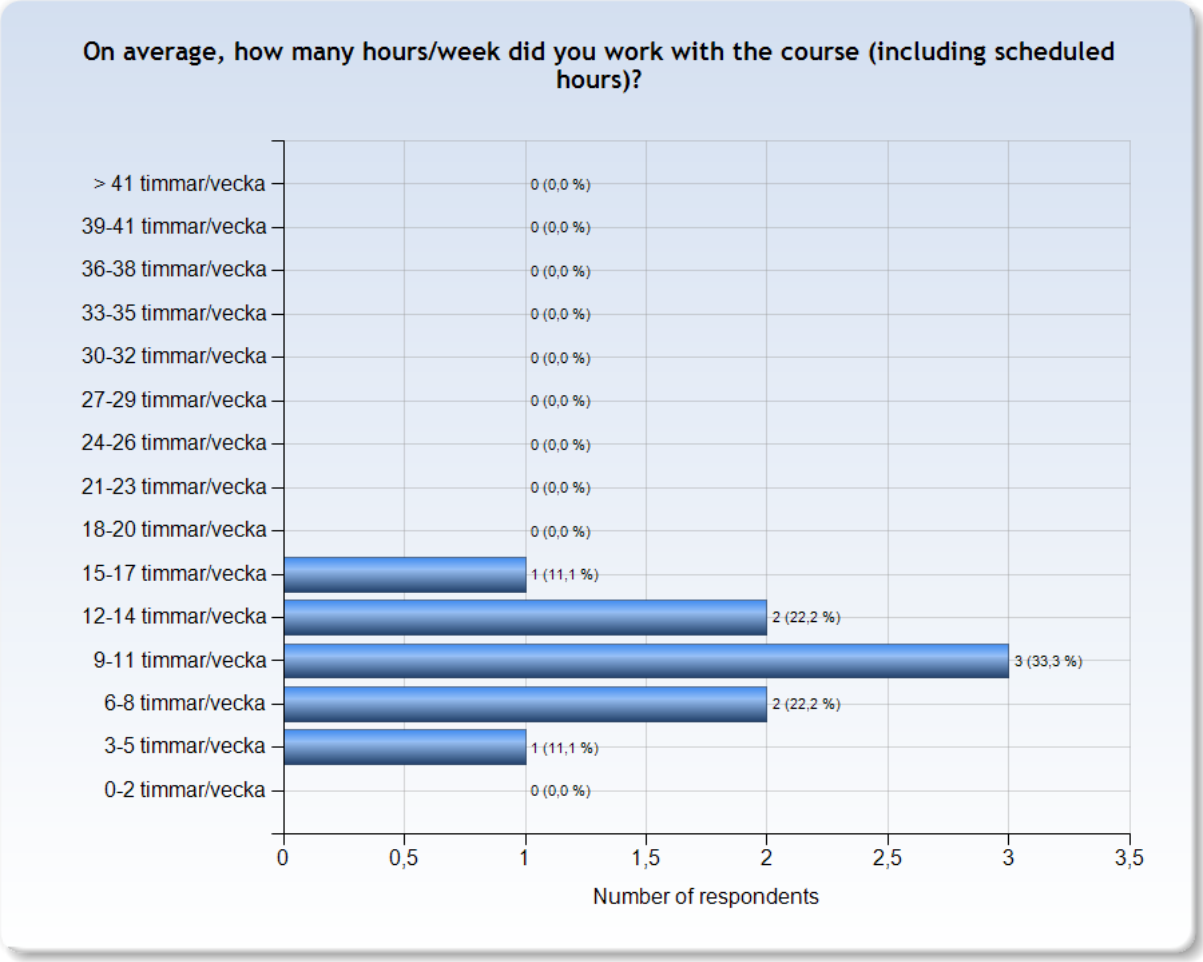
# SI2372 - 2019-12-10

Antal respondenter: 31
Antal svar: 9
Svarsfrekvens: 29,03 %

# ESTIMATED WORKLOAD




**Comments**

Comments (I worked: 3-5 timmar/vecka)

Considering the number of credits given for this course, I should have worked less or equal. Considering the amount of work necessary to achieve the teacher's expectation by following the course, I should have worked way more.

Comments (I worked: 6-8 timmar/vecka)

The speed of this course was reasonable.

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

This was not a 3 hp course in any way, shape or form.

Comments (I worked: 15-17 timmar/vecka)

I believe the homeworks were pretty hard considering there were no other ways to practice the material (no exercise classes and quite few examples/exercises in the lecture notes). So you therefore could spend a lot of time on each homework (which in a sense is very good since you learn that way). Even though one could have bought another course book there was personally no time for me to read an additional book. I would have liked to have more simple tasks, preferably in the form of a quiz once a week. It could be 10-20 easy questions, like “What is a tensor?”, “What is a metric?” and so on. And some other easy computational tasks. I believe this would have helped :)

