

DH2323 VT21 Course Analysis  
Computer Graphics and Interaction 6,0hp  
84 students (received credits), 15 LEQ respondents

DH2323 focusses on intermediate level computer graphics and interaction programming using C++ and libraries and game technologies, such as OpenGL and the Unity game engine. Students must pass labs (P/F: 3,0hp) and their final grade is then determined through their performance on a project (A-F, 3,0hp).

Summary of course changes

Adopted a flipped classroom approach to lectures. Lectures were pre-recorded and uploaded to Canvas well ahead of a live Zoom Q&A session in which a summary of the lecture was presented following by questions and answers and an introduction to the next lecture.

Introduction of a Unity lab track, with the eventual intention of having it replace the current animation lab track

Overview

Aspect	Feedback and action
<p>The flexibility of submitting the assignments and projects together on one assigned date gave me the opportunity to divide the workload easily</p> <p>The freedom of choosing which lab track to do</p> <p>Great that you could choose lab track and project from your own interest. The lectures was good and informative. The freedom of planning your own time and when to do assignment (one deadline at the end of the course)</p>	<p>Thanks again for your support in the general structure and philosophy behind the course. We note that with freedom comes responsibility: this relates to time-planning, conducting the labs, the project specification process as well as implementing the project itself. Since students from many programmes typically take this course, we are aware that there will likely be different spikes in workload across the cohort. These skills are also important to develop for Master thesis work and beyond university. We advise you to use the freedom to choose your own project as a way not only to engage yourself in computer graphics and interaction, but also to use as a demonstrator for your employability skills portfolio.</p>
<p>I appreciated the structure of the lectures. Because there was scheduled time to check the pre-recorded lectures directly after the "question sessions" via Zoom, you were encouraged to actually sit down and watch them live. It made you stick with it phase with the lectures.</p>	<p>The structure of the lectures seemed to work very well for some students, but not as well for others. Engagement in the Q&amp;A sessions was low compared to engagement in the lectures.</p>
<p>That you had introduced a Unity lab-track. The choice of doing the labs. I could choose whether I want to do Unity track or the "regular" track.</p> <p>Update the labs.</p>	<p>Thanks for your supportive responses for the new Unity track. Our intention, once we fully trial the lab, is to remove the SDL animation lab track, which was causing problems for some students. This will most likely not happen until after the next course round in order to ensure the Unity lab track works well for everyone.</p>
<p>There was a big lack of instructions for the labs on a Mac computer, we intended to do a</p>	<p>Due to the nature of the labs, some computer operating systems and set-ups will have far more</p>

different lab track but changed because the set-up instructions for mac were not sufficient	difficulties with the labs than others. It is not easy to tell in advance. For this reason, we have introduced the Unity lab – there are usually less issues with Unity on MacOS since it is an established and updated engine.
There is a lot of redundancy with the content of the course Introduction to Computer Graphics and Visualization that we are supposed to take before.	Since DH2320 is not mandatory, we questionnaires, we have found that there is roughly a 50% split every year between those who have taken DH2320 as advised and those who have not. Usually, most have not taken DH2320. For those who have taken DH2320, our advice is to invest as much time in the project as possible. As mentioned throughout the course, the project can be started as early as you like and we will always give feedback and facilitation, no matter when you come to us.
Physical learning is way better than online learning. It motivates us differently and you stay active in a course throughout the period  I would suggest that there should be physical labs which will help us to learn more practically rather than online labs	We agree. Unfortunately the course structure has largely been determined by the pandemic. We will investigate a better split of in-person versus online teaching for when that is possible.
Some issues with Teaching Assistants. I liked the preliminary lab-system but please try and get back with feedback earlier	The entire TA team were new to the course this year, but now that they have experience in the course we hope to have a faster turnaround and improved ability for them to help with your lab and project questions.

### Details

A number of large changes were made to the course structure this year with the aim of better supporting online learning that was necessitated due to the Pandemic. Especially, a flipped classroom approach to lectures was adopted: lectures were pre-recorded and uploaded to Canvas well ahead of a live Zoom Q&A session, in which a summary of the most important aspects of the lecture was presented live followed by an interactive questions and answers session and an introduction to the next lecture.

While typically the course team try to avoid large changes to the course over a single course round, this represented a large change to course structure. Generally, feedback indicated that students appreciated the structure of the lectures, with one insightful comment:

*"I appreciated the structure of the lectures. Because there was scheduled time to check the pre-recorded lectures directly after the "question sessions" via Zoom, you were encouraged to actually sit down and watch them live. It made you stick with it phase with the lectures. It also meant that you had a couple of days to reflect on the material until the rehearsal/question time via Zoom. Although few took advantage of the question time to ask questions, it was good that the opportunity existed and I did not think that did something that we rather spent the whole time in rehearsal. It meant that you actually learned"*

However, while all LEQ scores remained quite high (min: 5.1/7.0), **all** of them were lower than in the previous 2020 course round. It was also noticed that fewer students attended the live Q&A sessions than attended the lectures in the previous year. There were also some comments about this in the

evaluation in which students appreciated the freedom of the online lecture materials, but many did not then go to the Q&A sessions. Therefore, it should be expected that students like the commenter above who followed the flipped classroom pattern had a good experience on the course, but many students did not do this. This is supported by the results of additional questions added in the LEQ by the course team about online recordings. While feedback generally supported the comments above (e.g. "Excellent and efficient"), there were also comments that suggested that, for others, the recorded videos made it a lot less likely that students would attend the Q&A sessions. The Q&A sessions were really based on active student participation, and as noted above, many students did not have questions about lecture material. This may have been because of online nature of the sessions. So while student engagement in the course in one sense was high, it really centred on the pre-recorded videos, while engagement seemed lower with respect to live interactions with the teacher. For this reason, the timing of the release of the recorded lectures or other incentives to go to the Q&A sessions will need to be evaluated, keeping in mind that there are substantial help sessions already in the course in which students can get feedback.

As teaching hopefully starts to move back to the classroom, an important further question relates to what mix of online versus hybrid approaches should be adopted in the course in relation to the lectures (the lab and project parts of the course are already flipped and that has generally always worked well).

