Report - EQ2300 - 2022-09-20

Respondents: 1
Answer Count: 1
Answer Frequency: 100.00%

Please note that there is only one respondent to this form: the person that performs the course analysis.

Course analysis carried out by (name, e-mail):

Joakim Jaldén, jalden@kth.se

DESCRIPTION OF THE COURSE EVALUATION PROCESS
Describe the course evaluation process. Describe how all students have been given the possibility to give their opinions on the course. Describe how aspects regarding gender, and disabled students are investigated.

The course was evaluated using the LEQ (attached) survey. Students were encouraged to form a course evaluation committee but none of the students volunteered.

DESCRIPTION OF MEETINGS WITH STUDENTS
Describe which meetings that has been arranged with students during the course and after its completion. (The outcomes of these meetings should be reported under 7, below.)

There were no meetings with students to discuss the course design.

COURSE DESIGN
Briefly describe the course design (learning activities, examinations) and any changes that have been implemented since the last course offering.

The course uses flipped classroom based on 10 video lectures of approximately 45 minutes duration and split into several shorter clips, followed by concept questions led by the teacher. There are also 12 tutorial sessions, a project assignment reported with a written report, and a laboratory exercise that builds on the project. The examination is via the project, lab, and a written exam at the end of the course. The course design was not changed for 2021.

THE STUDENTS' WORKLOAD
Does the students' workload correspond to the expected level (40 hours/1.5 credits)? If these is a significant deviation from the expected, what can be the reason?

Students report anywhere from 9 to 23 hours per week, which is reasonable given that the course is 7.5hp. This is also in line with prior years.

THE STUDENTS' RESULTS
How well have the students succeeded on the course? If there are significant differences compared to previous course offerings, what can be the reason?

The passing rate of the course was 72.4 percent.

STUDENTS´ANSWERS TO OPEN QUESTIONS
What does students say in response to the open questions?

See attached course evaluation for the full set or replies to open questions.

SUMMARY OF STUDENTS' OPINIONS
Summarize the outcome of the questionnaire, as well as opinions emerging at meetings with students.

The students are generally happy with the course, but it is hard to get a good overview, given the low response rate to the LEQ. One student wishes to see more laboratory moments, and another asks for more examples.

OVERALL IMPRESSION
Summarize the teachers' overall impressions of the course offering in relation to students' results and their evaluation of the course, as well as in relation to the changes implemented since last course offering.

The course has been developed over time and utilized flipped classroom teaching since 2013. A new lab, with hardware built during a summer internship, has been in use since 2018. Overall the course is running well, and only small changes are needed from year to year.

ANALYSIS
Is it possible to identify stronger and weaker areas in the learning environment based on the information you have gathered during the evaluation and analysis process? What can the reason for these be? Are there significant difference in experience between:
- students identifying as female and male?
- international and national students?
- students with or without disabilities?

There is too little data to address this question with any reliability.

PRIORITIZED COURSE DEVELOPMENT
What aspects of the course should be developed primaily? How can these aspects be developed in short and long term?
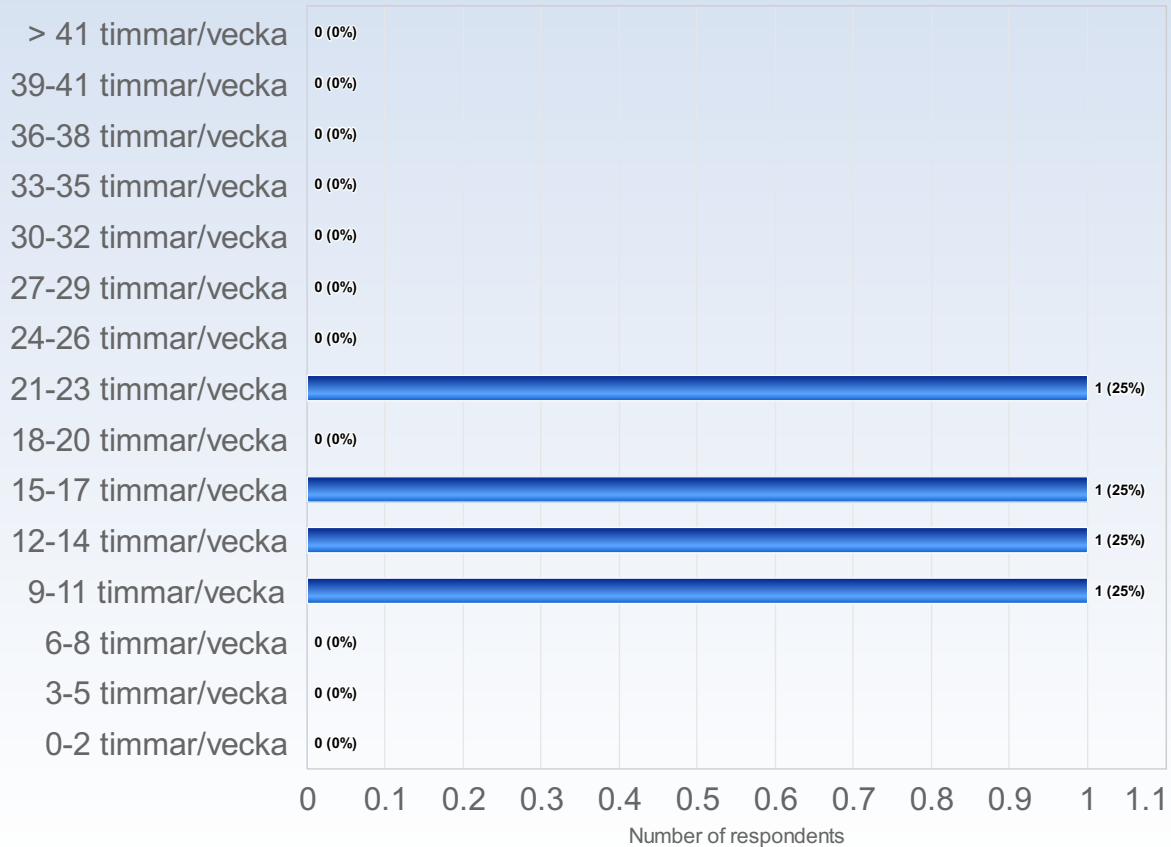
The most prioritized change needed would be to update the tutorial problems to align them more with the material used for the video lectures and the concept quizzes used during the teacher-led activities. At some point, it would be valuable to modernize the videos, but given the effort required for this, it will have to happen over the course of several years.

EQ2300 - 2022-02-22

Antal respondenter: 31
Antal svar: 5
Svarsfrekvens: 16,13 %

ESTIMATED WORKLOAD

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

Category	Respondents
> 41 timmar/vecka	0 (0%)
39-41 timmar/vecka	0 (0%)
36-38 timmar/vecka	0 (0%)
33-35 timmar/vecka	0 (0%)
30-32 timmar/vecka	0 (0%)
27-29 timmar/vecka	0 (0%)
24-26 timmar/vecka	0 (0%)
21-23 timmar/vecka	1 (25%)
18-20 timmar/vecka	0 (0%)
15-17 timmar/vecka	1 (25%)
12-14 timmar/vecka	1 (25%)
9-11 timmar/vecka	1 (25%)
6-8 timmar/vecka	0 (0%)
3-5 timmar/vecka	0 (0%)
0-2 timmar/vecka	0 (0%)

Number of respondents

Comments

Comments (I worked: 9-11 timmar/vecka)

Workload is very comfortable. Not to much, but not too little as well

Comments (I worked: 21-23 timmar/vecka)

It was a good course 20 hours per week with increased workload on same weeks is OK.
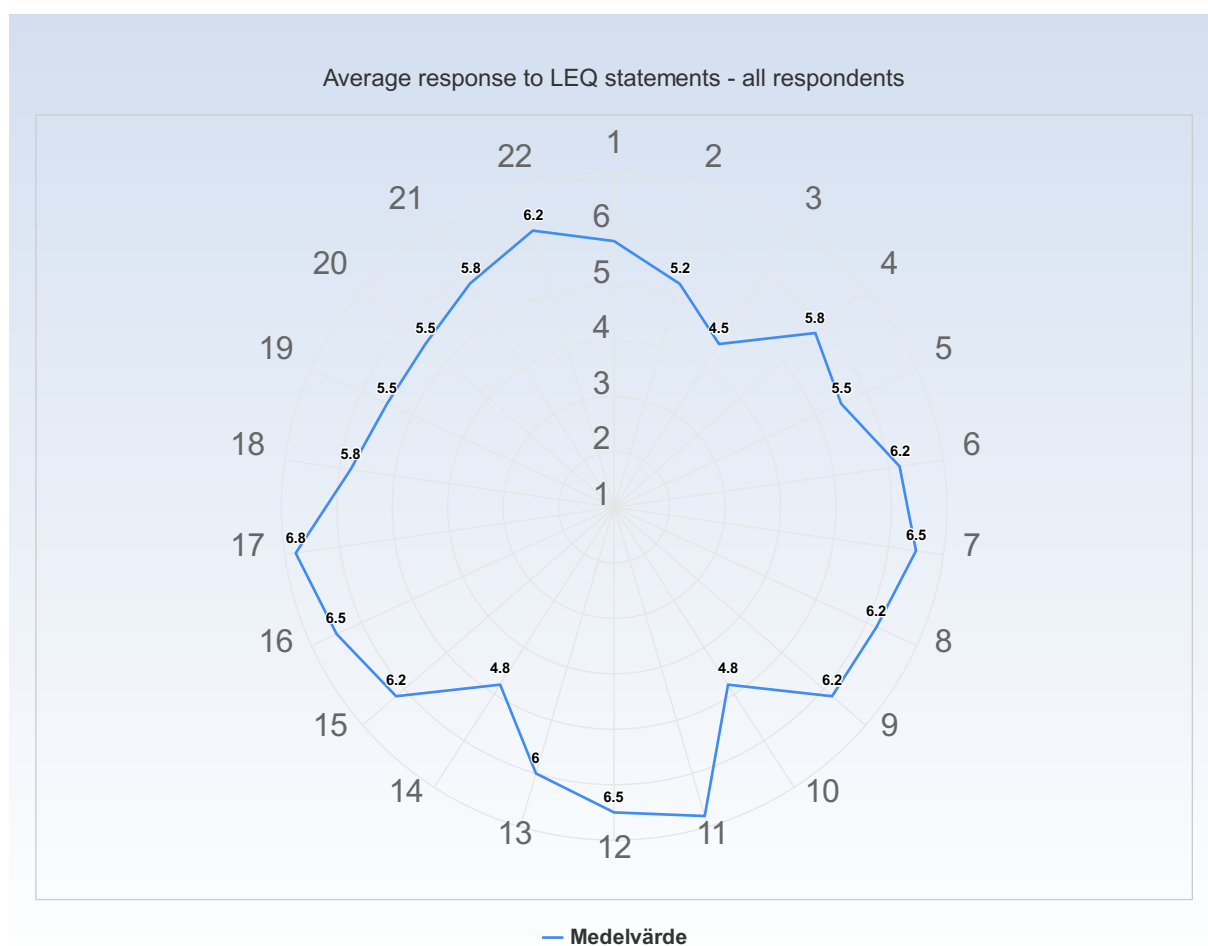
LEARNING EXPERIENCE

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.