## LEARNING EXPERIENCE

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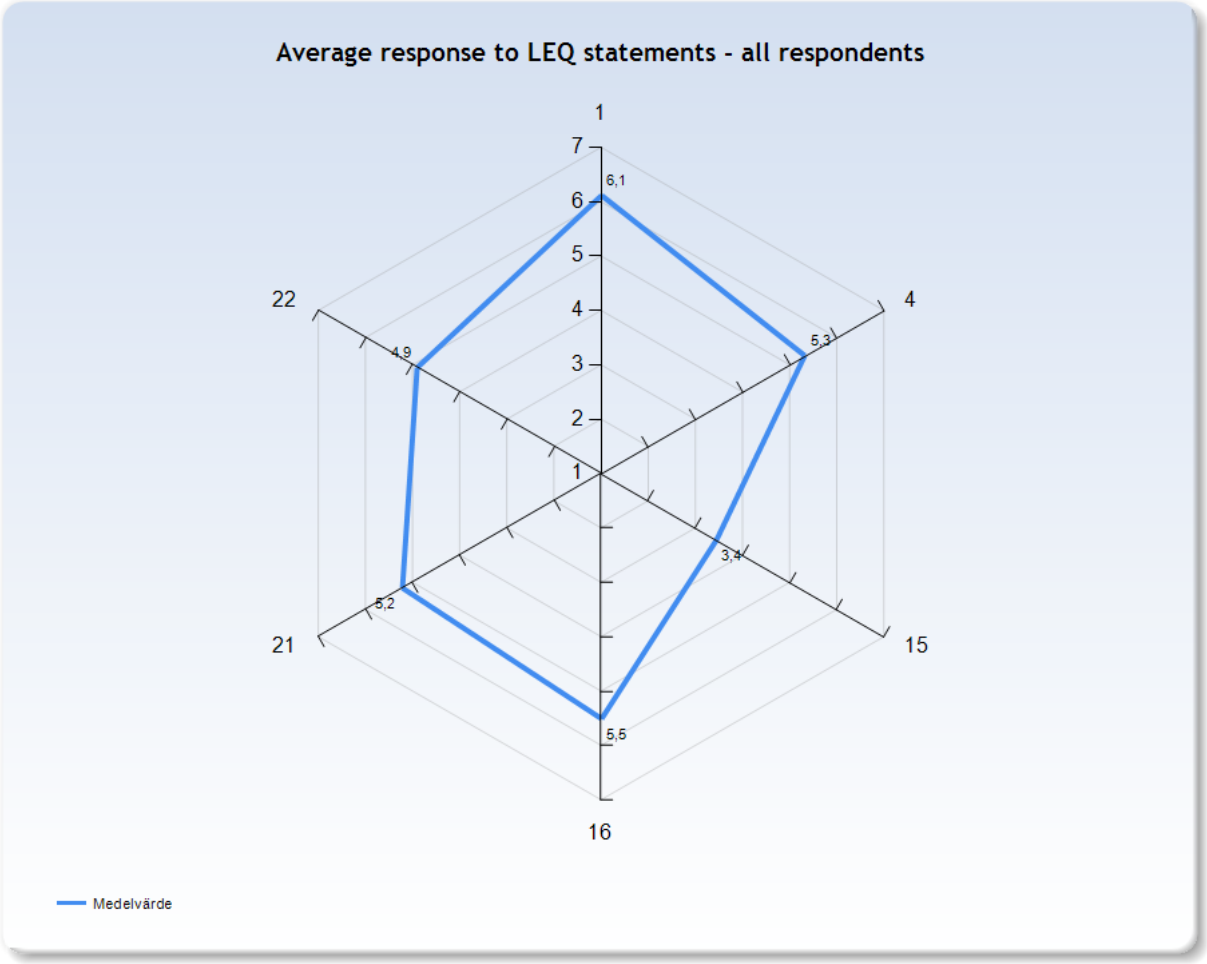
The polar diagrams below show the average response to the LEQ statements for different groups of respondents (only valid responses are included). The scale that is used in the diagrams is defined by:

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
1
4
15
16
21
22
7
6
5
4
3
2
1
6,1
5,3
3,4
5,5
5,2
4,9
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**

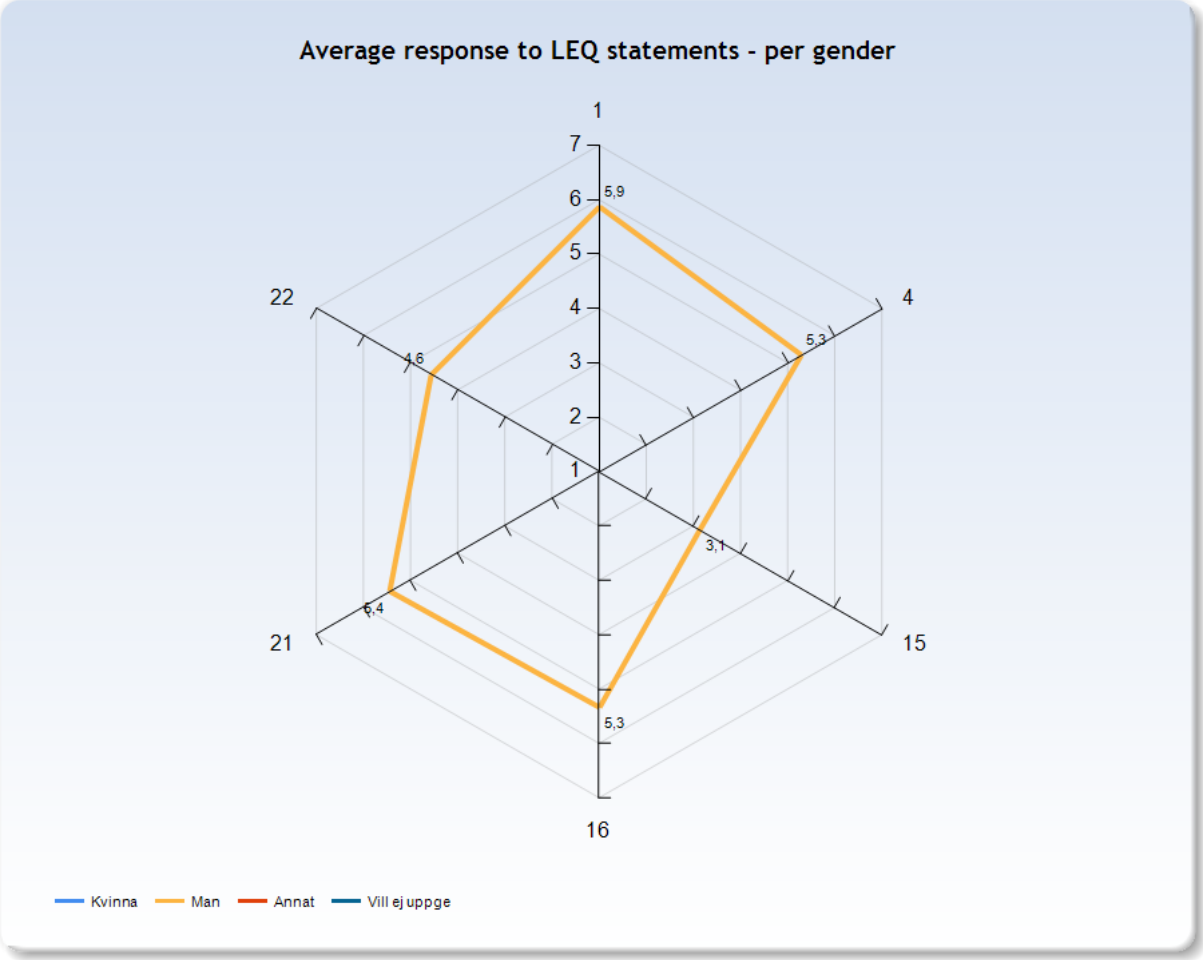
Bain, K. (2004). *What the Best College Teachers Do*, Chapter 5, pp. 98-134. Cambridge: Harvard University Press.