LEQ Course evaluation data follows:

## DH2323 - 2021-05-28

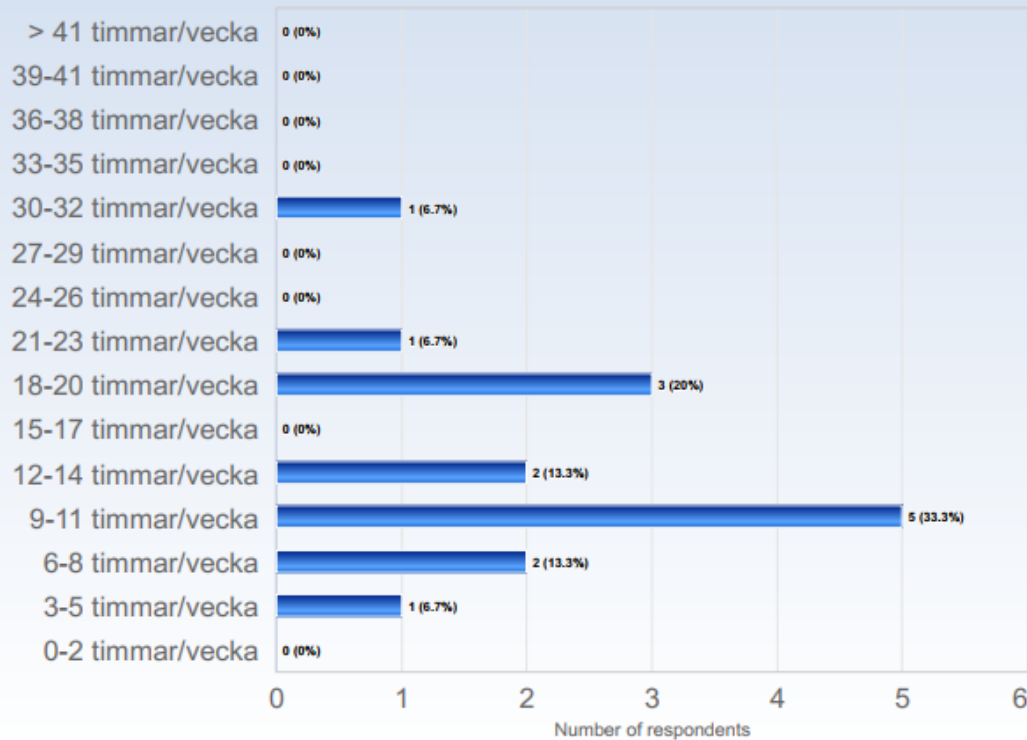
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Svarsfrekvens: 13,51 %

### ESTIMATED WORKLOAD

On average, how many hours/week did you work with the course (including scheduled hours)?



## LEARNING EXPERIENCE

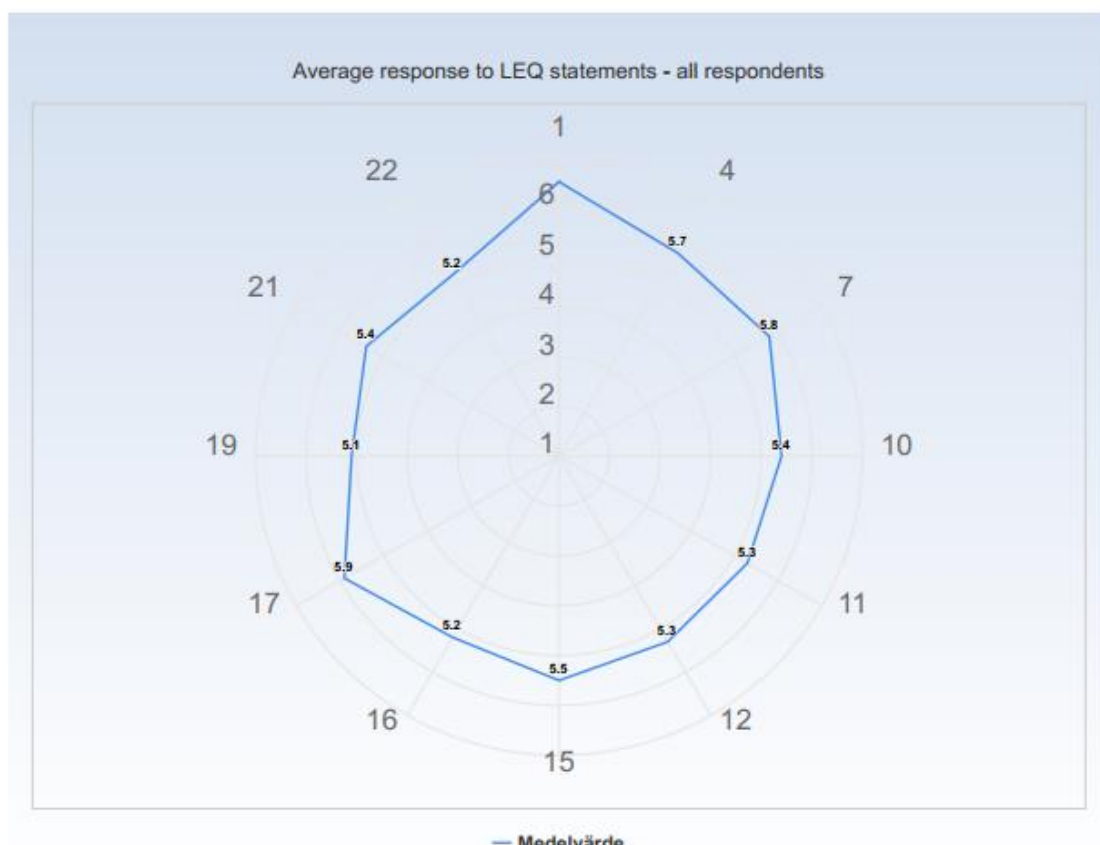
The polar diagrams below show the average response to the LEQ statements for different groups of respondents (only valid responses are included). The scale that is used in the diagrams is defined by:

