

Report - MG2028 & MG2128 - 2022-03-16

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):

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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.

LEQ-enkät (LEQ 22) aktiverades 2022-01-14 och var aktiv t o m 2022-02-12. Enkäten besvarades av 23 av de totalt 99 studenter som var aktiva deltagare i de två kursversionerna MG2028 & MG2128. Vi träffade dessutom varje student vid 5-10 tillfällen under handledning och redovisning av datorövningar och handledning av inlämningsuppgifter, och vid dessa tillfällen fick vi också återkoppling kring hur kursen fungerat.

Svarsfrekvensen var betydligt högre på MG2128, 15 av 42 aktiva studenter, än på MG2028, med 8 svar från 57 aktiva studenter. Detta är ett återkommande mönster som enligt vår uppfattning beror på att det är olika studentkategorier i de två kurserna, där de som läser MG2128 huvudsakligen är direktantagna Masterstudenter, utländska utbytesstudenter och spridda studenter från andra KTH-program än M, P och BD, medan de som läser MG2028 i första hand är civilingenjörsstudenter på dessa program, som kanske i större utsträckning känner en viss trötthet inför alla kursenkäter.

The course evaluation questionnaire was published on 2021-01-14 and was active until 2022-02-12. In total, 23 of 99 students who actively participated in the two course versions MG2028 and MG2128 answered the questionnaire. Besides this, we met every student at 5-10 times for supervision and presentation of computer exercises and help with homework assignments. During these meetings, we also got feedback from the students on how the course has been received.

The rate of answers was considerably higher in MG2128, with 15 answers from 42 active students, than in MG2028, where there were 8 answers from 57 active students. This is a recurring pattern, which we believe is due to the different categories of students in the two courses. MG2128 has predominantly Master students who have been admitted directly to the Master programme, and some international exchange students and odd students from other 5-year engineering programmes, whereas the students of MG2028 are mostly 5-year engineering students in Mechanical Engineering, Design and Product Realisation and Materials Design, who may have a less positive attitude to course questionnaires, as they have encountered many such questionnaires for a long time already.

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.)

Inga specifika möten för att inhämta studenternas synpunkter har arrangerats, utöver schemalagda övnings-, labb- och redovisningstillfällen.

No dedicated meetings with students have been arranged, besides the scheduled classes and exercises.

COURSE DESIGN

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

MG2128 inleds med fyra övningar i Grundläggande CAD, som motsvarar kursmomentet Grundläggande CAD i kurserna MF1001, MF1061 & MG1028, innan den andra kursversionen MG2028 startar. Alla kursaktiviteter och alla examinationsmoment är därefter gemensamma för de två kurserna och desamma som under tidigare år. De gemensamma delarna är, efter en inledande fas där vi repeterar och bygger på CAD-kunskaperna, indelade i olika teman, kring olika slags IT-verktyg som används i en industriell produktframtagningsprocess, där varje tema åtminstone innehåller en föreläsning med introduktion till temat eller en gästföreläsning med föreläsare från industri eller forskning, som presenterar sin syn på och sina erfarenheter inom ämnet, samt en eller i något fall två lärarledda datorlaborationer. Utöver dessa schemalagda aktiviteter ingår ett antal obligatoriska och betyghöjande frivilliga inlämningsuppgifter som utförs självständigt utanför schemalagd tid. Mycket av arbetet i kursen är praktiskt arbete vid dator, och detta har i första hand genomförts i institutionens egna datorsalar.

Under denna kursomgång har vi kunnat återgå till att hålla alla föreläsningar på plats på campus, men vi har också gjort inspelningar av våra egna föreläsningar tillgängliga via Canvas och i några fall också haft hybridföreläsningar, där vi haft deltagare online via zoom, medan gästföreläsningarna bara hållits på plats, då det som presenteras där inte alltid får dokumenteras och spridas. Där har istället presentationerna redigerats av föreläsaren och i efterhand gjorts tillgängliga via Canvas. Alla datorövningar som innebär praktiskt arbete med IT-verktygen har genomförts på Campus i våra egna datorsalar, med fortsatt Covid-19-anpassning. Detta har inneburit att studenterna i huvudsak arbetat enskilt vid varsin dator, i stället för parvis, som varit det normala innan pandemin. Inför varje övningsstillfälle har studenterna fått skriva under ett intyg om att de känt sig helt friska och att de kan bli avvisade om de uppvisat några sjukdomssymtom. Dessutom har handsprit funnits tillgänglig i datorsalarna med uppmaning att använda den.