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.

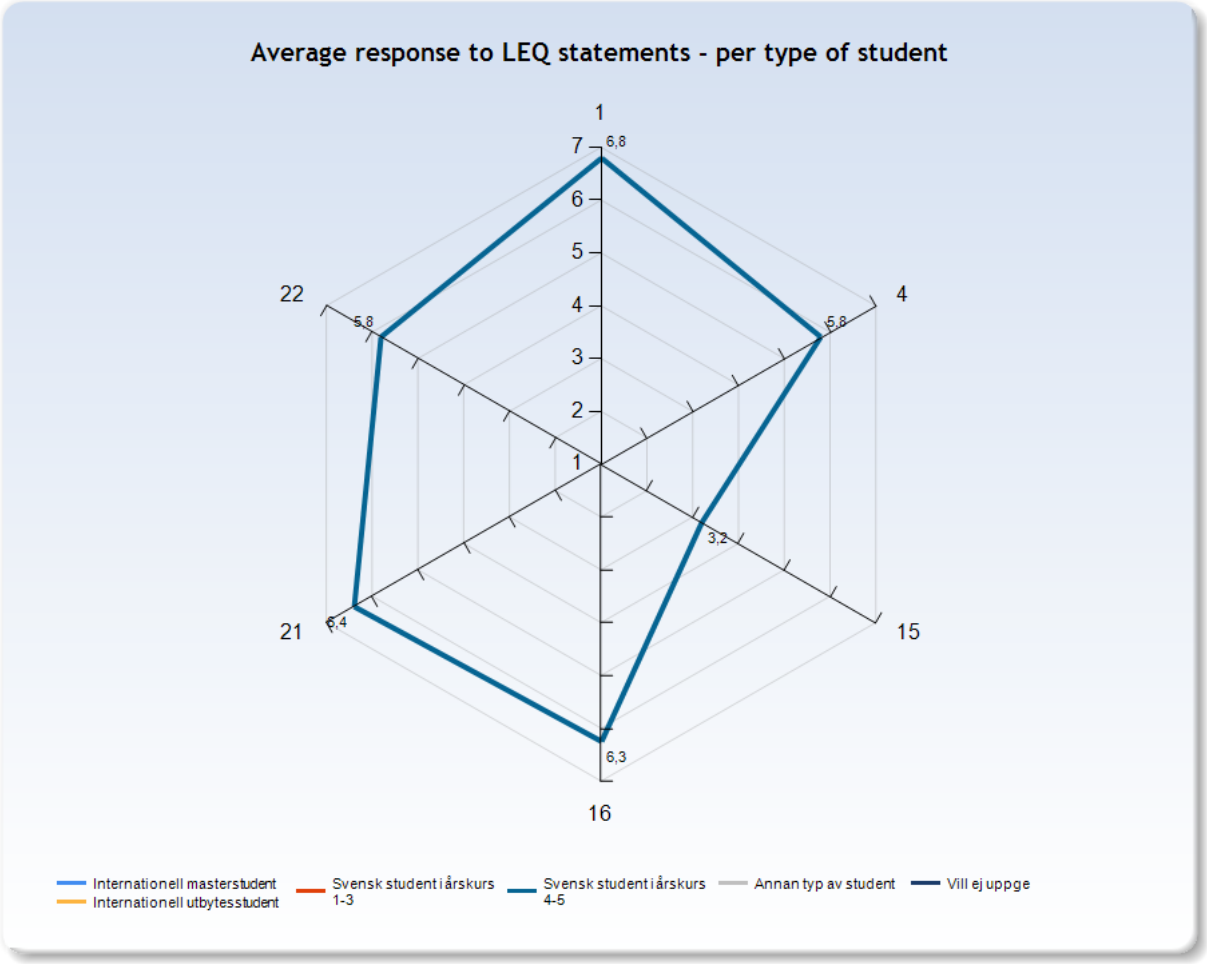
Kember, K. & McNaught, C. (2007). *Enhancing University Teaching: Lessons from Research into Award-Winning Teachers*, Chapter 5, pp. 31-40. Abingdon: Routledge.