1 = No, I strongly disagree with the statement

4 = I am neutral to the statement

7 = Yes, I strongly agree with the statement

**Note! A group has to include at least 3 respondents in order to appear in a diagram.**



## **KTH Learning Experience Questionnaire v3.1.4**

### **Meaningfulness - emotional level**

#### *Stimulating tasks*

1. I worked with interesting issues (a)

#### *Exploration and own experience*

2. I explored parts of the subject on my own (a)
3. I was able to learn by trying out my own ideas (b)

#### *Challenge*

4. The course was challenging in a stimulating way (c)

#### *Belonging*

5. I felt togetherness with others on the course (d)
6. The atmosphere on the course was open and inclusive (d)

## **Comprehensibility - cognitive level**

### *Clear goals and organization*

- 7. The intended learning outcomes helped me to understand what I was expected to achieve (e)
- 8. The course was organized in a way that supported my learning (e)

### *Understanding of subject matter*

- 9. I understood what the teachers were talking about (f)
- 10. I was able to learn from concrete examples that I could relate to (g)
- 11. Understanding of key concepts had high priority (h)

### *Constructive alignment*

- 12. The course activities helped me to achieve the intended learning outcomes efficiently (i)
- 13. I understood what I was expected to learn in order to obtain a certain grade (i)

### *Feedback and security*

- 14. I received regular feedback that helped me to see my progress (j)
- 15. I could practice and receive feedback without being graded (j)
- 16. The assessment on the course was fair and honest (k)

## **Manageability - instrumental level**

### *Sufficient background knowledge*

17. My background knowledge was sufficient to follow the course (f)

### *Time to reflect*

18. I regularly spent time to reflect on what I learned (l)

### *Variation and participation*

19. The course activities enabled me to learn in different ways (m)

20. I had opportunities to influence the course activities (m)

### *Collaboration*

21. I was able to learn by collaborating and discussing with others (n)

### *Support*

22. I was able to get support if I needed it (c)



## **Learning factors from the literature that LEQ intends to examine**

We tend to learn most effectively (in ways that make a sustained, substantial, and positive influence on the way we think, reflect, act or feel) when:

- a) We are trying to answer questions, solve problems or acquire skills that we find interesting, exciting or important
- b) We are able to speculate, test ideas (intellectually or practically) and learn from experience, even before we know much about the subject
- c) We are able to do so in a challenging and at the same time supportive environment
- d) We feel that we are part of a community and believe that other people have confidence in our ability to learn
- e) We understand the meaning of the intended learning outcomes, how the environment is organized, and what is expected of us
- f) We have adequate prior knowledge to deal with the current learning situation

g) We are able to learn inductively by moving from concrete examples and experiences to general principles, rather than the reverse

h) We are challenged to develop a true understanding of key concepts and gradually create a coherent whole from the content

i) We believe that the work we are expected to do will help us to achieve the intended learning outcomes

j) We are able to try, fail, and receive feedback before, and separate from, each summative assessment of our efforts

k) We believe that our work will be considered in an honest and fair way

l) We have sufficient time for learning and devote the time needed to do so

m) We believe that we have control over our own learning, and not that we are being manipulated

n) We are able to collaborate with other learners struggling with the same problems

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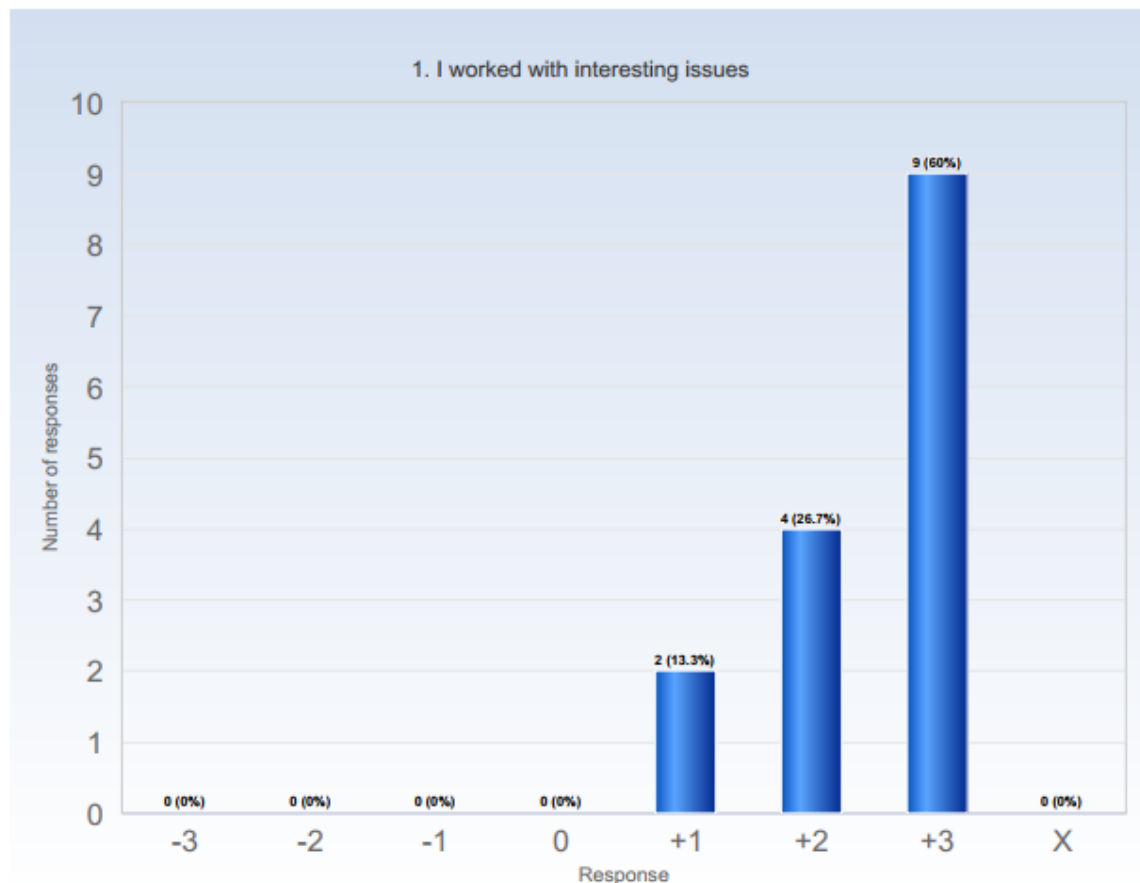
## RESPONSE DATA