Average response to LEQ statements - all respondents

— Medelvärde

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

Literature

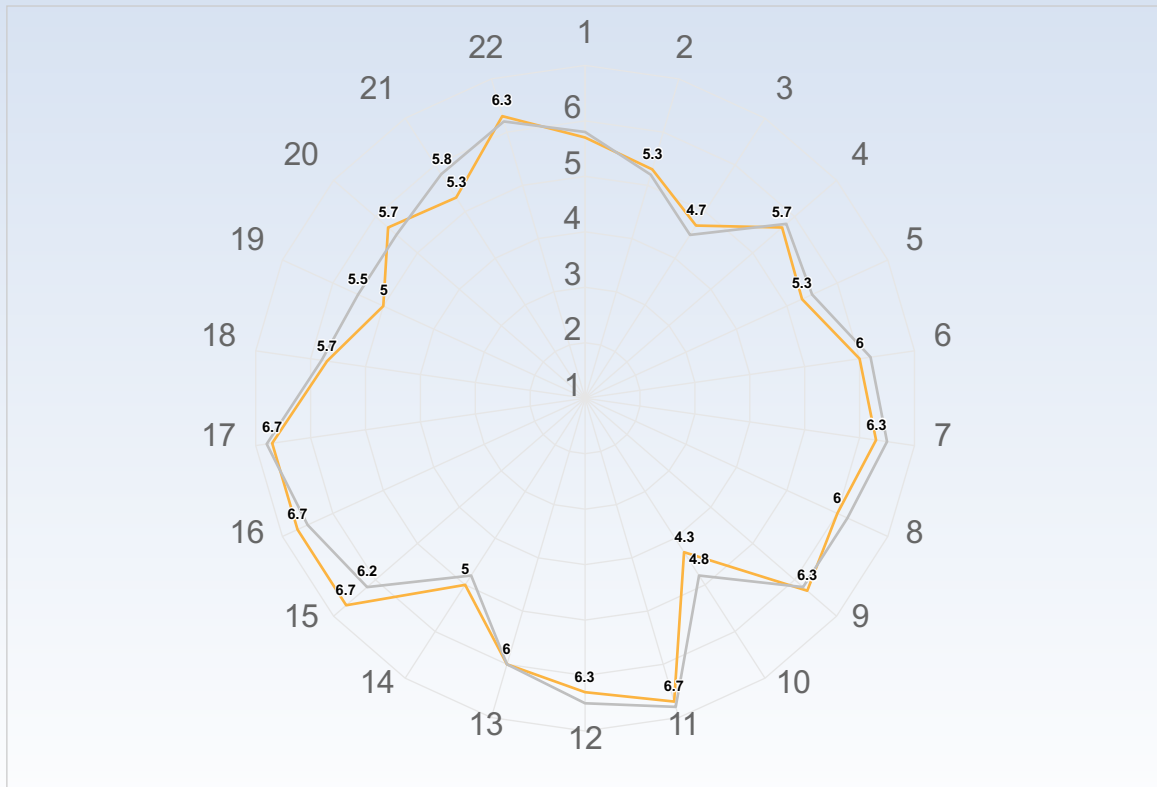Bain, K. (2004). *What the Best College Teachers Do*, Chapter 5, pp. 98-134. Cambridge: Harvard University Press.

Biggs J. & Tang, C. (2011). *Teaching for Quality Learning at University*, Chapter 6, pp. 95-110. Maidenhead: McGraw Hill.

Elmgren, M. & Henriksson, A-S. (2014). *Academic Teaching*, Chapter 3, pp. 57-72. Lund: Studentlitteratur.

Kember, K. & McNaught, C. (2007). *Enhancing University Teaching: Lessons from Research into Award-Winning Teachers*, Chapter 5, pp. 31-40. Abingdon: Routledge.

Ramsden, P. (2003). *Learning to Teach in Higher Education*, Chapter 6, pp. 84-105. New York: RoutledgeFalmer.

Average response to LEQ statements - per gender

Legend: Kvinna — Man — Annat — Vill ej uppge — (Answered)

Values shown on chart:
- 1: 6.3
- 22: 5.8, 5.3
- 21: 5.7
- 20: 5.5, 5
- 19: 5.7
- 18: 6.7
- 17: 6.7
- 16: 6.2, 6.7
- 15: 5
- 14: 6
- 13: 6.3
- 12: 6.7
- 11: 4.3, 4.8
- 10: 6.3
- 9: 6
- 8: 6.3
- 7: 6
- 6: 5.3
- 5: 5.7
- 4: 4.7
- 3: 5.3

Comments

Comments (I am: Man)

   I wasn't the only male, there where other males as well.

Average response to LEQ statements - per type of student

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

6 5 4 3 2 1
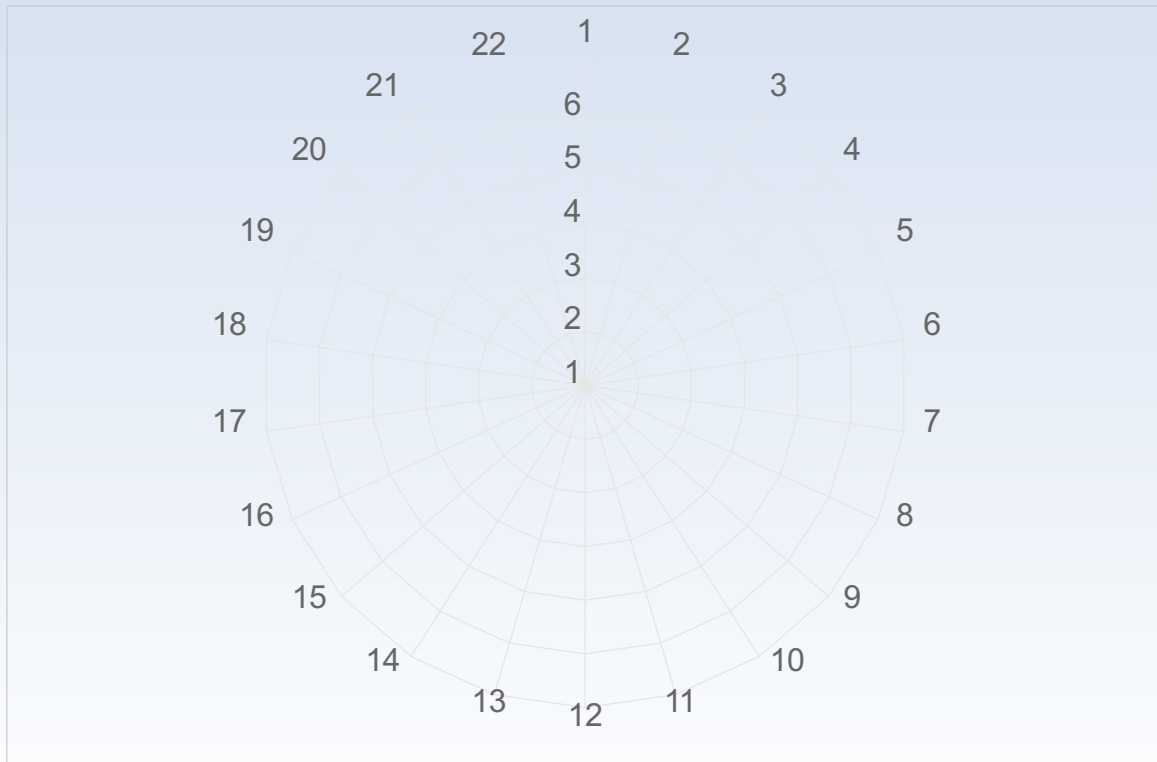
— **Internationell masterstudent**　　— **Internationell utbytesstudent**　　— **Svensk student i årskurs 1-3**
— **Svensk student i årskurs 4-5**　　— **Annan typ av student**　　— **Vill ej uppge**

Comments

Comments (I am: Internationell masterstudent)
　I am an international masters student, I swear! please believe me I'm begging you

Comments (I am: Svensk student i årskurs 4-5)
　I had enough background so that was good.

Average response to LEQ statements - per disability
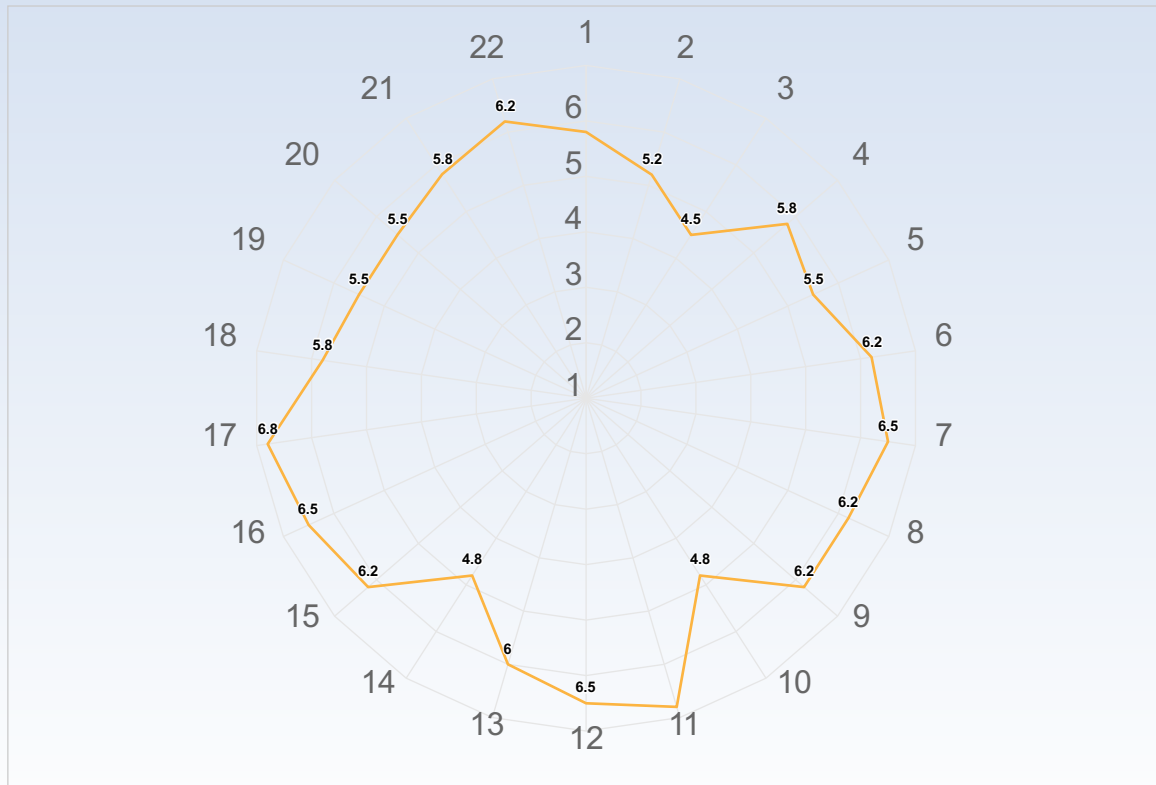
Legend: — Ja   — Nej   — Vill ej uppge

GENERAL QUESTIONS

What was the best aspect of the course?

What was the best aspect of the course? (I worked: 9-11 timmar/vecka)
The reflection lectures were very insightful

What was the best aspect of the course? (I worked: 12-14 timmar/vecka)
The project! The report and the lab helped me gain a lot of understanding of how it all goes together.

What was the best aspect of the course? (I worked: 21-23 timmar/vecka)
The videos were very good, the course was structured very well, the course load was good, a good teacher

What would you suggest to improve?

What would you suggest to improve? (I worked: 9-11 timmar/vecka)
Even though the recorded lectures were already pretty good, they could be even better (think 3blue1brown like animations) ;) I know thats a lot of work, but if you include that, you would get pretty close to teaching the perfect course

What would you suggest to improve? (I worked: 15-17 timmar/vecka)
Perhaps some more examples presented during the lectures since the youtube videos is only theory.

What would you suggest to improve? (I worked: 21-23 timmar/vecka)
The lab could be funnier and perhaps more labs. More focus should be on hands-on labs instead of the exam I think. The exam has too much 'hp'.

What advice would you like to give to future participants?

What advice would you like to give to future participants? (I worked: 9-11 timmar/vecka)

Prepare for the reflection lectures by waching the videos and/or reading the relevant book chapters, that way you will really profit from going there

What advice would you like to give to future participants? (I worked: 12-14 timmar/vecka)

Go trough the material in advance! It really helps one to understand what you know and don't know when we got to the clicker questions in class!