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



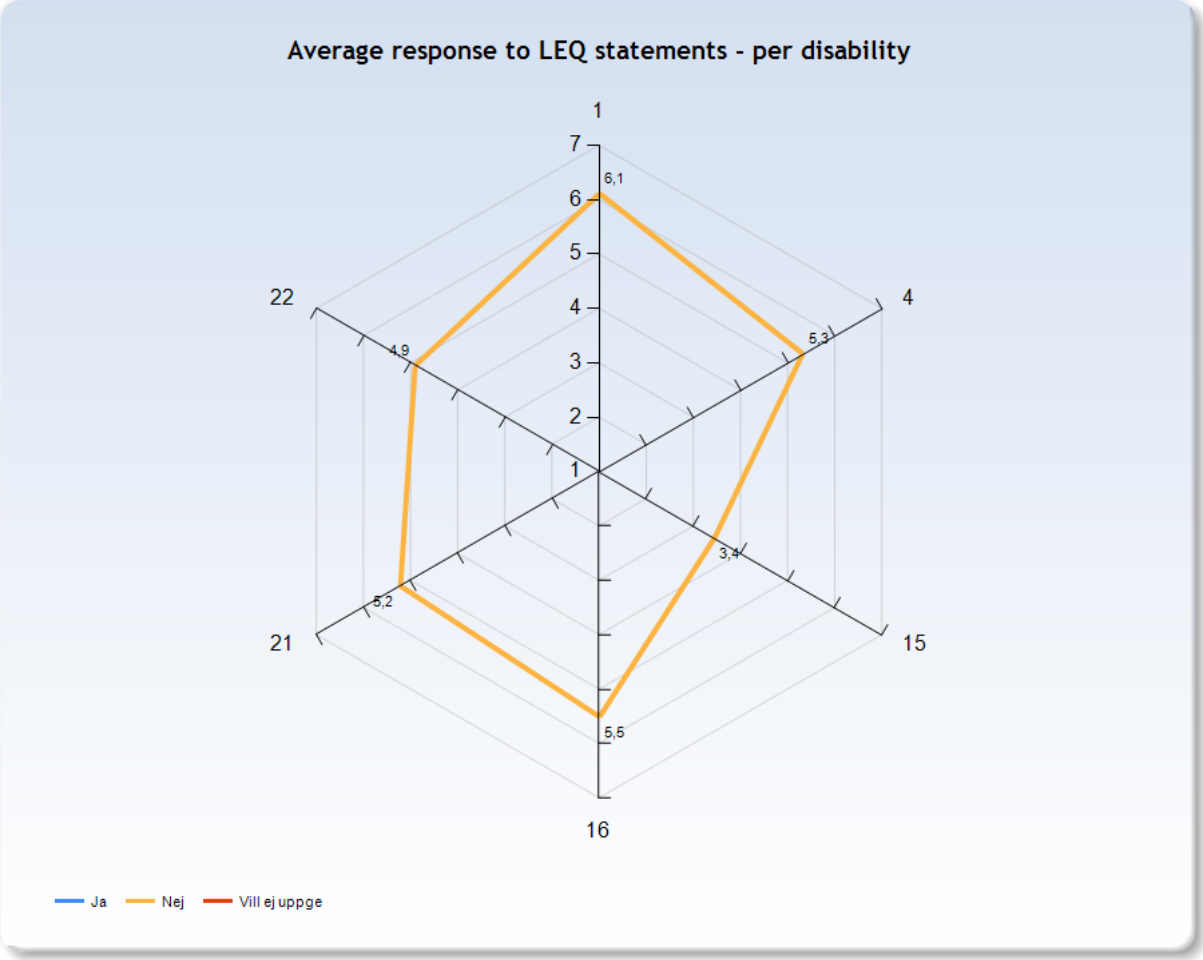

**Comments**

Comments (I am: Man)




**Comments**

Comments (I am: Annan typ av student)




**Comments**

Comments (My response was: Nej)

# GENERAL QUESTIONS

**What was the best aspect of the course?**

What was the best aspect of the course? (I worked: 3-5 timmar/vecka)

What was the best aspect of the course? (I worked: 6-8 timmar/vecka)

We could take lecture and exercise.

Good amount of diverse and useful course material was provided. I especially found Carroll's lecture notes quite useful.

What was the best aspect of the course? (I worked: 9-11 timmar/vecka)

The subject of the course is very interesting/fascinating. Mattias is a very good lecturer and it is especially good that he throughout the course poses questions to the class so that the teaching becomes more interactive.

Really interesting subject! And very well taught, at a quick pace yet never impossible to follow. Great lecture notes too if you did fall behind.

The homework problems were useful.

What was the best aspect of the course? (I worked: 12-14 timmar/vecka)

Really interesting subject.

What was the best aspect of the course? (I worked: 15-17 timmar/vecka)

The lecturer. Inspiring and pedagogic. I also liked the lecture notes.

**What would you suggest to improve?**

What would you suggest to improve? (I worked: 3-5 timmar/vecka)

Ithink it is okay to skip the calculations when needed. But the core aspect of difficulty in GR should not arise from the fact that the questions in the Homeworks are badly asked. But rather difficulty should arise from the method, i.e., what to do in GR when one poses the problem. For example, should we derive the effective potential or general Einstein equations, or even start by minimizing the action ? What should we do and in what circonstance, is what is lacking.

What would you suggest to improve? (I worked: 6-8 timmar/vecka)

This course was good.

This shouldn't be a 3 credit curse The amount of material to learn is definitely more than in a typical 3 credit course.

What would you suggest to improve? (I worked: 9-11 timmar/vecka)

It would be useful to have one lecture where the teacher solved problems (from old exams or a textbook) on the blackboard.

Make it more than 3 hp! I mean, timewise it already is. It seemed that the lecturer (Blennow) wanted this, too.

There were barely any problems one could practice with in preparation for the exam. The problems provided in the lecture notes seemed irrelevant to the problems one sees on the exam, and the problems in the lecture notes seemed repetitive after a while, such as calculating the Christoffel symbols only for different metrics, or filling in some calculations. It could be improved if there were recommended exercises that are similar to the exam problems. During the course it felt as if one had no idea on how to solve the homework problems since this was the first seeing such problems.

It could also be improved if the course followed one textbook instead of the lecture notes which felt as a mix of several textbooks. The lecture notes were useful in their own way, but did not always describe the topics in the course thoroughly as some textbooks did, but since so many textbooks were recommended one had to search through several textbooks to find insightful arguments.

What would you suggest to improve? (I worked: 12-14 timmar/vecka)

More examples and problems which one could work with alone. Also make the course bigger, I spent far more time on these 3 hp than the other 14.5 hp I read at the same time. Not because I planned badly, but because I needed it, so adding excersise classes would be a good improvment.

What would you suggest to improve? (I worked: 15-17 timmar/vecka)

It would have been nice to do more computations, at least once during a lecture/exercise class. For example I would have liked to have seen the derivation of the Schwarzschild metric (like an exercise class). Even though it’s “just” computations it could be nice to do once :)

**What advice would you like to give to future participants?**

| What advice would you like to give to future participants? (I worked: 3-5 timmar/vecka) |
| --- |
| Don't take this course. Or if you really want to improve your knowledge in GR, work on another book instead of going to the lectures: this will save you time and keep your mind clear. |

| What advice would you like to give to future participants? (I worked: 6-8 timmar/vecka) |
| --- |
| They should understand mathematics before this course starts. |
| Not to underestimate the amount of work required initially. Especially in the mathematical foundations and differential geometry. |

| What advice would you like to give to future participants? (I worked: 9-11 timmar/vecka) |
| --- |
| In this course more than any other, don't fall behind! Go through the lecture notes to make sure that everything so far makes sense. It's a wild but fascinating ride. |