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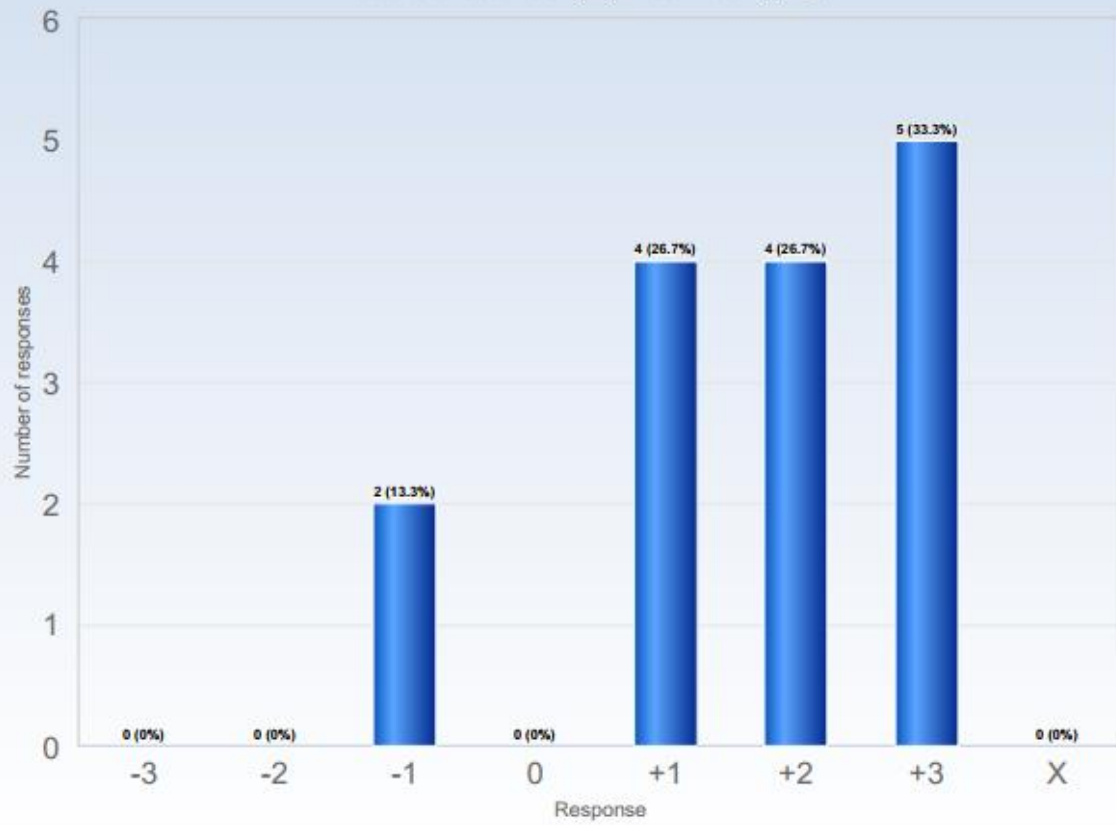
The diagrams below show the detailed response to the LEQ statements.  
The response scale is defined by:

-3 = No, I strongly disagree with the statement  
0 = I am neutral to the statement  
+3 = Yes, I strongly agree with the statement

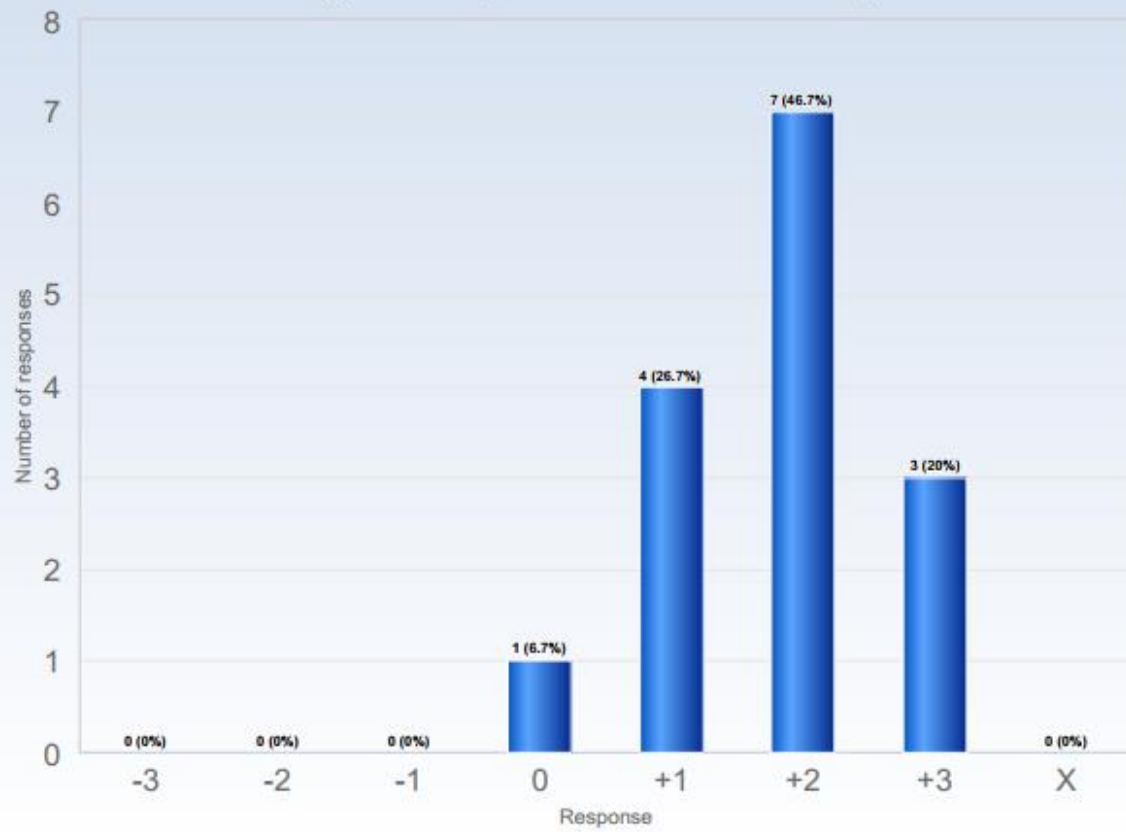
X = I decline to take a position on the statement



