

DH2413 2020 Advanced Graphics and Interaction AGI2020 Course Analysis

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On 2021-05-12

Description of the course analysis process

The course instructor and examiner, Mario Romero, together with the course teaching assistant, Marko Petrovic, together analyzed the results of the course evaluation. They synthesized the main topics and included them in this report.

Changes introduced in 2020

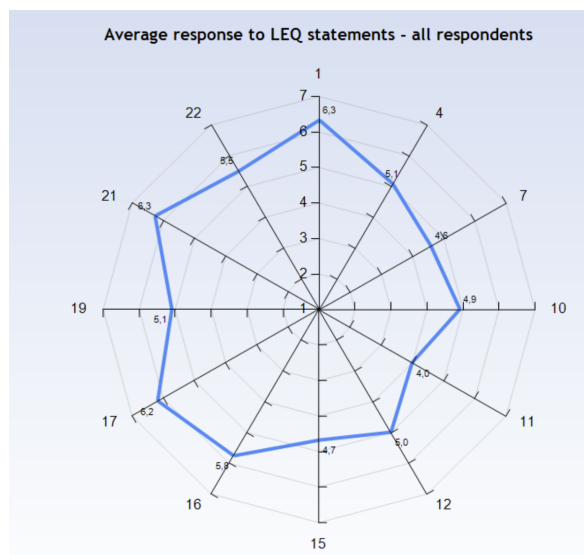
1. The course in 2019 had two group projects. To cope with the additional stress of the COVID19 pandemic, we decided to reduce the number of projects from two to one. This allowed the students to focus on their project. We redistributed the points to the first project onto the second project.
2. We introduced a graded spreadsheet documenting The Learning and Development of each student. We plan to replace this with a learning and contribution journal next year. The journal had a much better reception in the course DH2321.
3. We gave the course online through zoom and we recorded all the meetings and events so that the students can return to the media content and consume it at their own time and pace. This received very positive feedback and in fact the students requested that we continue to do this even after the pandemic.
4. We removed projects that used worn devices and touch interaction unless the hardware belonged to the students. So, we removed VR and heads up and head worn displays and we also eliminated hardware that included public touch interfaces such as tabletop interactive screens. The goal was to reduce risks of infection. Our plan at this moment is to plan for three scenarios in the fall 2021: 1) distant education in zoom; 2) mixed education with some students in the visualization studio and some in zoom; 3) all in the studio. We will adapt to the situation as things become clearer after the summer and the Swedish government continues to implement its vaccination strategy.

Comparing results with previous years

The main difference with previous years is that we have decreased the amount of work by removing one project and delivering lectures, seminars, and public presentations over zoom. All the education and evaluation happened at a distance.

Analysis of the course evaluation with planned developments for the next round of the course

The course is a 9HP course. Using 27 hours of work per credit, that amounts to 243 hours of work which, distributed over 17 weeks from week 35 to week 2 2021, gives approximately 14 hours of work per week. Students reported working 18.5 hours per week. One student stated in writing that they worked too much for a 9-credit course. We aim to reduce the reported 18.5 hours per week closer to the goal of 14 hours per week.



We ran the LEQ survey with 12 questions. All the LEQ survey statements were above 4.0, meaning all average entries are positive. The three statements we will focus on to analyze are 7, 11, and 15, which received the lowest scores, 4.6, 4.0 and 4.7 respectively. **Statement 15** is "I could practice and receive feedback without being graded." We gave the students the opportunity to practice and receive feedback without being graded but we asked the students to schedule time outside of class to do this. We also provided scheduled open office hours. Yet, most students did not take advantage of this opportunity. They seem to be under the impression this practice should happen within the course hours. Next year, we will explicitly schedule time with individual groups to provide feedback without grading and confirm every team member's participation. We will schedule short 15-minute meetings with the students and make sure that at least half of the team members are present and take copious notes to share with students

that are not there. The main point is that the students have an opportunity to share their work without being evaluated or graded.

The split averages by gender and by nationality of the students is not significantly different from the overall average and, thus, will remain marginal to this course analysis document.

Statement 7 is “The intended learning outcomes helped me to understand what I was expected to achieve”. The ILOs were created for pre-covid education. Before the pandemic students created and presented their projects in public events with large audiences that interacted with the prototypes. Students received copious feedback from participants and integrated this way back into their designs. This year we did not have an opportunity to interact with audiences and the students had a difficult time integrating the learning activities with the intended learning outcomes. In hindsight, we should have updated the ILOs to reflect the new reality of the pandemic. We will need to take this into account when we design AGI 2021. Another complication is that when presenting projects through Zoom only one project is presented at a time. Furthermore, that project only has a few seconds of feedback from only a few people. When we present to live audiences all the projects present at once in parallel and all the projects receive hundreds of minutes of feedback from tens to hundreds of people directly interacting with a prototype. The difference is overwhelming. If the course continues online we will have to adapt the learning outcomes and the activities to reflect the limitations of presenting projects one of the time through zoom.