**Is there anything else you would like to add?**

| Is there anything else you would like to add? (I worked: 3-5 timmar/vecka) |
| --- |
| The expression "in essence" doesn't seem relevant. Because if someone asks a question, and receive an "in essence" answer, then he gets the "gist" and the intuition of the answer. But most of the time the students mostly struggle with how to apply their intuition in mathematics: it should not be an "in essence" explanation, but an "overly precise" explanation instead. If you read one thing in my comments, it should be that. |

| Is there anything else you would like to add? (I worked: 6-8 timmar/vecka) |
| --- |
| Nothing. |

| Is there anything else you would like to add? (I worked: 9-11 timmar/vecka) |
| --- |
| Nah |
| Interesting course, but the course seems too small with too much material to appreciate the entire subject as one must hastily read through the material in order to grasp the big concepts. |

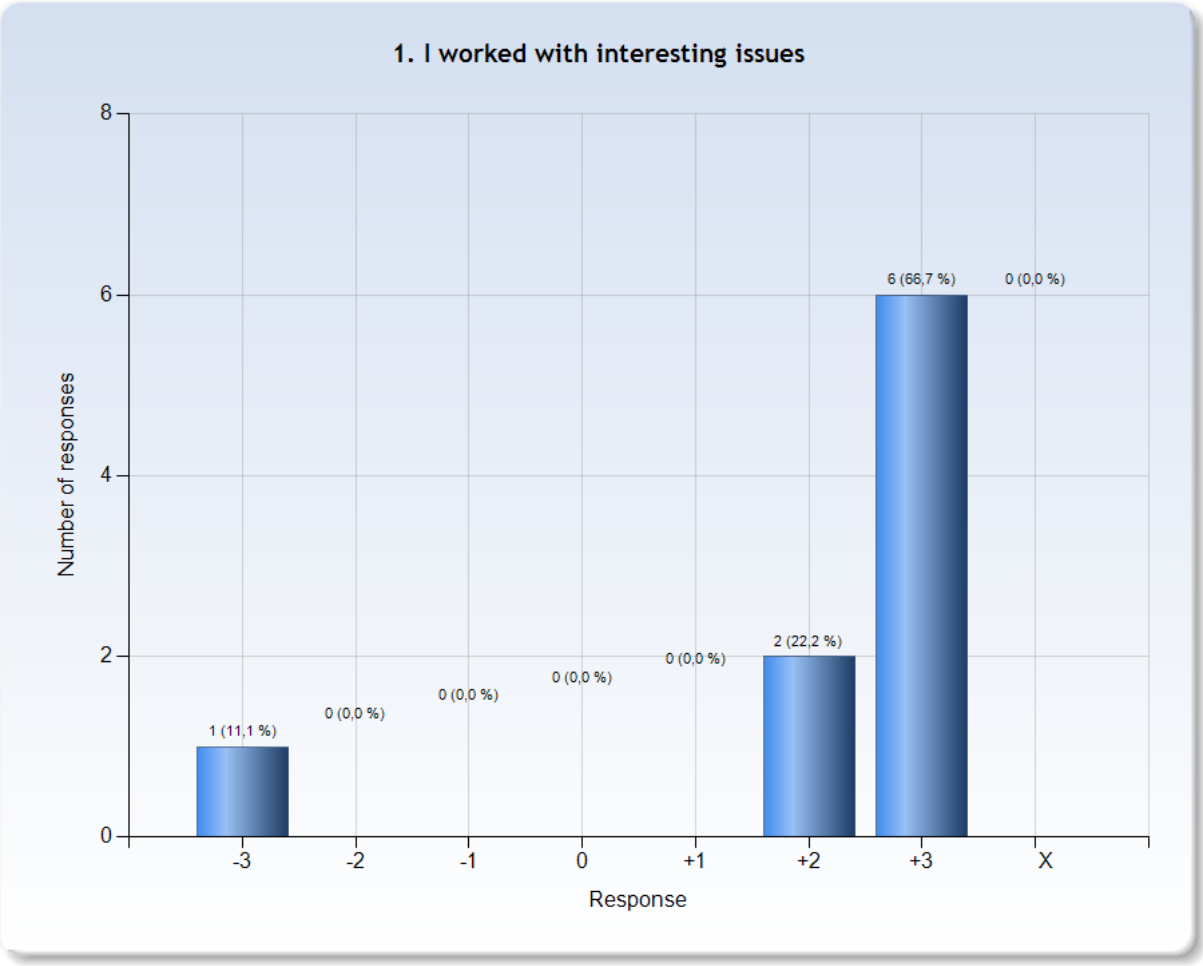
# SPECIFIC QUESTIONS

# RESPONSE DATA

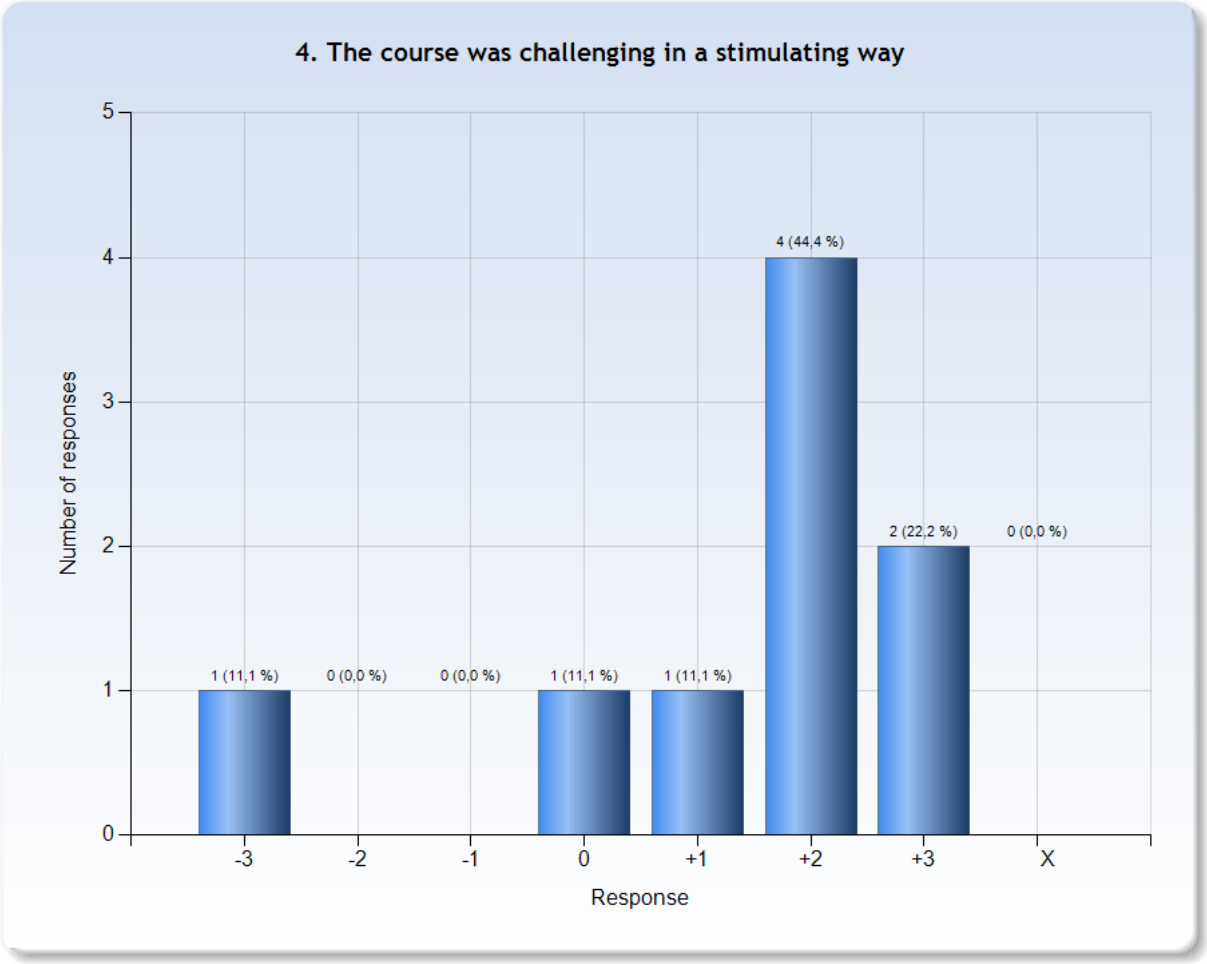
The diagrams below show the detailed response to the LEQ statements. The response scale is defined by:

-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



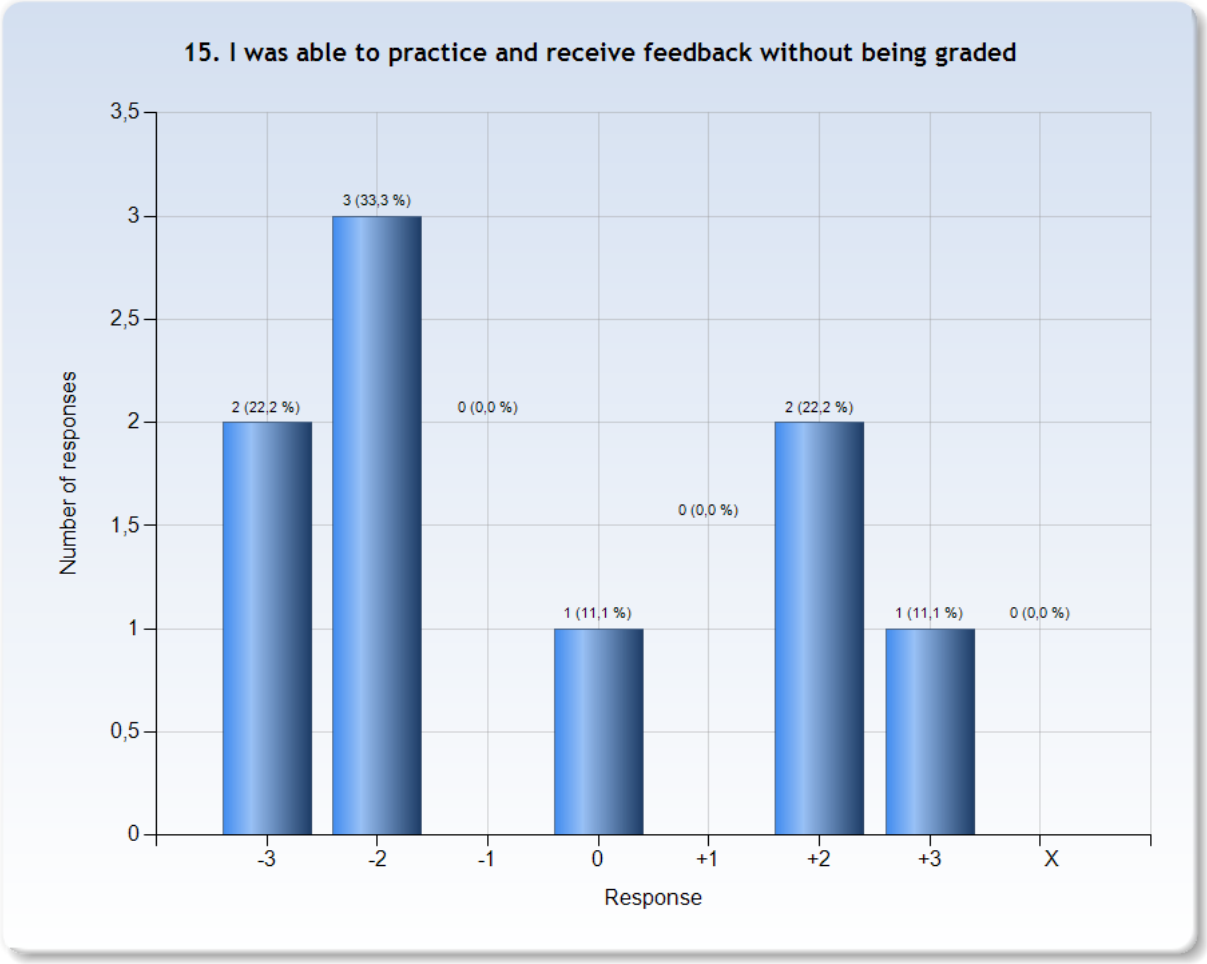

**Comments**




**Comments**

Comments (My response was: -3)

It was challenging to understand something, but not stimulating since the course did not give any basis to start one's reasoning.