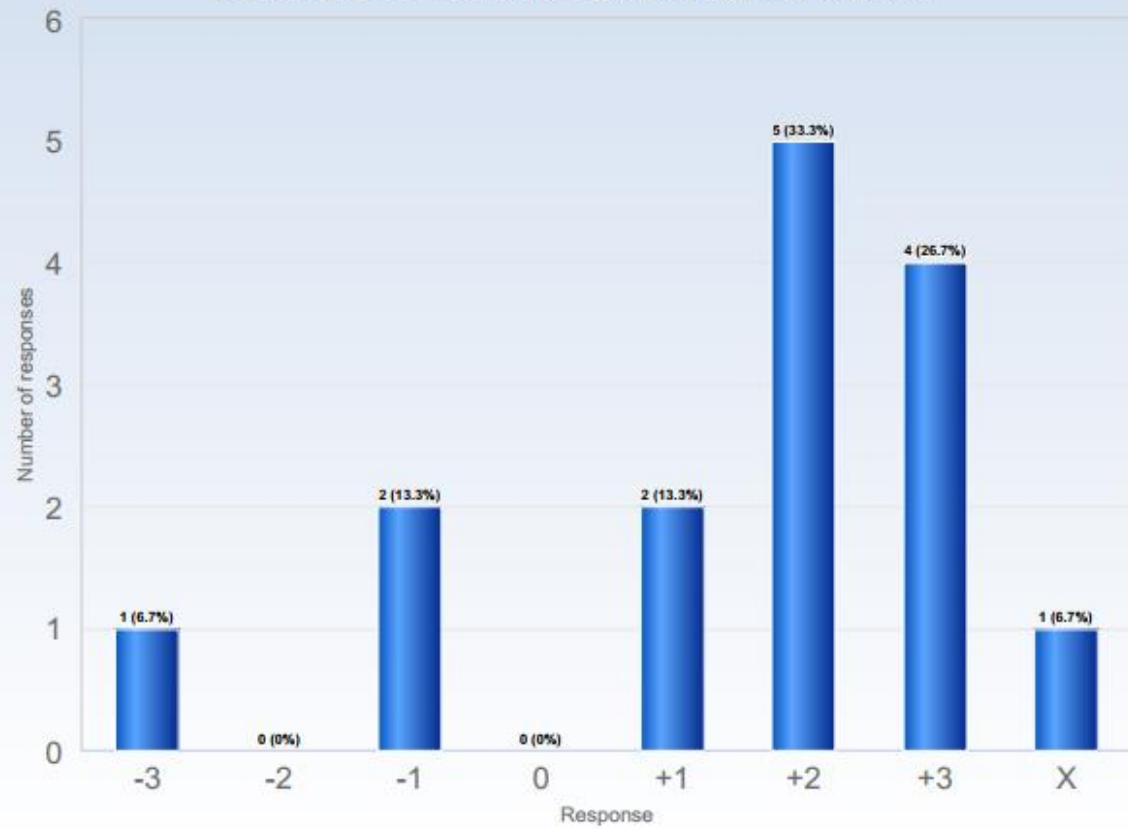
4. The course was challenging in a stimulating way



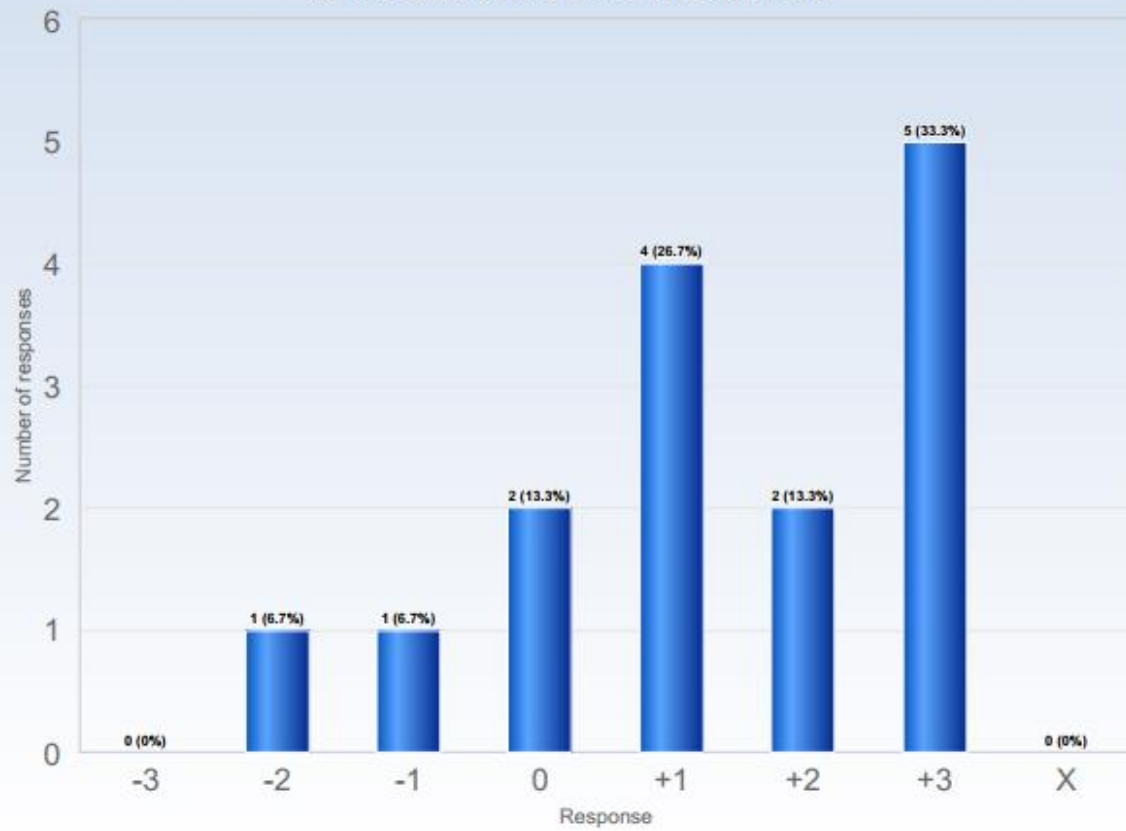
7. The intended learning outcomes helped me to understand what I was expected to achieve