Vi har under denna kursomgång också med något enstaka undantag kunnat erbjuda studenterna möjlighet att själva ladda ner och installera de programvaror/IT-verktyg som vi använder i kursen, på egen dator. Detta har gjort att en del studenter kunnat göra datorövningarna och inlämningsuppgifterna utan att behöva komma in till Campus annat än för att redovisa dem. Flertalet har dock valt att komma in till Campus och arbeta på plats, för att få träffa kamrater och kunna få hjälp med övningarna snabbt och smidigt.

Inga större förändringar har genomförts jämfört med föregående år, men en gästföreläsare ersattes av en annan inom ett likartat tema. Vidare så fick årets studenter ett dokument där vi beskrev våra förväntningar på den sammanfattning och reflektion kring en av gästföreläsningarna, som är obligatorisk att skriva och lämna in. Detta fick en omedelbar effekt, då bara fem av totalt 99 studenter var tvungna att skriva om och lämna in på nytt. Tidigare år har det snarare rört sig om 30-40% av studenterna som fått revidera och lämna in på nytt, så denna förändring bidrog till en mycket bättre kvalitet, och en klart minskad insats för oss för att ge återkoppling på inlämningarna.

MG2128 starts with four exercises in Introductory CAD corresponding to the course module on Introductory CAD in courses MF1001, MF1061 & MG1028, before the other course, MG2028 starts. From then on, all course activities and all examination modules/assessments are common to the two courses. After an initial phase where CAD knowledge and skills are reviewed and extended, the course is divided into different topical themes, related to different IT tools used in industrial product realisation processes. Each theme includes at least one lecture with introduction to the theme or a guest lecture with invited speakers from industry and academia, talking about their views and experiences on the topic, and one or two computer exercises with supervision by teachers and assistants. In addition to these scheduled activities, there are a number of compulsory and voluntary homework assignments, where the latter can be used to raise the final grade on the course, all of which have to be done outside scheduled classes. Much of the work in the course is practice in using different softwares/IT tools, and these sessions mostly have to be carried out in our own computer labs.

During this course offering, we have been able to return to on-campus lectures, but recordings of the lectures have also been available for download from Canvas, and in a few cases we have had hybrid lectures with some students participating via zoom. The guest lectures however, have only been given live on campus, as they often present sensitive information. Instead, the presentations given at these lectures have been edited and subsequently published for download from Canvas, after the conclusion of the lecture. All computer exercises where students work actively with different software packages have been carried out in our own computer labs, with measures taken with respect to Covid-19. Students have primarily worked individually at each computer, not in pairs as have been the normal during previous course offerings. Prior to each exercise, students have signed a form certifying that they feel well, and that they can be asked to leave if they display symptoms of being ill. Bottles of hand sanitizer have been available in the computer labs and students have been encouraged to use it.

During this course offering, we have also been able to offer students free download and installation on their own computers of almost all IT tools/softwares used in the course. Thereby, students have been given the possibility to carry out the exercises at home, and only have to come to campus to have the result assessed. The majority of students have however opted to come to campus to see friends and to get help from teachers readily and smoothly.

No major changes have been made to the course design compared to last year, but we had one guest lecturer replacing another, presenting similar topics. Furthermore, we made an instruction document available to students, giving guidelines for how to write a summary of and reflection on one of the guest lectures, a compulsory task in the course. This had an immediate impact on the quality, as only five students among 99 had to rewrite and resubmit the task. During previous course offering 30-40% of the students have had to revise their tasks, so this small change resulted in a much better quality of the student submissions, and much less work for us with feedback to the students.

THE STUDENTS' WORKLOAD

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

I snitt ca 10-11h/vecka, med ett snitt för MG2028 på ca 9,5h/vecka, medan MG2128 har ett snitt på ca 11,5h/vecka. Detta innebär om man räknar med alla kursveckor en arbetsbelastning som ungefär motsvarar 40h/1,5 hp. För att få ett godkänt betyg på kursen, så krävs förmodligen mindre tid än dessa genomsnitt, medan de studenter som siktar mot ett högt slutbetyg (A eller B), oftast lägger ner betydligt mer tid på kursen än genomsnittet. Detta avspeglas också i spridningen för nedlagd tid på kursen. Skillnaden mellan de två kurserna kan med stor sannolikhet förklaras av de olika student-kategorierna i respektive kurs. Studenterna på MG2028 är mestadels svenska civilingenjörsstudenter som fäster mindre vikt vid betyg än de studenter som läser MG2128, som mestadels är direktantagna Master-studenter, ofta från andra länder, och för dem är betygen vanligen viktigare. Detta visar sig också i de genomsnittliga betygen på respektive kurs, där betygen för MG2128 är avsevärt högre än för MG2028.