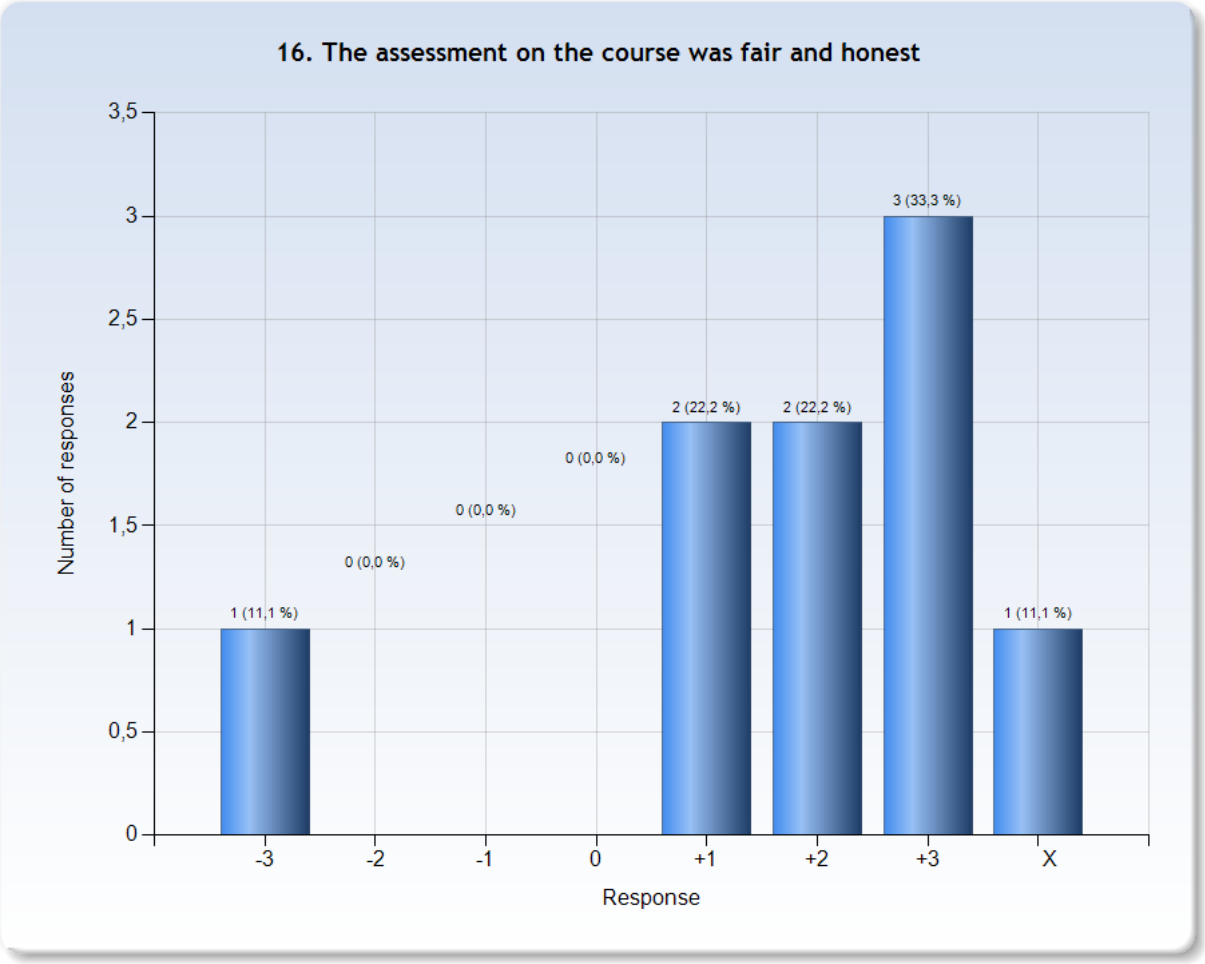

**Comments**

Comments (My response was: -3)

Need more recomended problems with solutions.

Comments (My response was: -2)

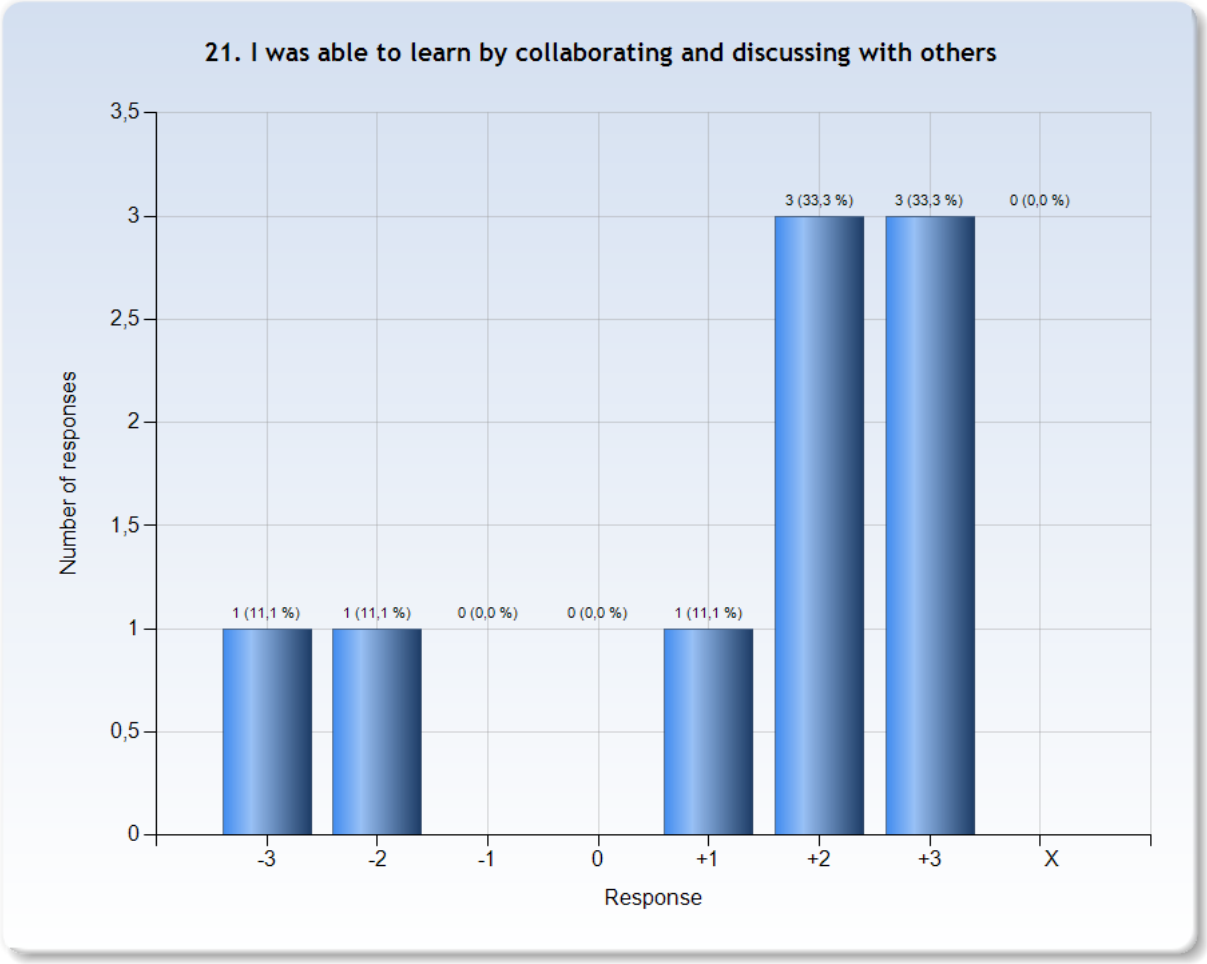
No exercise classes and not so many easy tasks to do.