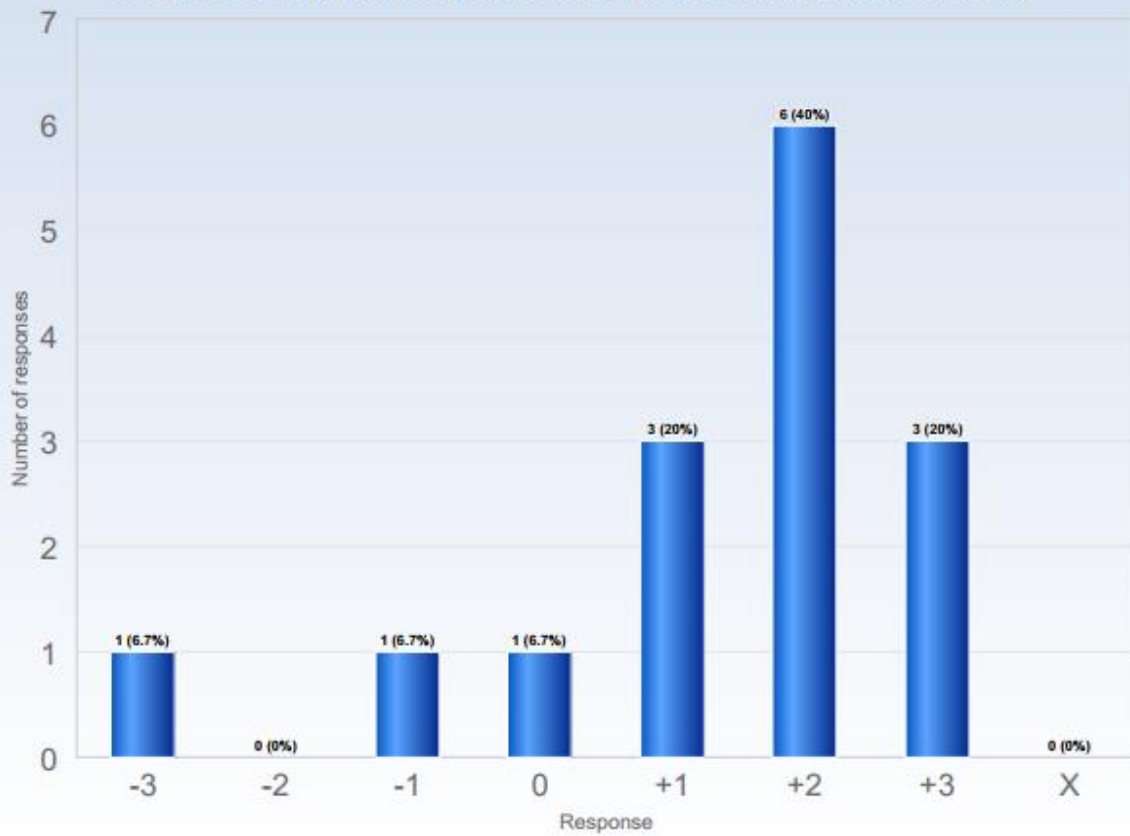
10. I was able to learn from concrete examples that I could to relate to