What advice would you like to give to future participants? (I worked: 15-17 timmar/vecka)

Attend the classroom lectures

What advice would you like to give to future participants? (I worked: 21-23 timmar/vecka)

Take the course if you are interested in DSP. The course gives some intuition for FFT which is an important tool to know. So I would take the course just for that. However, other concepts such as quantization, downsampling/upsampling were also interesting. Perhaps a little monotone course but gives good knowledge for future studies.

SPECIFIC QUESTIONS

RESPONSE DATA

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
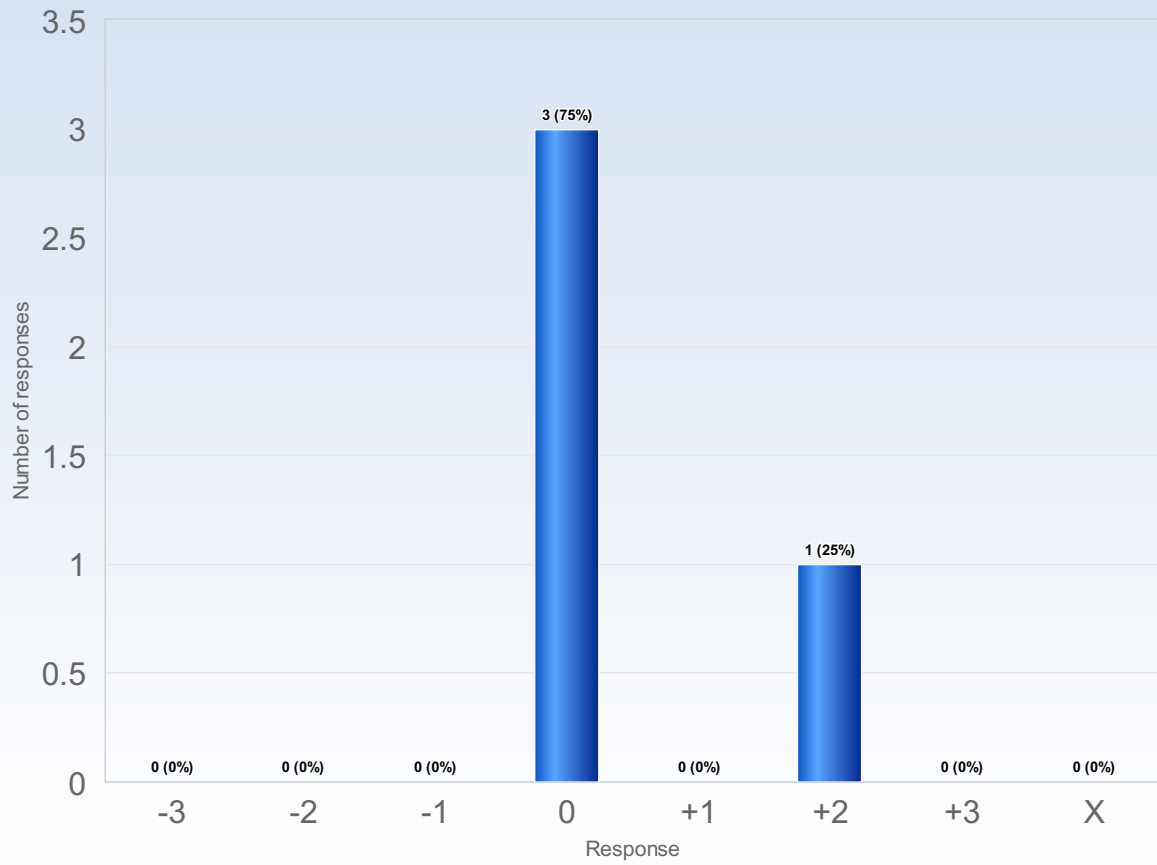
X = I decline to take a position on the statement

1. I worked with interesting issues
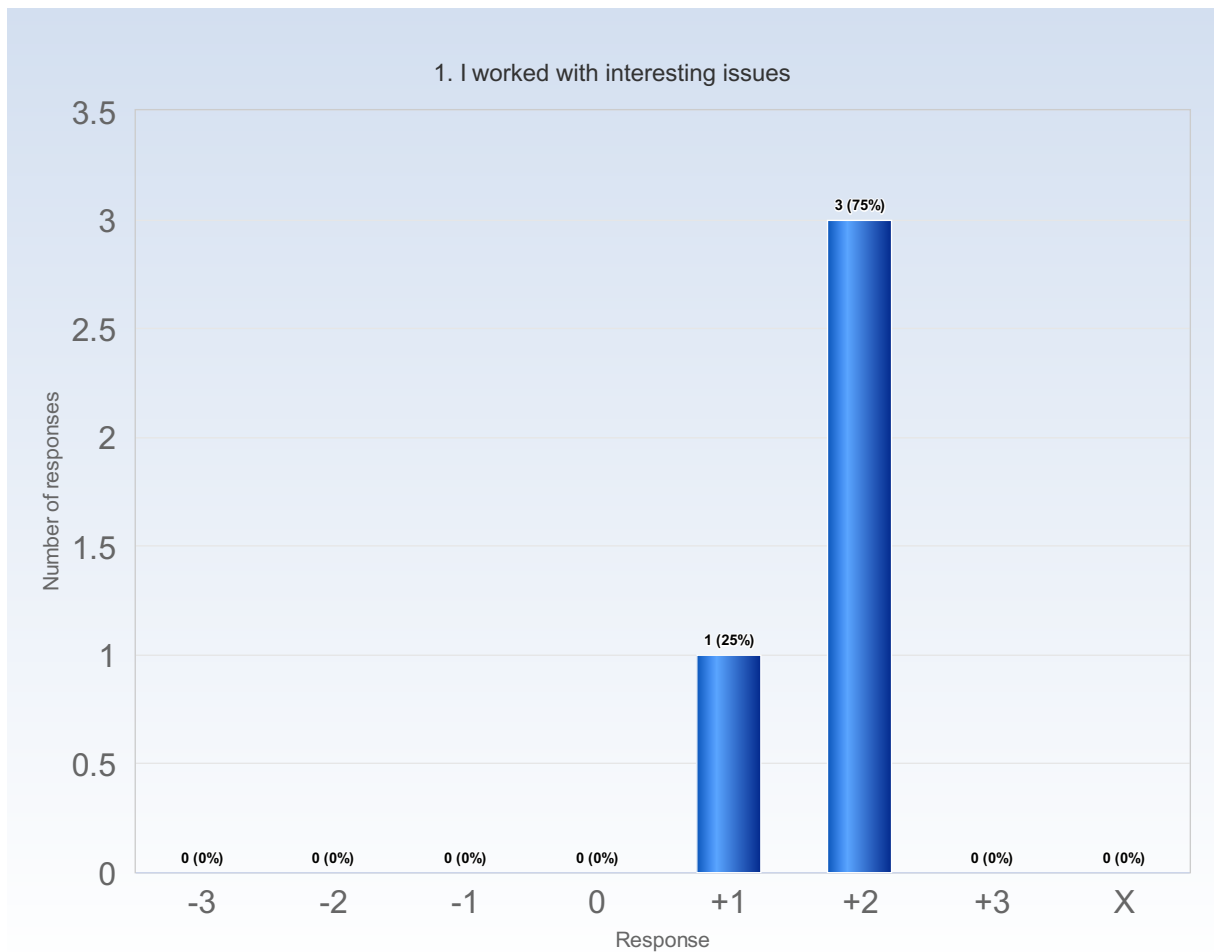
Comments

Comments (My response was: +1)
Was not so practical course. Could be more hands on

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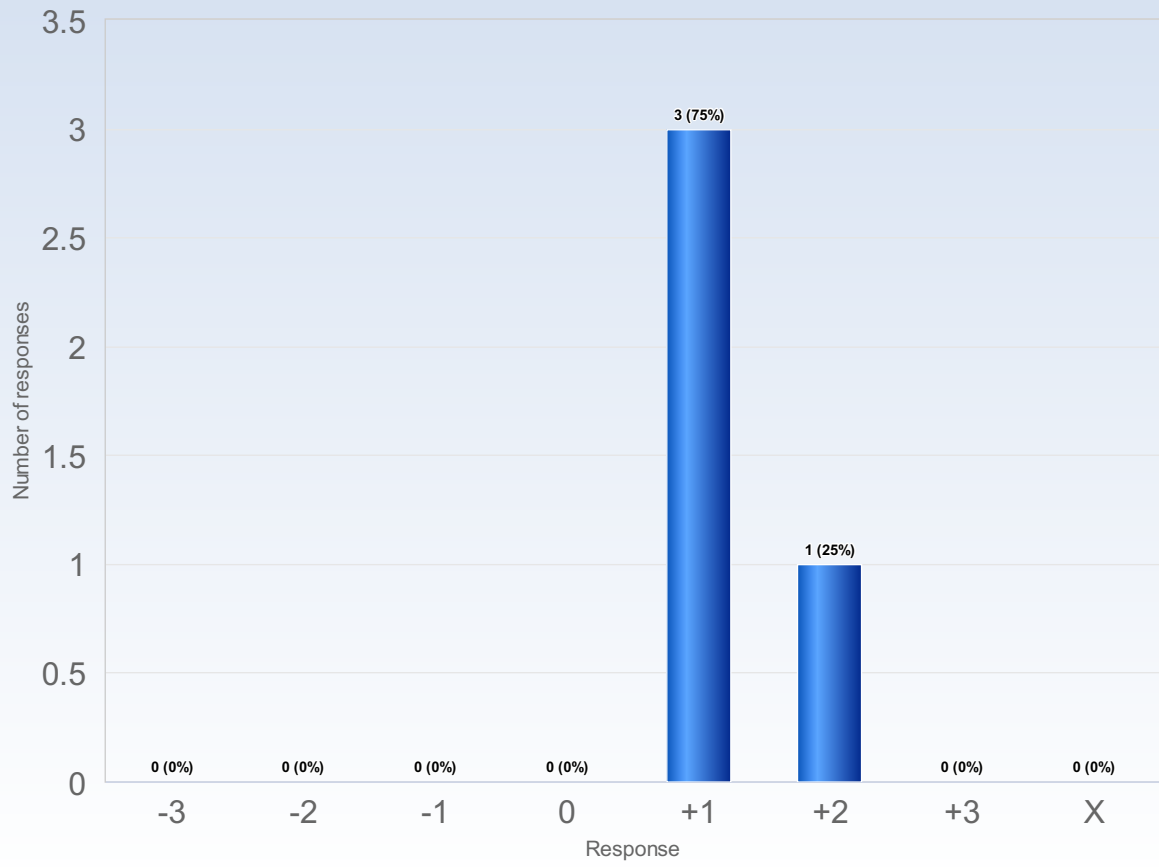
3. I was able to learn by trying out my own ideas

Comments

Comments (My response was: 0)
The lab was not so fun and not stimulating in a positive way

4. The course was challenging in a stimulating way

Number of responses

3.5

3 — 3 (75%)

2.5

2

1.5

1 — 1 (25%)

0.5

0 (0%)   0 (0%)   0 (0%)   0 (0%)   0 (0%)   0 (0%)