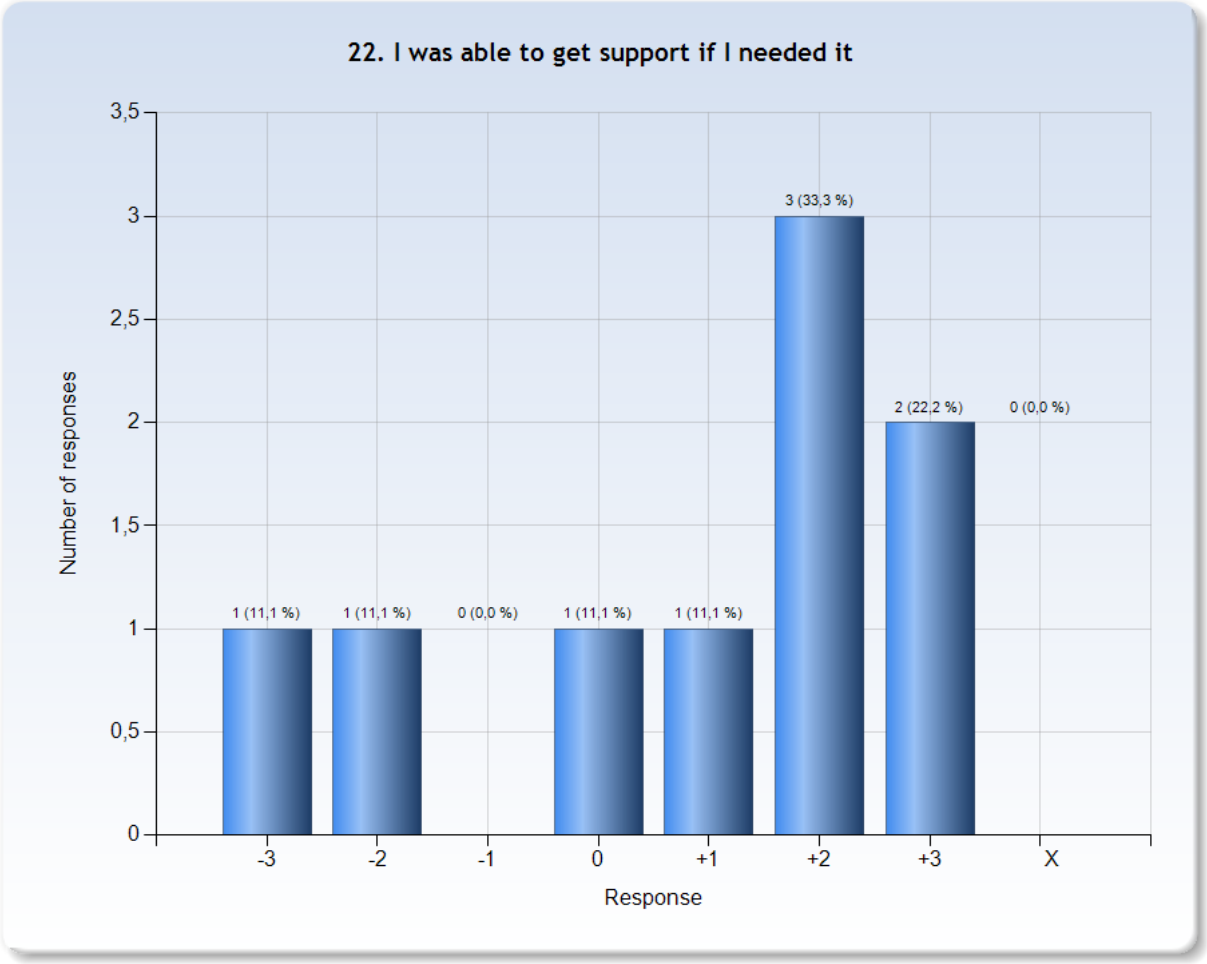

**Comments**

Comments (My response was: X )

Dunno yet


21. I was able to learn by collaborating and discussing with others
Number of responses
3,5
3
2,5
2
1,5
1
0,5
0
1 (11,1 %)
1 (11,1 %)
0 (0,0 %)
0 (0,0 %)
1 (11,1 %)
3 (33,3 %)
3 (33,3 %)
0 (0,0 %)
-3
-2
-1
0
+1
+2
+3
X
Response

**Comments**




**Comments**

Comments (My response was: -3)

The few questions I asked, I was only able to ask by email. And the answers were nor accurate neither precise enough.