11. Understanding of key concepts had high priority

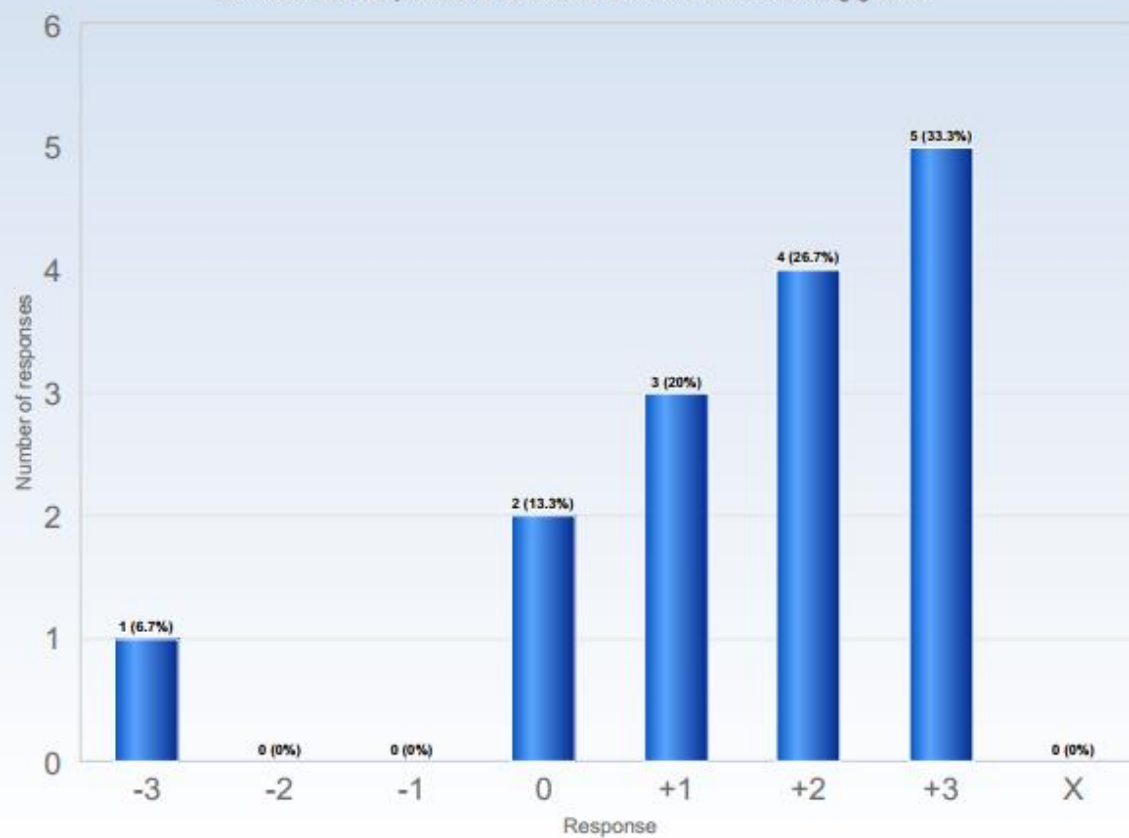


12. The course activities helped me to achieve the intended learning outcomes efficiently

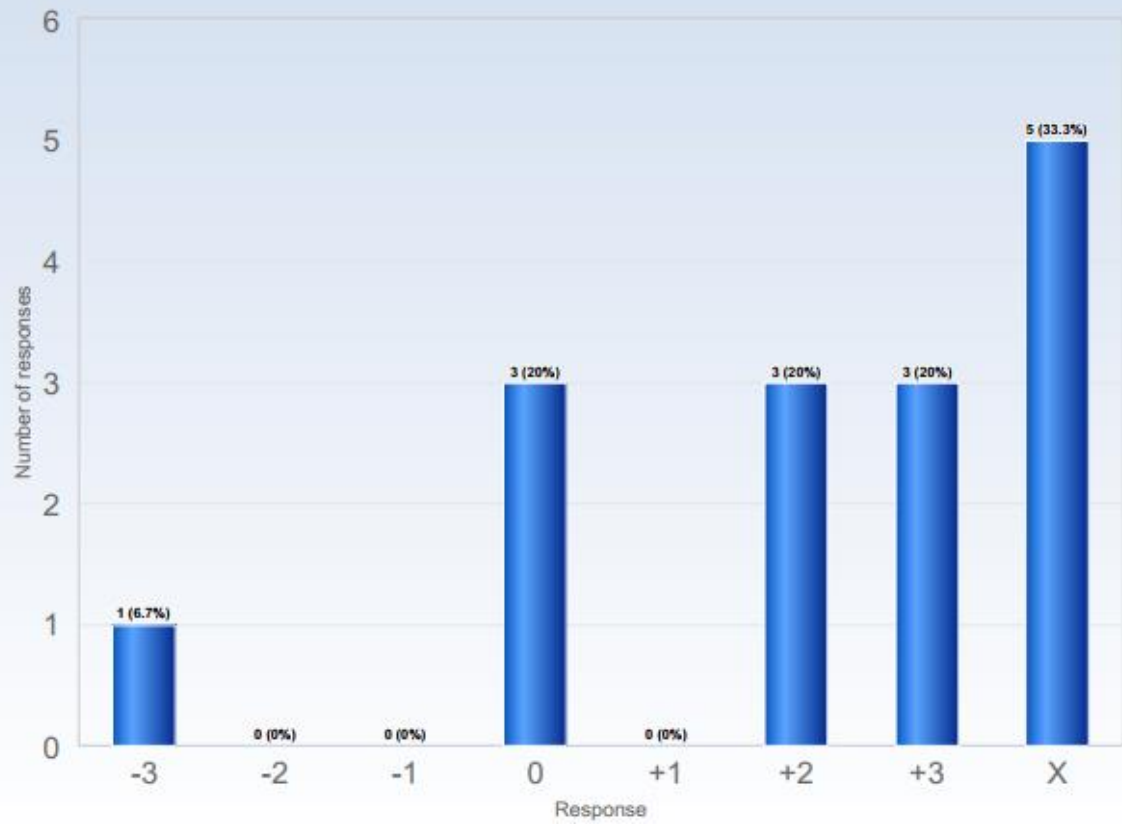




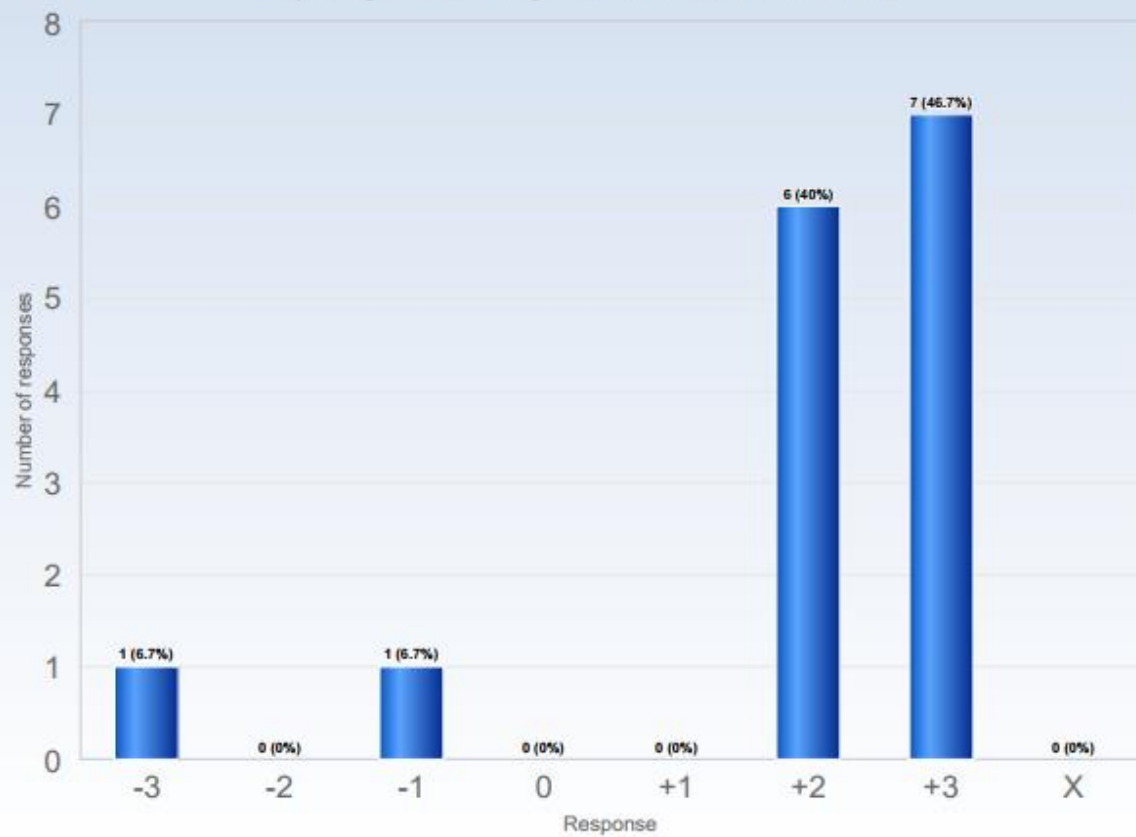
15. I was able to practice and receive feedback without being graded