0

-3   -2   -1   0   +1   +2   +3   X
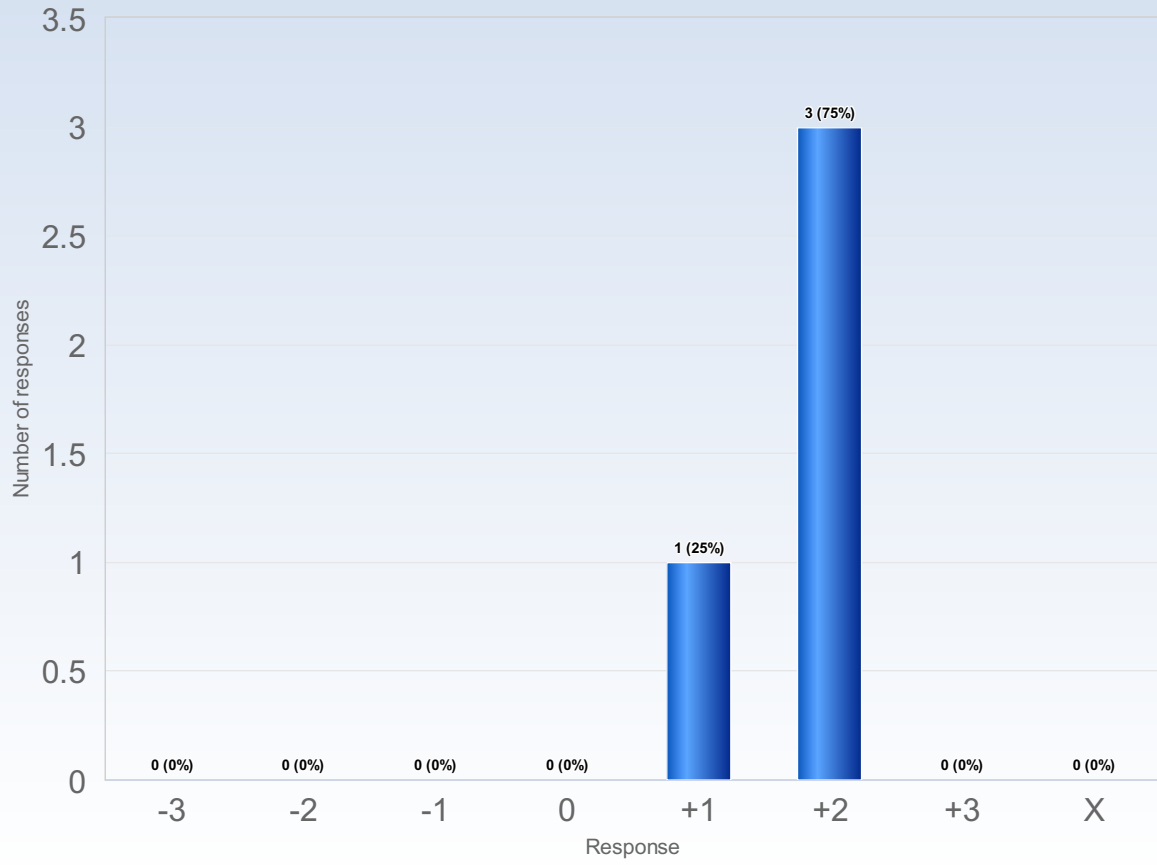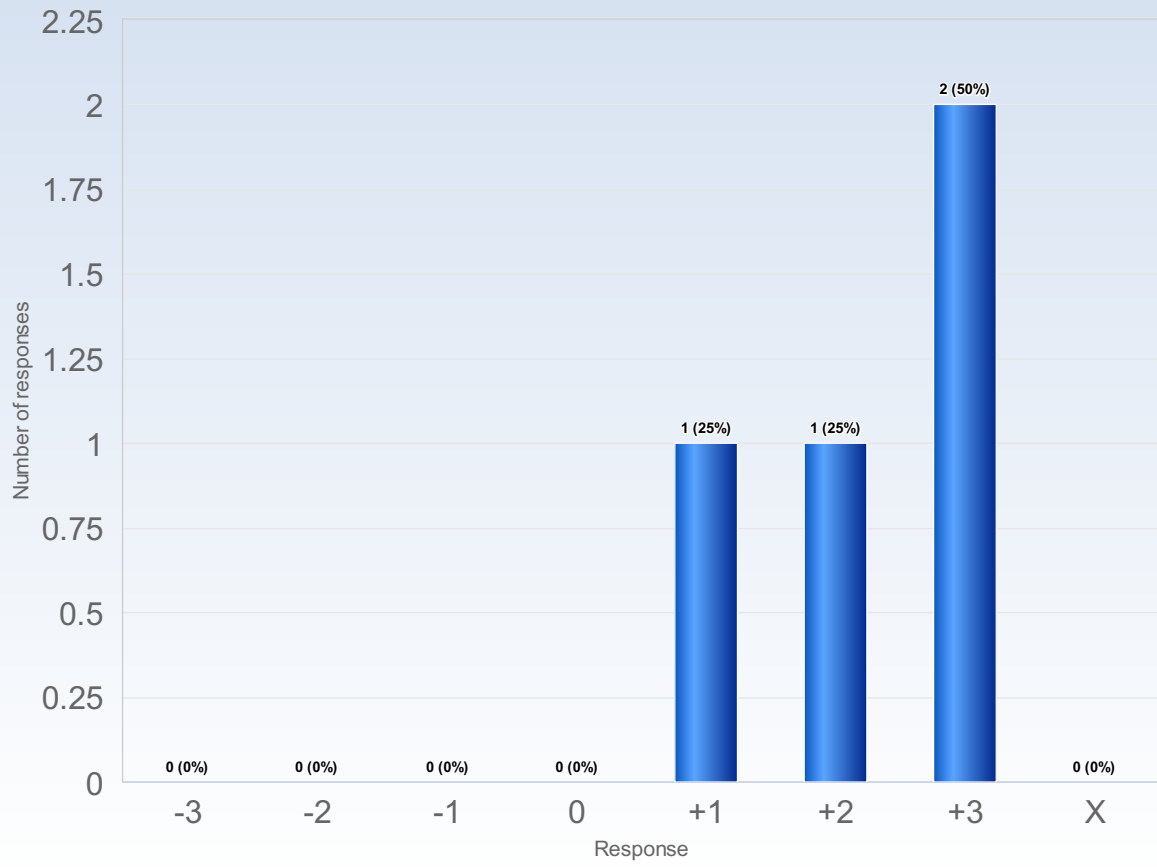
Response

5. I felt togetherness with others on the course
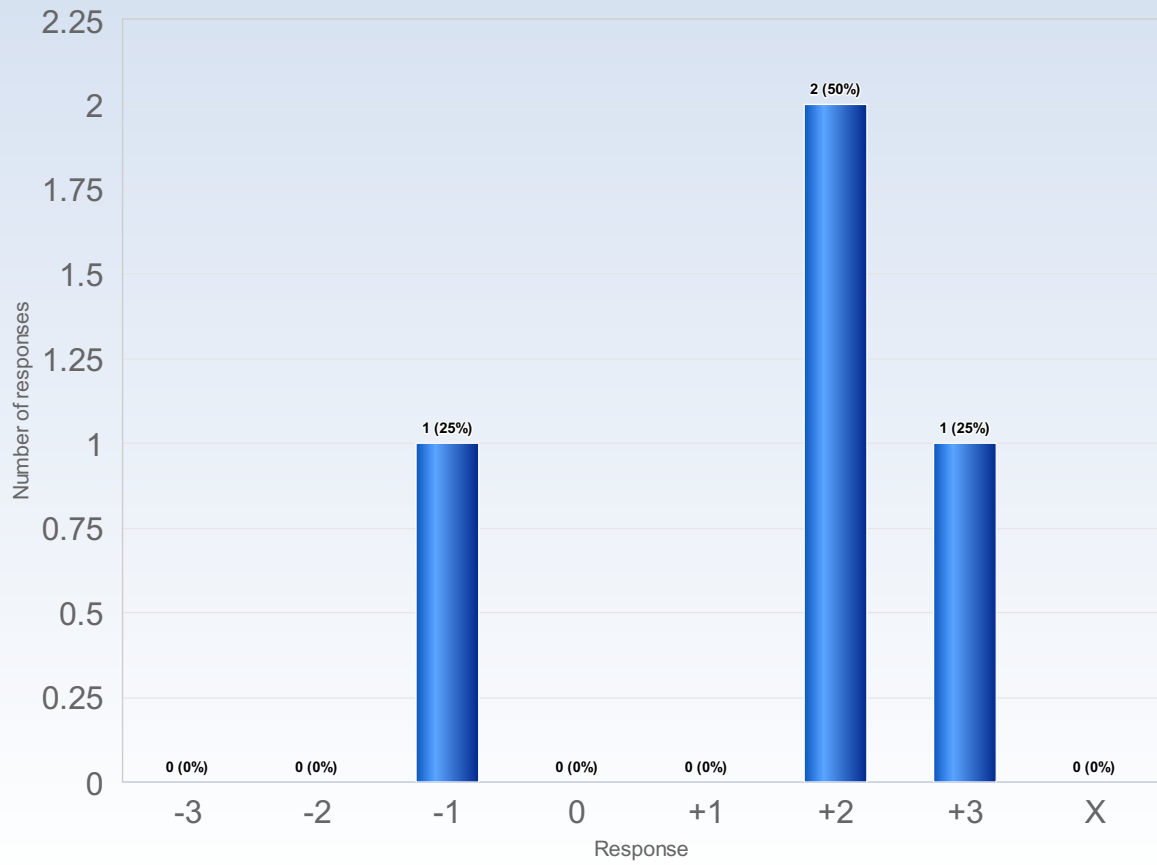
Comments

Comments (My response was: +2)
Clickers was good to discuss

6. The atmosphere on the course was open and inclusive

Number of responses

Response	-3	-2	-1	0	+1	+2	+3	X
	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (25%)	1 (25%)	2 (50%)	0 (0%)