Statement 11 says: “Understanding of key concepts had priority”. One of the challenges of teaching a course that requires significant hands-on interaction from both the students who are developing the project and guests who are participating as users testing and providing informal feedback to the projects is that the number of activities that need to happen in order to coordinate this event is very high. The effect of this complexity is that some of the key concepts are washed out. They are diluted in the vast array of complexities the students need to engage. When having live presentations to hundreds of people over thousands of minutes the reward is high. But when presenting to just a handful of people over just a few minutes and receiving just a few seconds of feedback the rewards are not clear. Similar to the previous point we need to adapt the activities that the students perform and focus them on the key concepts that they need to reinforce. We need to raise the priority of what it is that they should be engaged in and completely remove or reduce the priority of the actions they need to take in order to coordinate presentations and demonstrations. Again, this is an issue of balancing the reward on investment.

To the general question “what was the best aspect of the course?“, we received a number of replies. Here's a representative sample directly quoting the students:

- Building something interesting and concrete, a big addition to a portfolio.
- Att det var endast ett projekt som gruppen själva fick välja. Det gav en mycket tid till att utforska och lära sig något man själv ville lära sig. [That it was only a project that the group themselves had to choose. It gave a lot of time to explore and learn something you wanted to learn.].
- Working with interesting topic and given a lot of time (two periods) to really dig deep into a specific topic!
- The freedom of doing whatever project felt the most inspiring to the group. Also that we got a chance to find like-minded students for the project, it broke the pattern of either being in randomized groups or just choosing your friends.
- Doing an interesting project with skilled people.
- Was really fun to create a project within a new interaction medium that I have not worked with before.
- The best aspect was the intention of learning as much as possible in regards to graphics and interaction. Also the course line-up was very good and made it possible for a lot discussions and feedbacks. Even though covid was in the way and restricted the course a lot from what it used to be, I thought it worked. Although a bit too much administrative work for every individual which made it more stressful to find time for everything, at least in the beginning of the course.
- Working on a single project for a long period of time.
- Being able to decide your own project, it meant you'd work on something interesting.

For the question “What would you suggest to improve?“, we have a number of answers which we synthesize below.

One advice given by the students is to limit the scope of the project so that people become experts on a similar topic and when providing peer feedback can be more effective. This is an interesting suggestion, but in the opinion of the course leaders there is an issue of a trade-off. By having a broad spectrum of projects students from different groups are able to have indirect experiences and broaden their knowledge. Within their project they go deep. Across projects they go abroad.

One common point of critique was the method that we deployed for reporting time spent on tasks. Many students report being stressed and venting time on administrative tasks without actual learning. We aim to address this concern by removing the spreadsheet where people report their time and replacing it with I'm learning and

contributions Journal which we have tested in the course DH2321 information visualization. The experience in that course is much more positive. Rather than tracking time, students keep a record of what they have done, how that has contributed to the project, and what these activities have contributed to their learning.

The text below paraphrases the comments from the students.

- In the beginning of the course there were a lot of short interval deadlines showcasing the progress of the project, in-between which it did not feel like we had time to do much progress but knew it was expected. The course improved massively during the semester, so it just got better at adapting to the digital space. The micromanagement was too high in the start. Less sprint videos, less review, comments on time tracking felt weird when it was on individual slots. Also clarity was lacking. Halfway through it was hard to know what tasks were still relevant and what tasks were removed.
- Drive home in the course page (i.e. before the students pick the course) that students are basically forced to work only in AR/VR. It's not "advanced graphics and interaction" in general, it's a AR/VR course.
- Have reasonable assignments. Teachers had to reduce the work for students multiple times because it was unthought-through amounts to start with, that simply hampered learning through useless, unnecessary filler work. Instead of weekly spam of videos and peer reviews, have say 4-6 over the semester that are more thought through and useful.
- Well, more structure of the administrative work and time tracking.
- The course doesn't have any concrete learning resources.
- While the focus of the course on group work and peer reviews is nice it could benefit from some actual lectures by guest lecturers and some lab exercises or workshops.
- I think the course only allows students to explore limited parts of graphics and/or interaction; for example, someone who's into lower-level graphics would not get anything out of this course, same for someone who's not into VR or AR.

For the question "What advice would you like to give to future participants?", we list all the answers as we find all them valuable.

- This is the kind of course where you can show off what you are best at, so focus on making something in an area where you are already comfortable. If you want to learn something new, start in advance, you don't want to spend all your time learning new stuff rather than developing and making it happen
- Välj ett projekt som intresserar dig![Choose a project that you find interesting!]
- Try to overlook the time report and focus on learning! The course provides the possibility to dig deep into a specific topic and lets you learn more about pretty

much whatever you want! So take advantage of the possibilities and freedom in the course.

- Be ready to give it a lot of time, and if possible start the course with an idea of what you are interested in doing. Be quick in low-fi prototyping and brainstorming.
- Create something fun!
- Don't start with a key feature that you feel is essential for the project late in the course progression.
- Understand what you're getting into. The projects are fun, but you won't be able to do anything you want, and there is not a lot of support if you get stuck

Finally, to the question "is there anything else you would like to add?" Oh, we included some representative replies and also those that we found particularly encouraging.

- The distance was also a bit challenging because this course feels like a "physical" and interactive course, I know this year was very different from previous years, it was just unfortunate having to take it at distance rather than at campus. However, I believe the course administrators structured the course well with regards to the surrounding restrictions etc. and adjusted well by communicating with the students!
- Thank you for this course! It has been a great learning experience both theoretical and with secondary learning outcomes such as time management, communication, motivation and more!
- I think you should either expand the course to other topics than AR/VR, or clarify what it is and isn't about in the course description