 Bibliography

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