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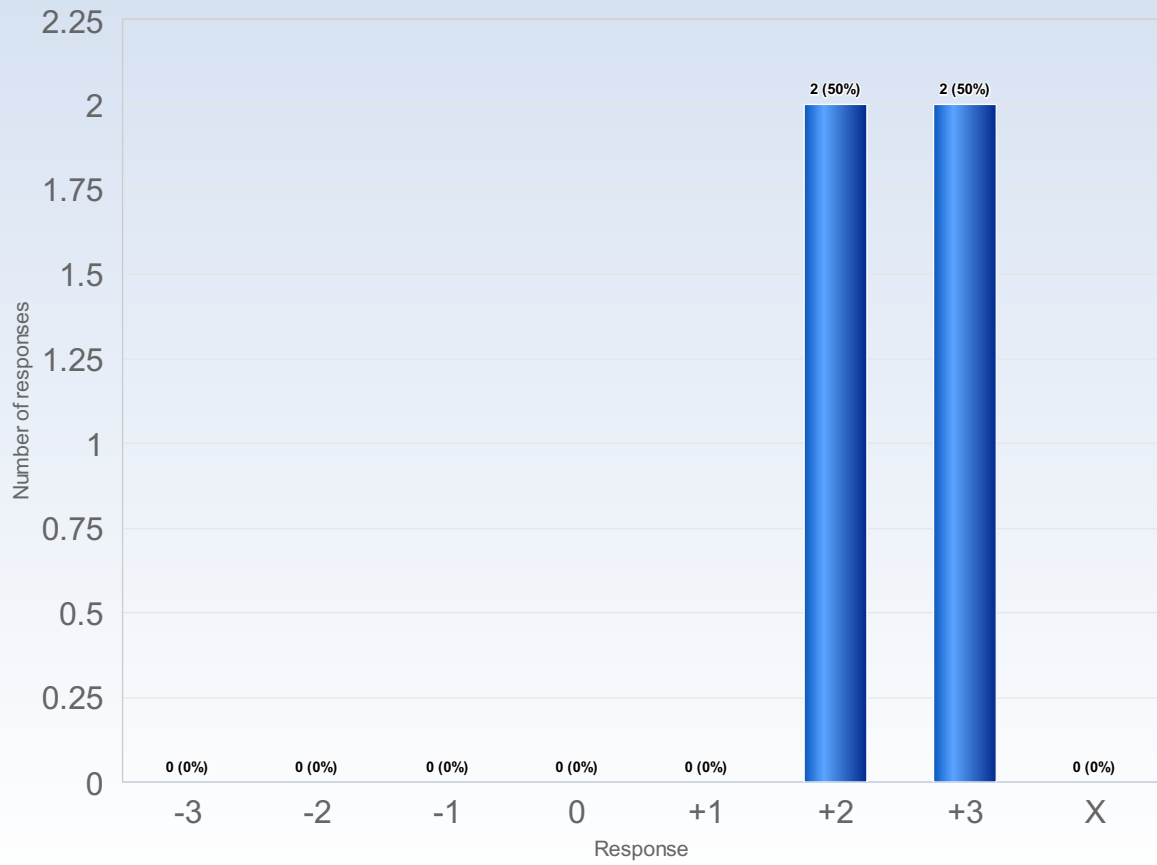
8. The course was organized in a way that supported my learning
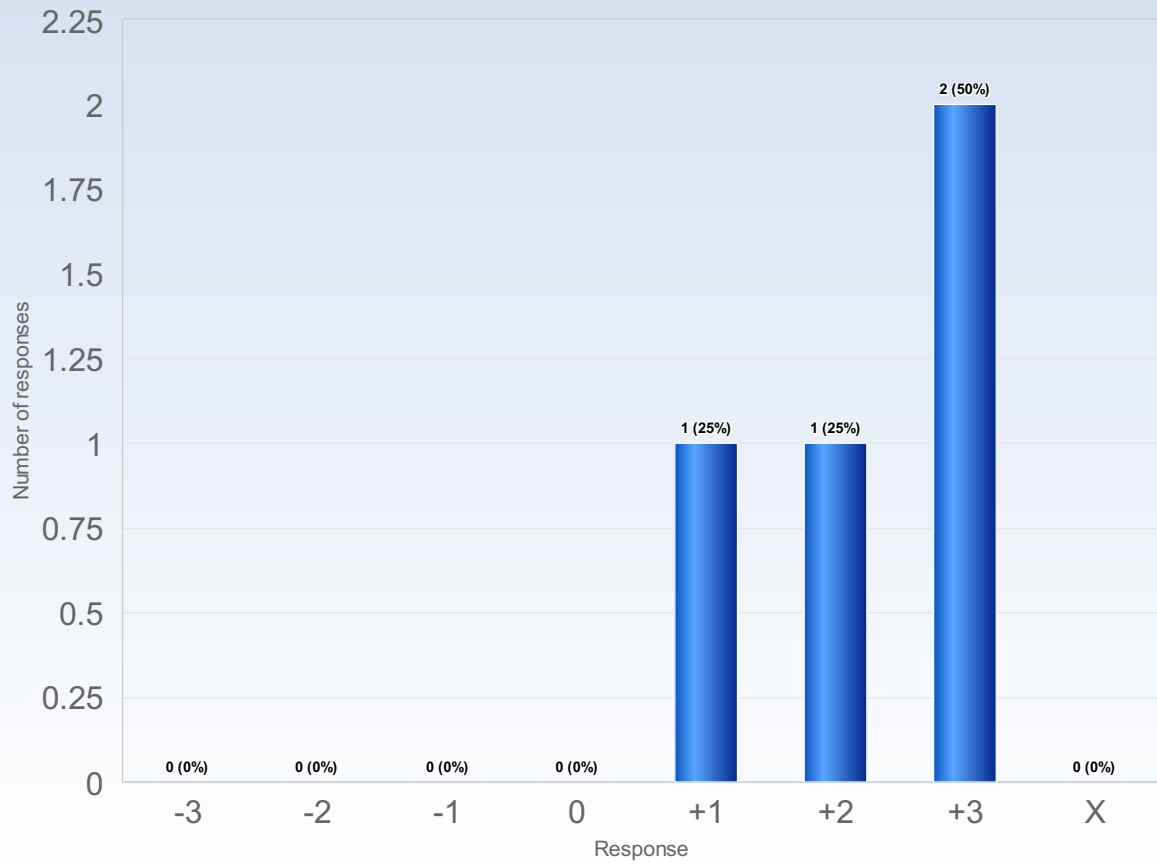
Comments

Comments (My response was: +3)
Like the videos

9. I understood what the teachers were talking about
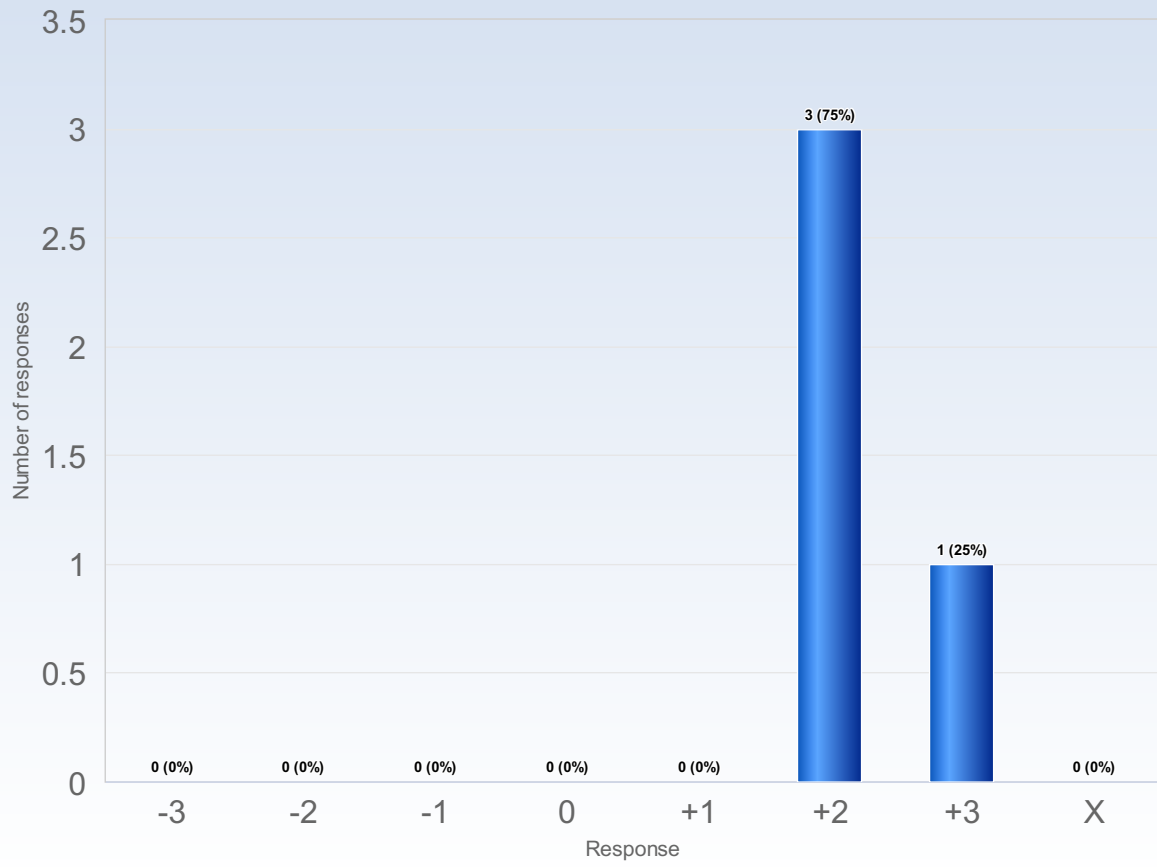
Response	Number of responses
-3	0 (0%)
-2	0 (0%)
-1	0 (0%)
0	0 (0%)
+1	0 (0%)
+2	3 (75%)
+3	1 (25%)
X	0 (0%)

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

Number of responses

Response	Count
-3	0 (0%)
-2	0 (0%)
-1	2 (50%)
0	0 (0%)
+1	0 (0%)
+2	1 (25%)
+3	1 (25%)
X	0 (0%)
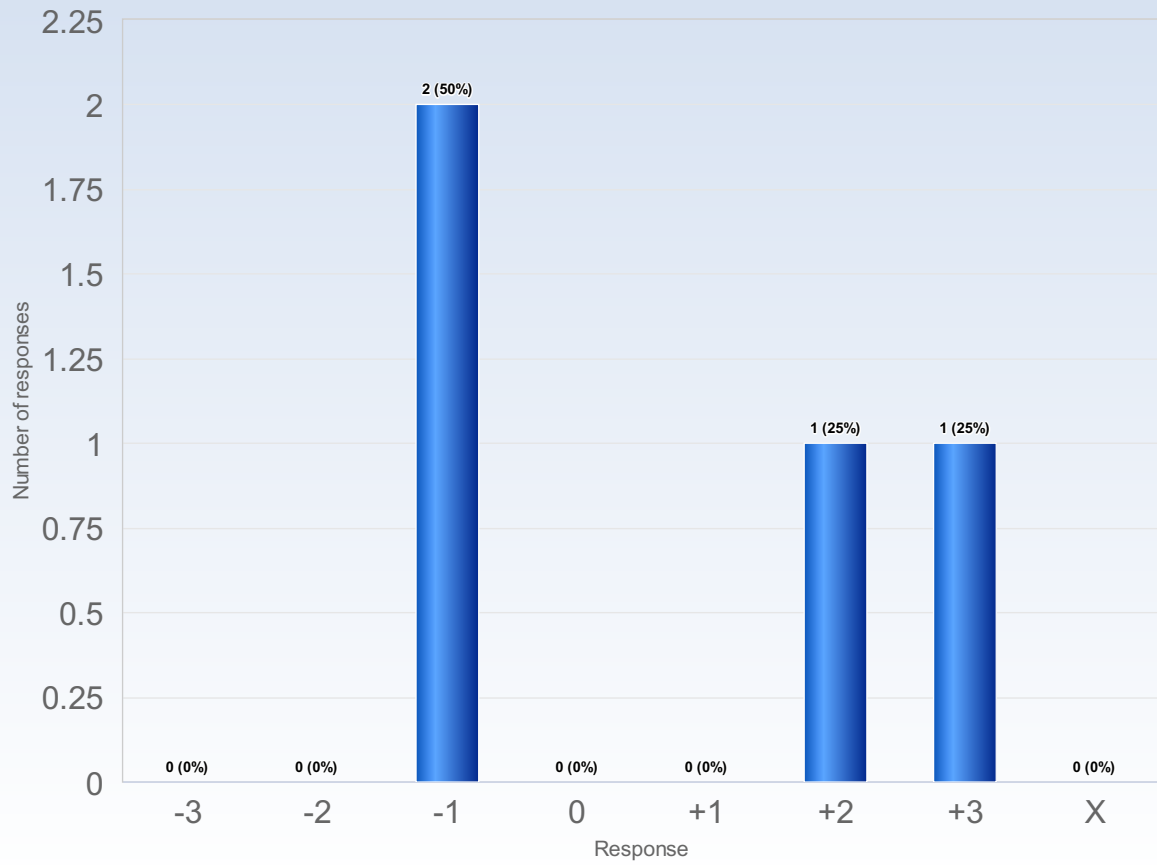
Comments

Comments (My response was: -1)

Was not so many daily examples. More math heavy examples.