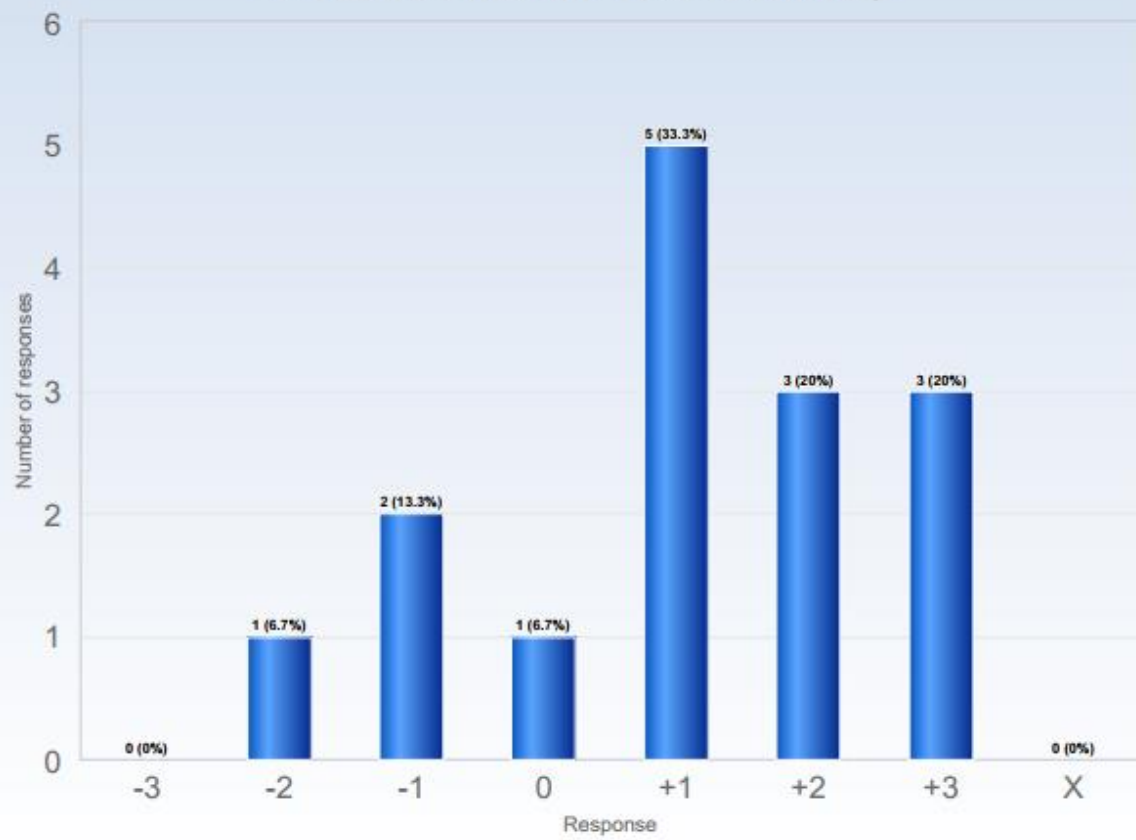
16. The assessment on the course was fair and honest



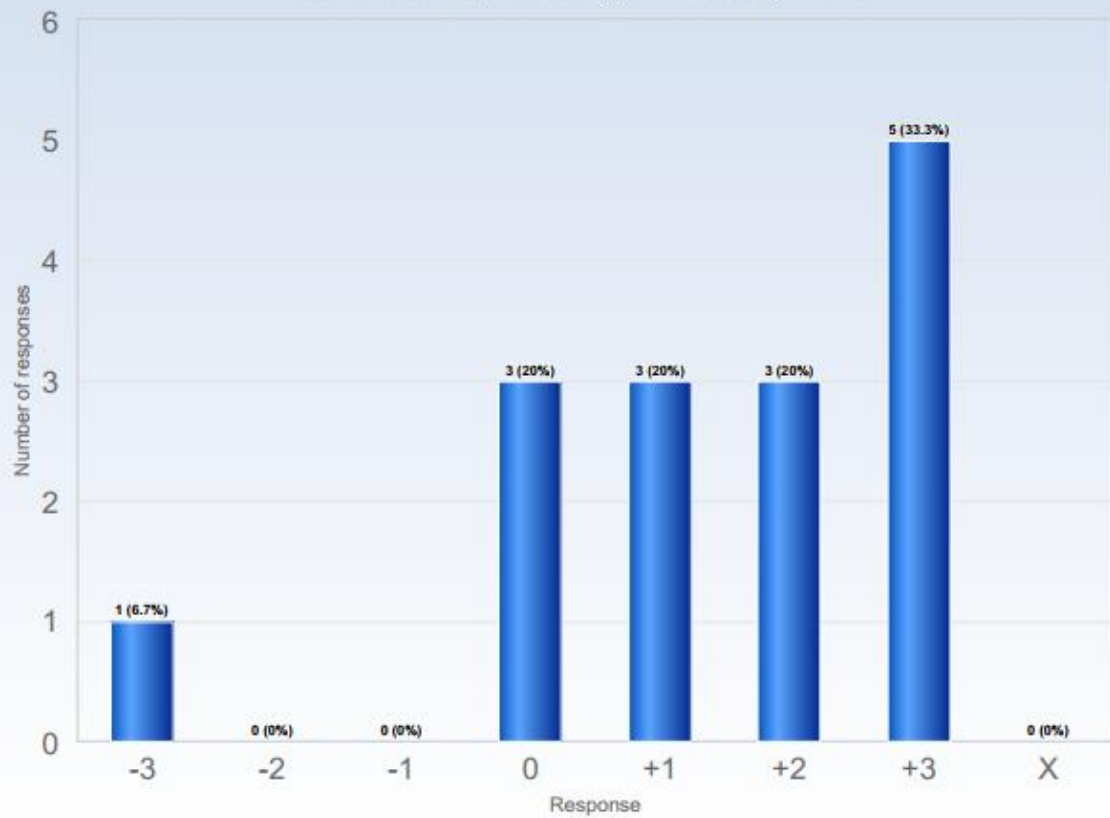
17. My background knowledge was sufficient to follow the course



19. The course activities enabled me to learn in different ways



21. I was able to learn by collaborating and discussing with others



22. I was able to get support if I needed it