In average, students spend 10-11h/week on the course, with about 9,5h/week for MG2028 and approximately 11,5h/week for MG2128. This means that the average workload, reasonably well correspond to 40h/1,5 cr. To pass the course with the lowest passing grade, you probably need less hours than the average, but students who aim at a high grade (A or B), typically have to spend much more time than the average for the course. The difference between the two courses can most likely be explained by the different student categories in the courses. MG2028 students are typically Swedish 5-year engineering students, who are less concerned about grades than the students of MG2128 that are mostly students that were admitted directly to a 2-year Master programme, and many of these students are from countries where the grades are usually more important. That is also shown in grades for the two courses, where students of MG2128 get have much more of the higher grades than those in MG2028.

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?

Både examinationsgrad och prestationsgrad ligger på en liknande nivå som vid samma tidpunkt för föregående kursomgång. Den 15/3 har 86 av totalt 99 studenter på de båda kurserna har uppfyllt alla kursfordringar, och av dessa har 70 fått sina slutbetyg, medan övriga har att komplettera en eller flera betygshöjande uppgifter. Att så pass många ännu inte fått dessa uppgifter godkända beror till viss del på att vi blev försenade med rättningen av dem, men vi har också insett att uppgiftslydelserna i flera fall behöver uppdateras för att motsvara de förväntningar vi har på resultaten.

Both the number of students who have received a final grade and the share of possible credits reported are similar to the figures of last year's course offering. On March 15, 86 of the 99 students have completed all compulsory tasks in the course, and of those, 70 have received their final grade. The difference is students who have to revise their voluntary and grade-raising assignments. We were late with the first grading of these assignments, which may explain why several students still have to revise and complete their voluntary assignments, but we have also realised that the task descriptions have to be updated to better reflect our expectations.

STUDENTS' ANSWERS TO OPEN QUESTIONS

What does students say in response to the open questions?

De vanligaste svaren till vad som var det bästa med kursen är datorlabbarna, inlämningsuppgifterna, kursens utformning och lärarna (s engagemang). Förslagen till förbättringar spretar åt alla håll, men det vanligaste förslaget är att inte göra någon förändring alls. Råden till framtida kursdeltagare säger bland annat att man ska se till att göra saker och ting i tid, särskilt labbarna och att man ska delta i och reflektera kring alla gästföreläsningarna. I övrigt är det inte mycket som man vill tillägga.

The most common answers to what was the best aspect of the course are the computer labs, the homework assignments, the course design and the teachers' (s dedication). The prosals for improvements vary considerably, but the most common answer is Nothing! The advice to future participants include start working with tasks right away, in particular the lab exercises, and to attend all guest lectures and reflect on what is presented. Otherwise there is not much that students wanted to add.

SUMMARY OF STUDENTS' OPINIONS

Summarize the outcome of the questionnaire, as well as opinions emerging at meetings with students.

Fritextkommentarerna var inte så många, men generellt sett positiva, och studenterna instämmer i mycket hög grad med i stort sett alla påståenden i LEQ-enkäten, på samma sätt som för tidigare kursomgångar.

The text comments were few, but generally positive and the students agree to a large extent with all the statements in the LEQ questionnaires, as in previous course questionnaires.

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.

Vi är som helhet väldigt nöjda med denna kursomgång och med studenternas insatser. Dock är det en för hög andel av studenterna som tvingas revidera sina betygshöjande inlämningsuppgifter då de inte möter våra kvalitetskrav.

As a whole, we are very satisfied with the course and the performance of the students. However, the number of students that have to revise their voluntary homework assignments is too high, because they do not meet our expectations and quality demands.

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?

Det korta svaret på alla dessa frågor är "Nej"! Vi tycker att allt fungerat bra, och studenterna har instämt i mycket hög grad till nästan alla påståenden om lärmiljön. Vi kan notera en skillnad i betyg mellan svenska och internationella studenter, där de senare fått betydligt högre betyg, men vi tror att detta främst beror på skillnader i hur viktiga betygen är i olika kulturer.

The short answer to these questions is "No"! We believe that everything has worked well, and students have strongly agreed to almost all the statements about the learning environment. We can see a difference in grades between Swedish and international students, where the latter category have received considerably higher grades in average. However, we believe that that is more a reflection of the differences in importance of grades in different cultures.

PRIORITIZED COURSE DEVELOPMENT

What aspects of the course should be developed primarily? How can these aspects be developed in short and long term?

Att skriva om uppgiftslydelserna för betygshöjande inlämningsuppgifterna, så att vad som efterfrågas och kvalitetskraven på inlämningarna framgår ännu tydligare. Vi kommer också att ändra betygskriterierna något, så att den som får tillbaka flera av sina betygshöjande inlämningsuppgifter med krav på förbättring, inte ska kunna få högsta betyg på kursen. Vi vill härigenom trycka på vikten av egenkontroll innan man lämnar in uppgifterna.