11. Understanding of key concepts had high priority
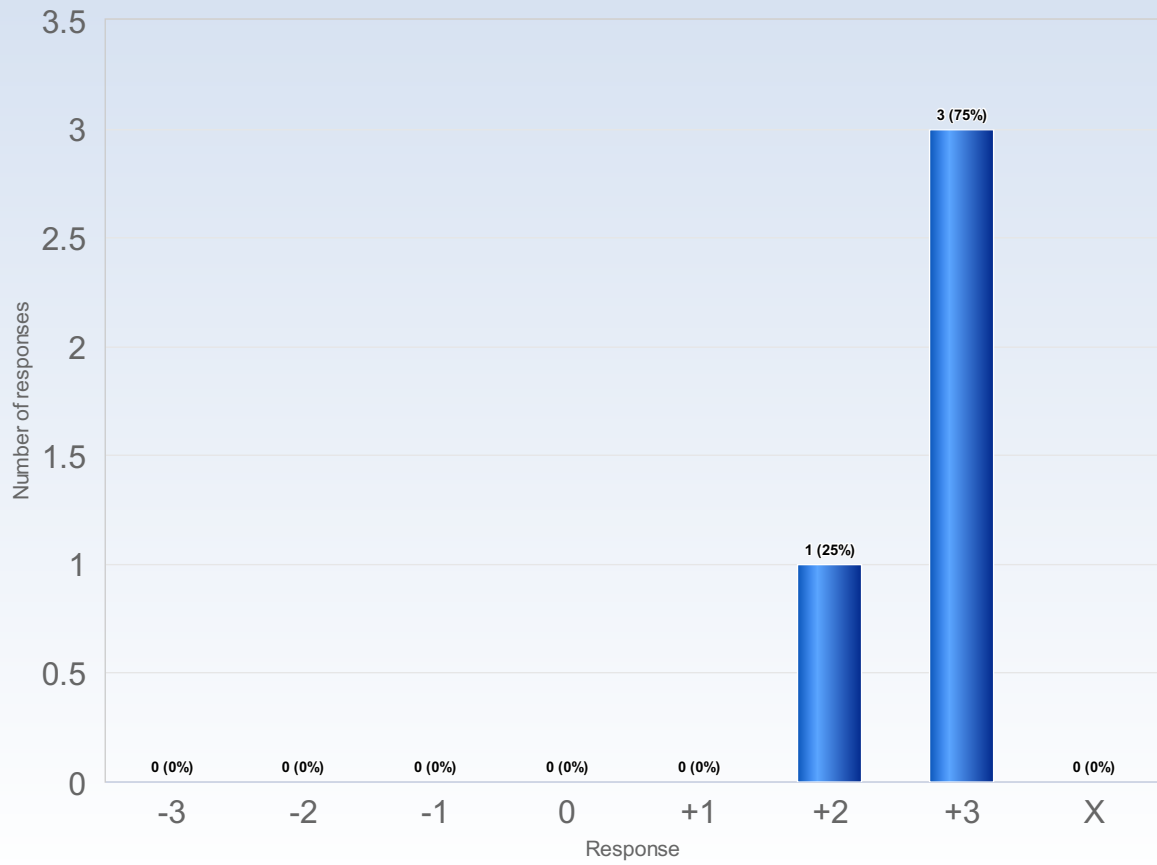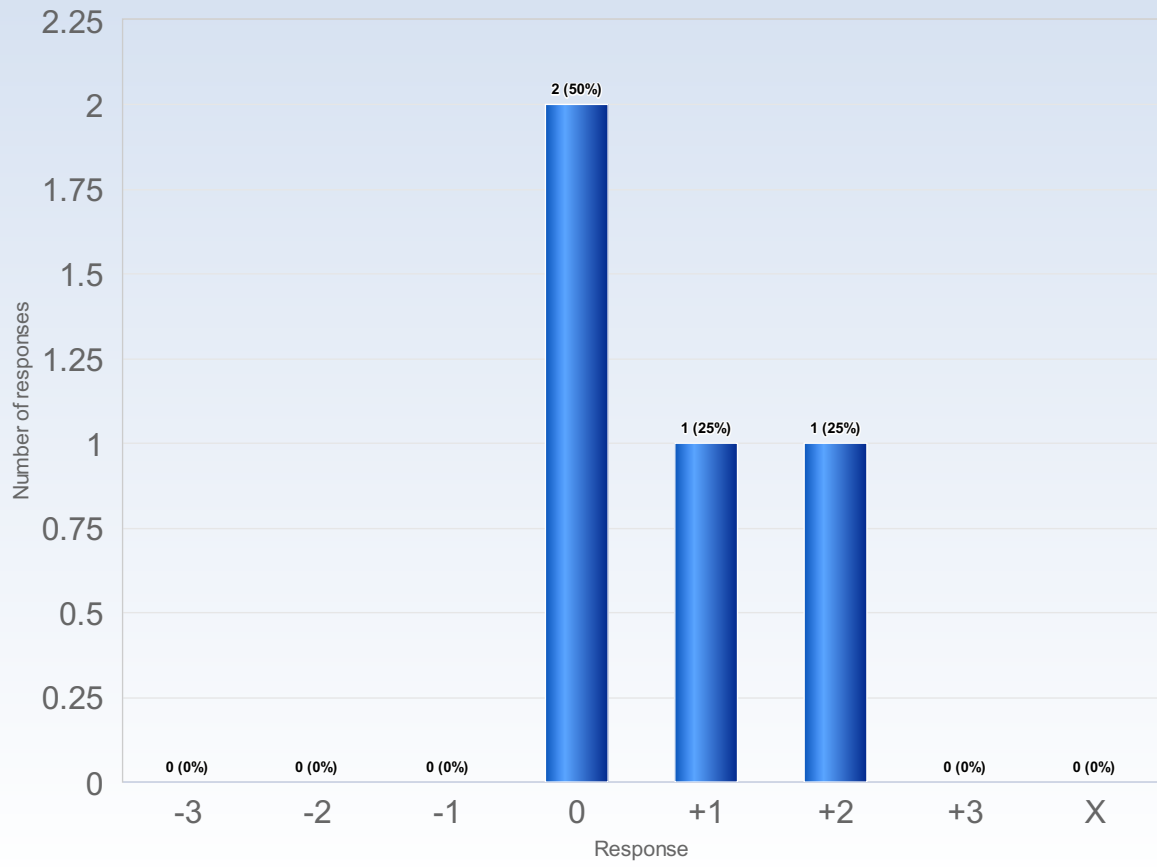

Comments

Comments (My response was: +3)
Good videos and good clickers

12. The course activities helped me to achieve the intended learning outcomes efficiently
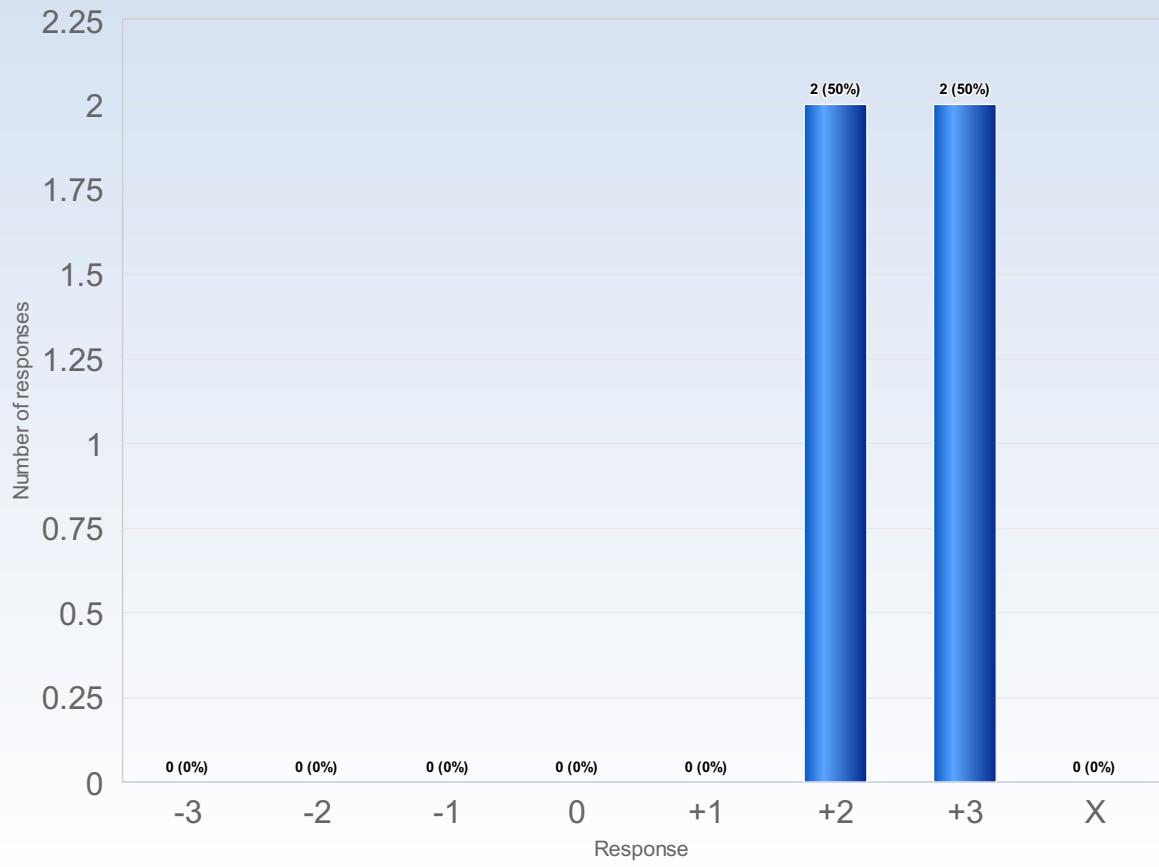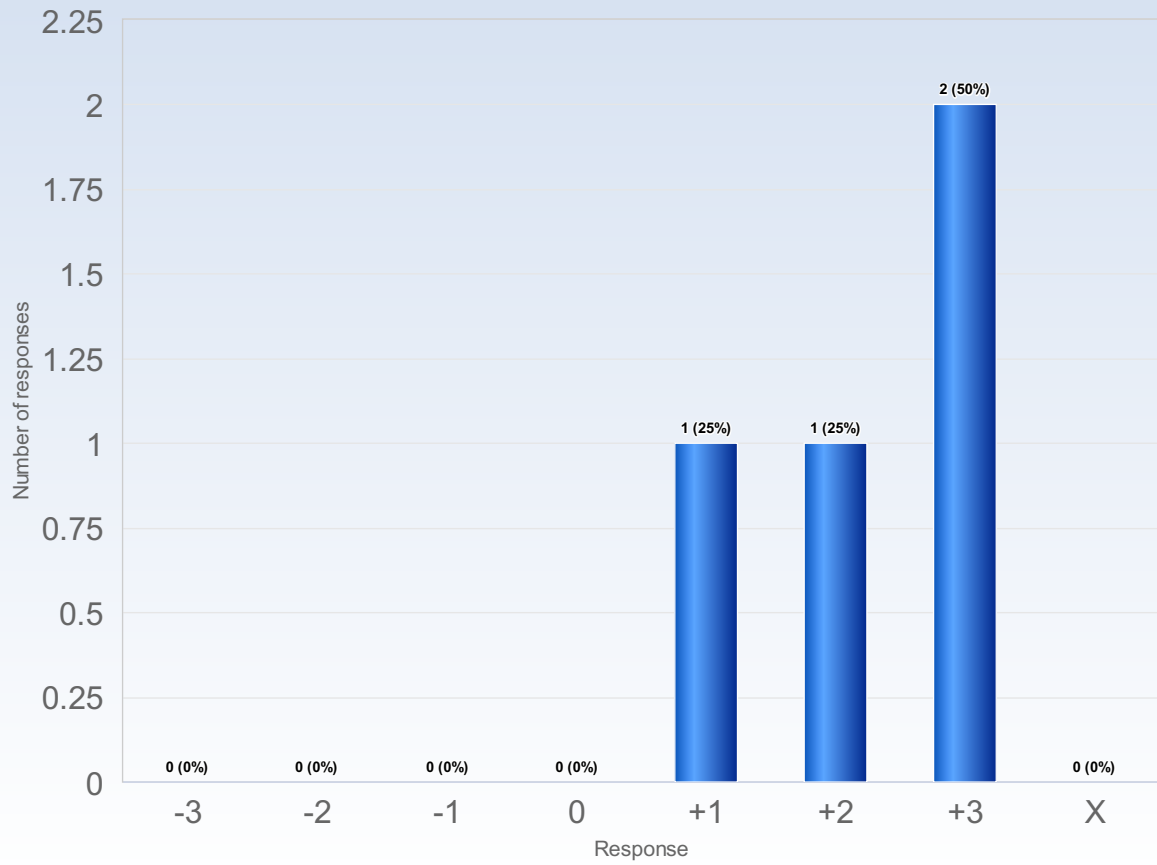
13. I understood what I was expected to learn in order to obtain a certain grade
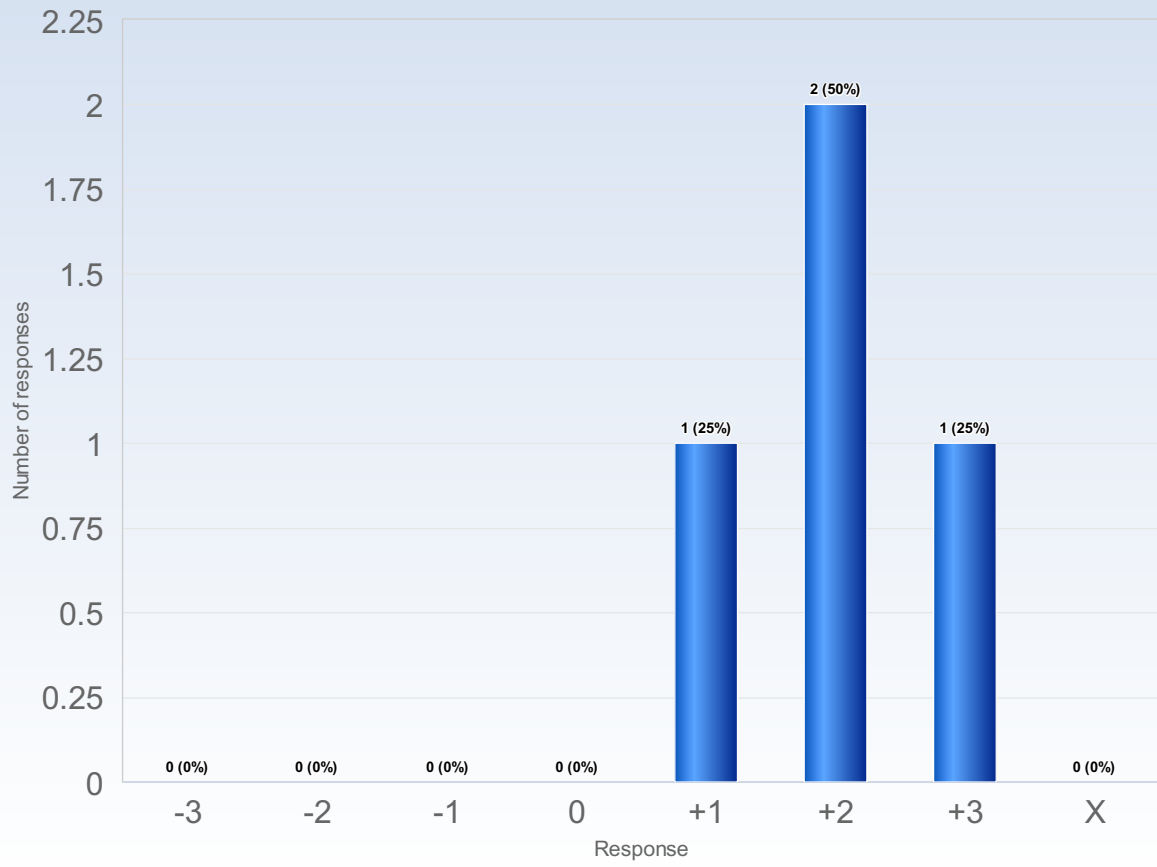
14. I received regular feedback that helped me to see my progress

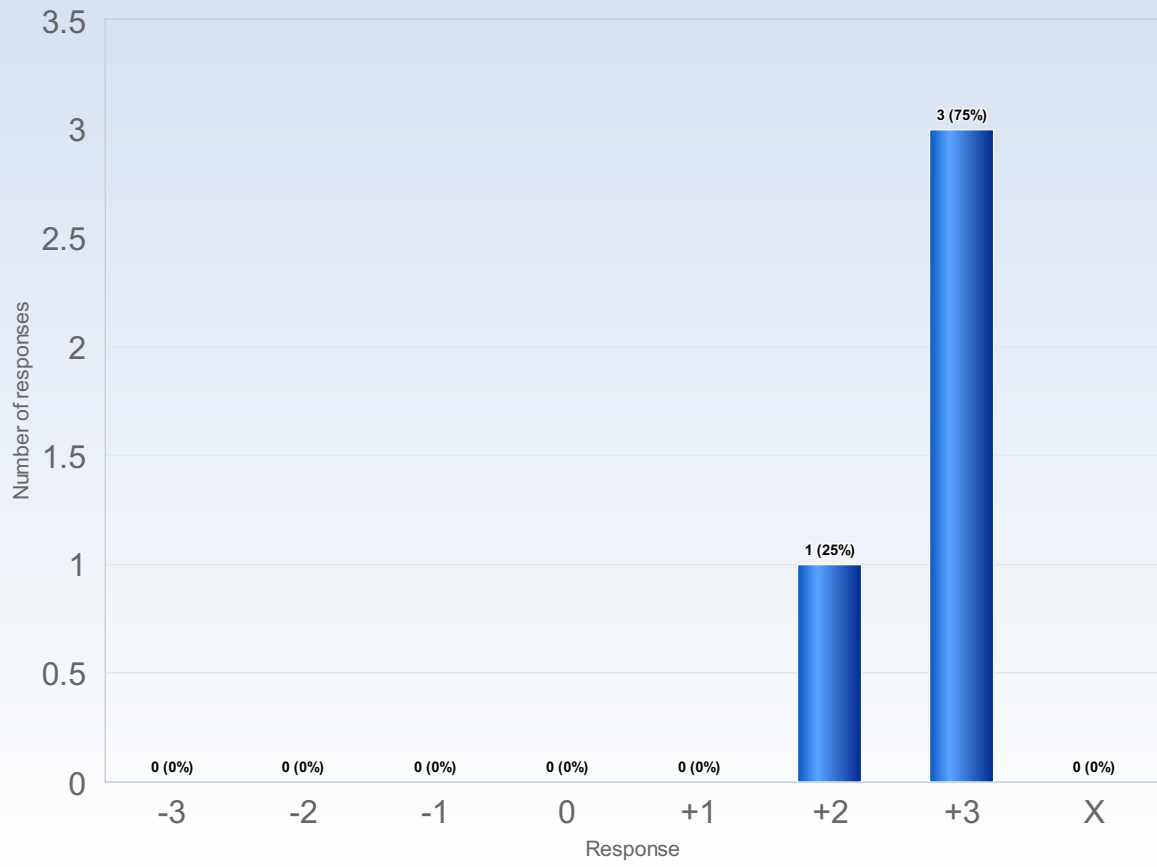| Response	Number of responses
-3	0 (0%)
-2	0 (0%)
-1	0 (0%)
0	2 (50%)
+1	1 (25%)
+2	1 (25%)
+3	0 (0%)
X	0 (0%)

15. I could practice and receive feedback without being graded

Comments
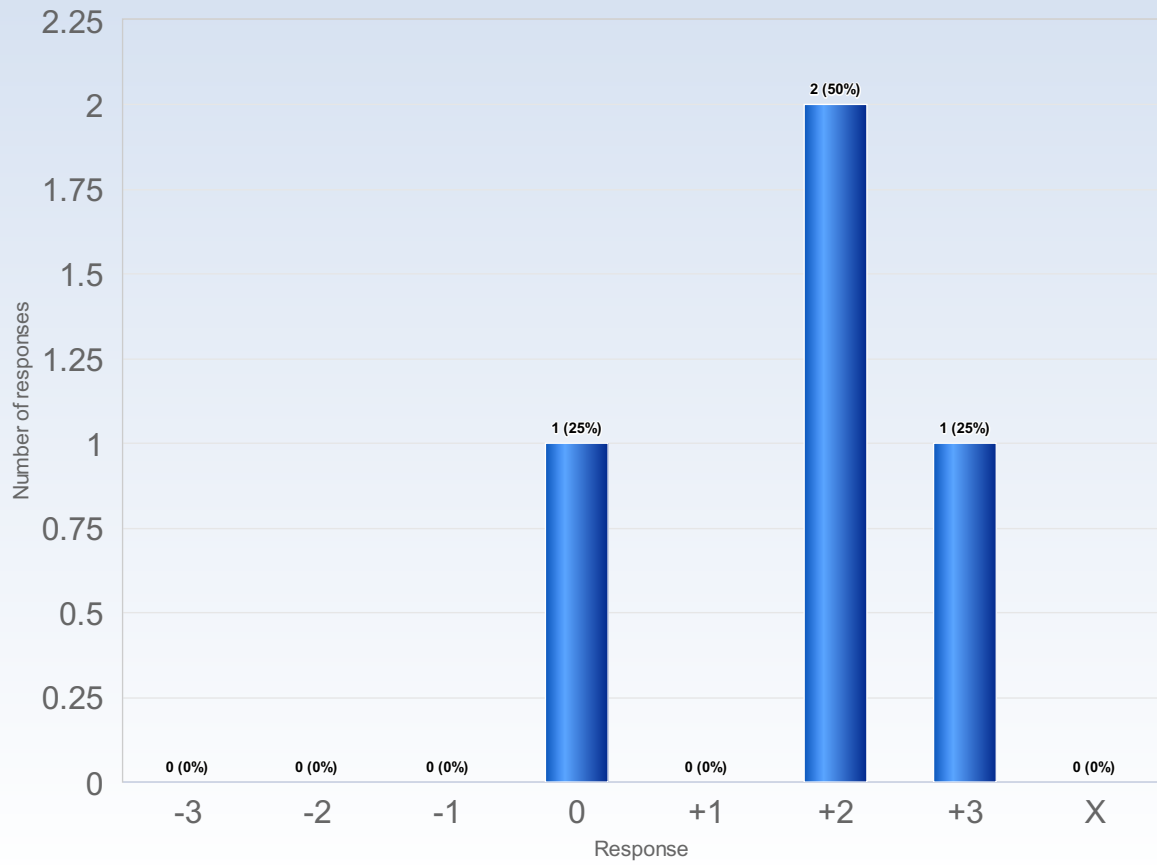
Comments (My response was: +3)
Helpful teacher

16. The assessment on the course was fair and honest
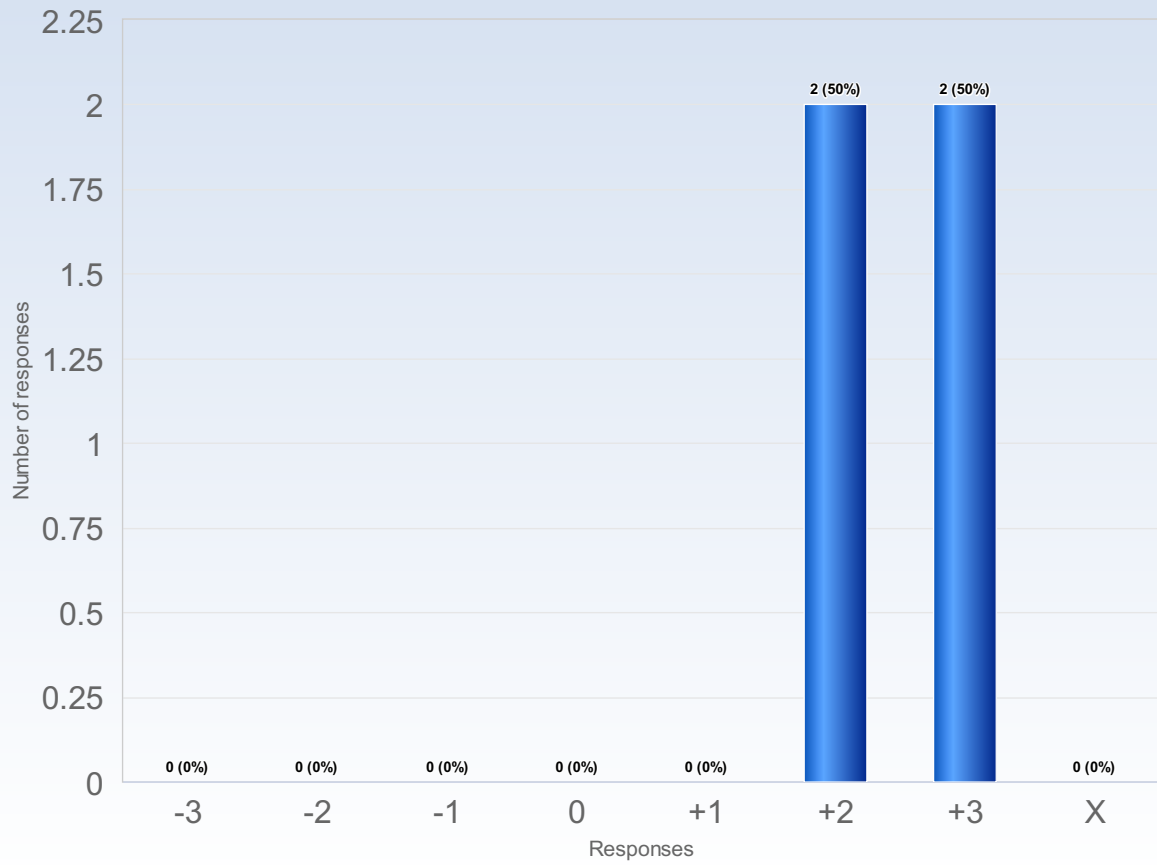
17. My background knowledge was sufficient to follow the course

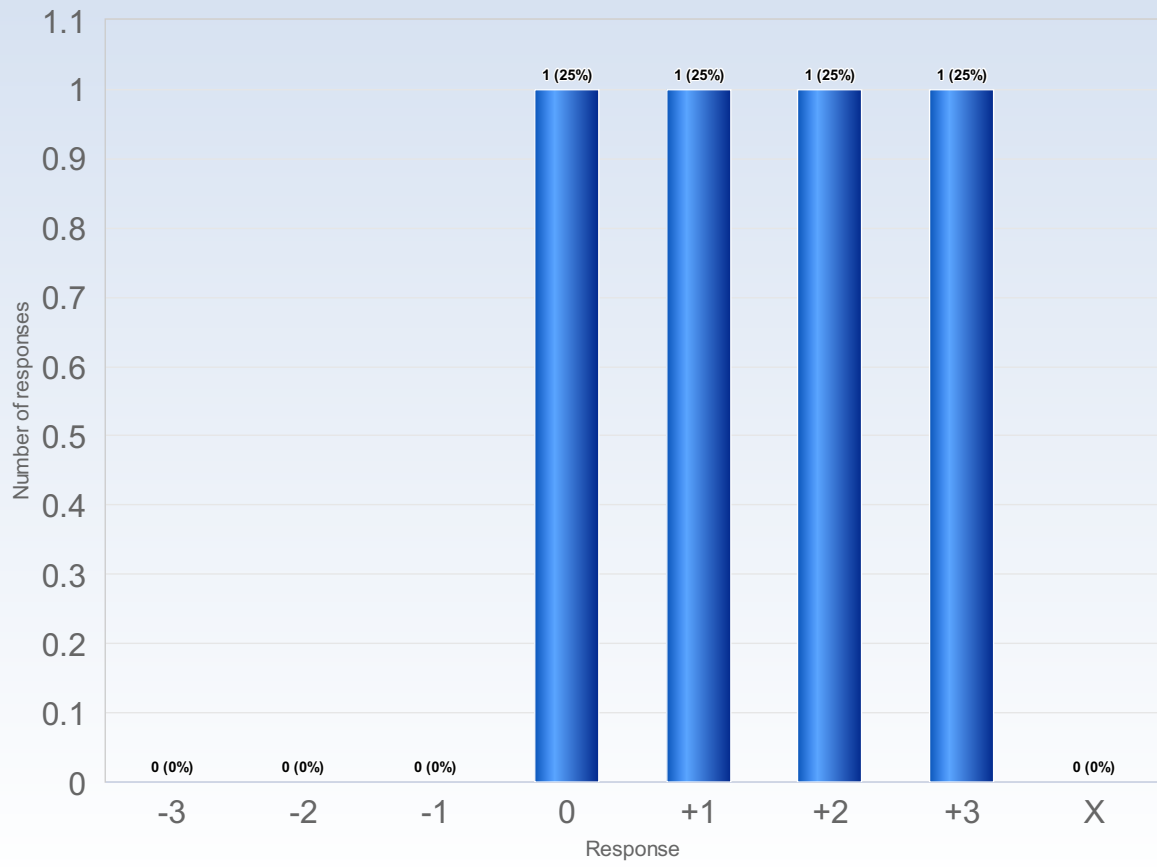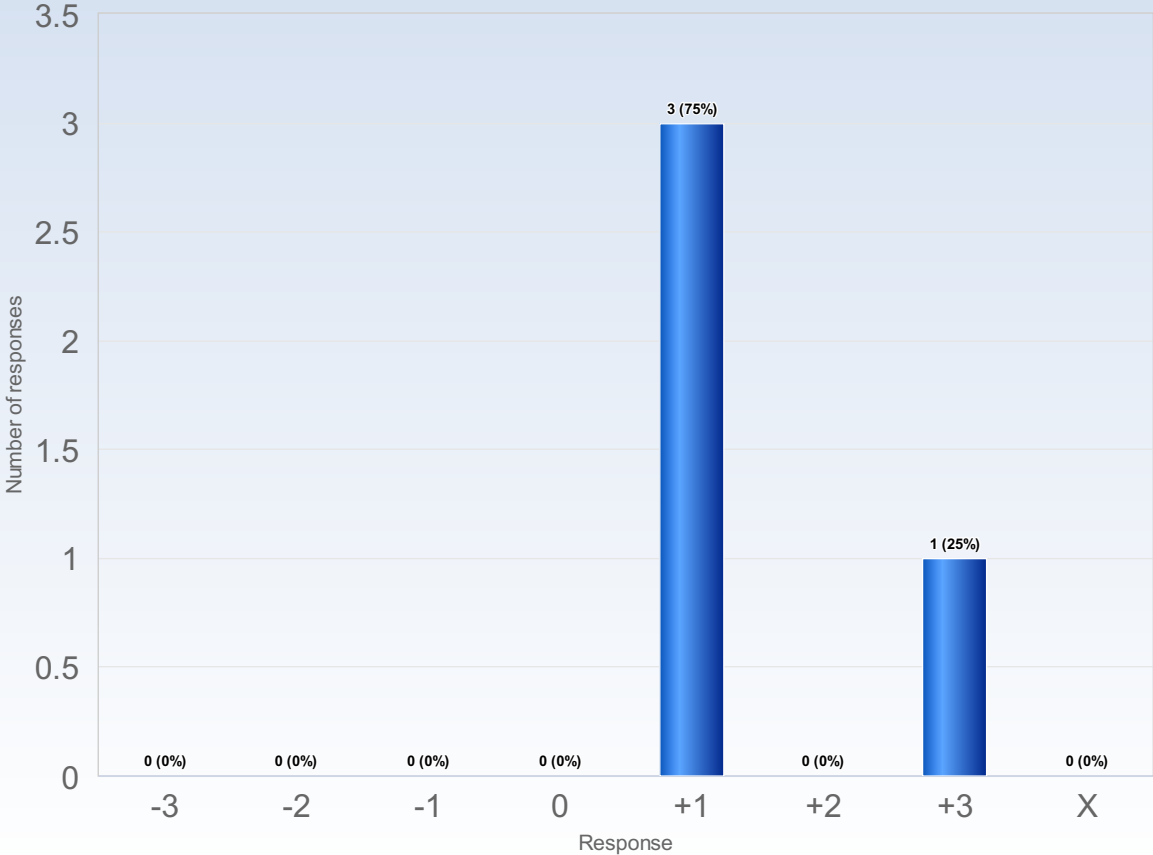## 18. I regularly spent time to reflect on what I learned

Comments

Comments (My response was: +2)
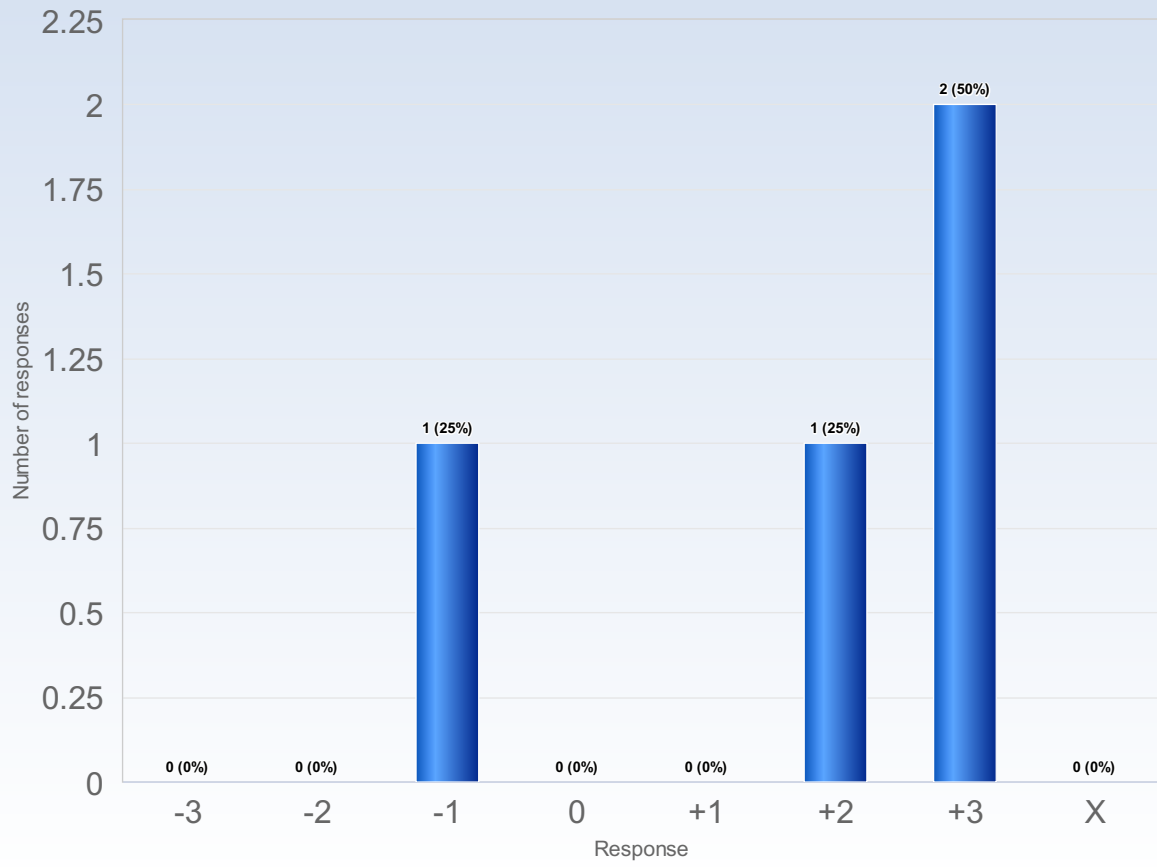fliped classroom helped a lot with that!

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

Response	-3	-2	-1	0	+1	+2	+3	X
Number of responses	0 (0%)	0 (0%)	0 (0%)	1 (25%)	1 (25%)	1 (25%)	1 (25%)	0 (0%)

20. I had opportunities to influence the course activities

Number of responses

-3	0 (0%)
-2	0 (0%)
-1	0 (0%)
0	0 (0%)
+1	3 (75%)
+2	0 (0%)
+3	1 (25%)
X	0 (0%)

Response

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

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