To reformulate the task descriptions for the voluntary assignments, to further clarify what we expect and the quality standards that we wish to see in the assignments. We will also change the grading criteria slightly, to avoid giving the highest grade to students who have submitted several homework assignments that we required updates of. Hereby, we wish to emphasize the need for self-evaluation before submission.

OTHER INFORMATION

Is there anything else you would like to add?

Ett citat från en student/A citation from a student:

"In general I don't like CAD which has led to me avoiding it. Having this course as compulsory for my masters has made me come to realise I didn't like it as I have never looked at it seriously, in reality I didn't know CAD. Now I know I can do CAD, I just need to continue learning it."

... och detta gäller inte bara "Inte bara CAD"/... and this applies not just to "Not Just CAD"! /Lasse & Per

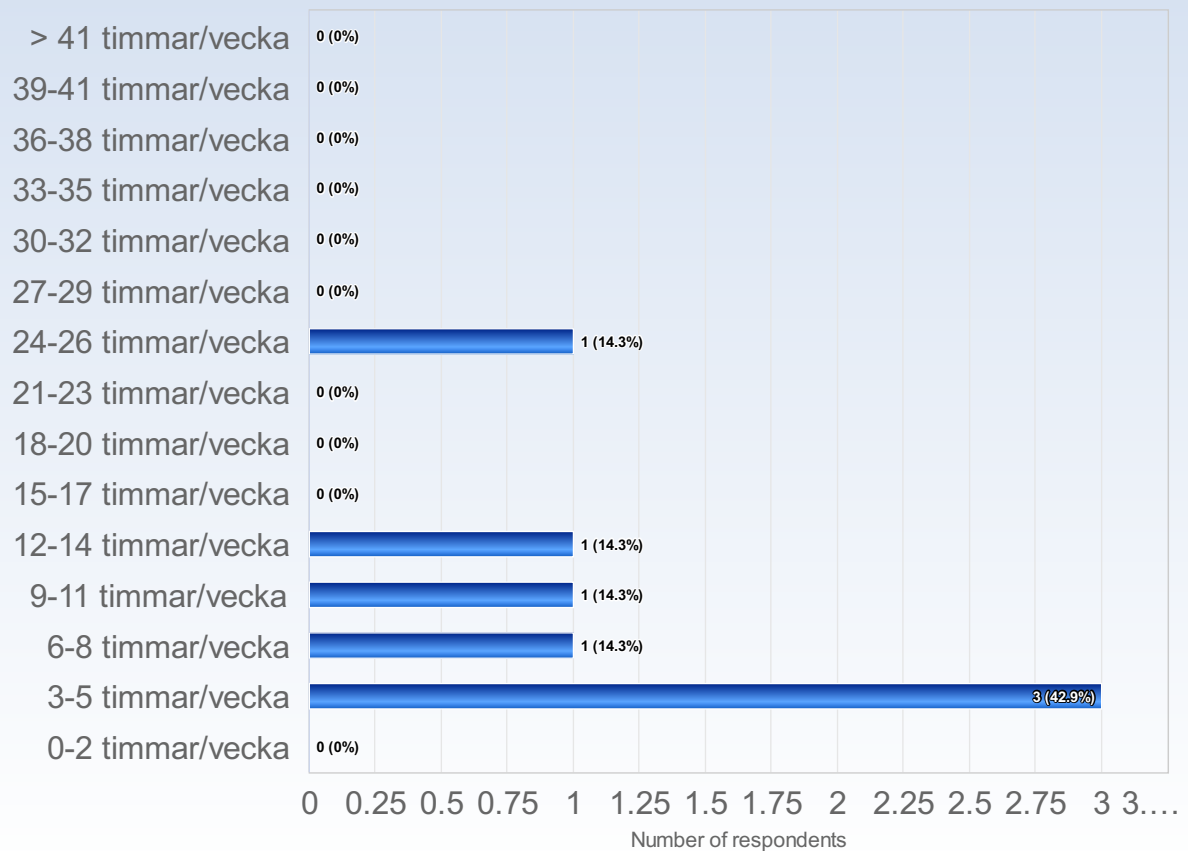


MG2028 - 2022-01-13

Antal respondenter: 59
Antal svar: 8
Svarsfrekvens: 13,56 %

ESTIMATED WORKLOAD

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





Comments

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

Decent workload!

Resonligt om du vill ha E

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

Some weeks more than others

Comments (I worked: 12-14 timmar/vecka)

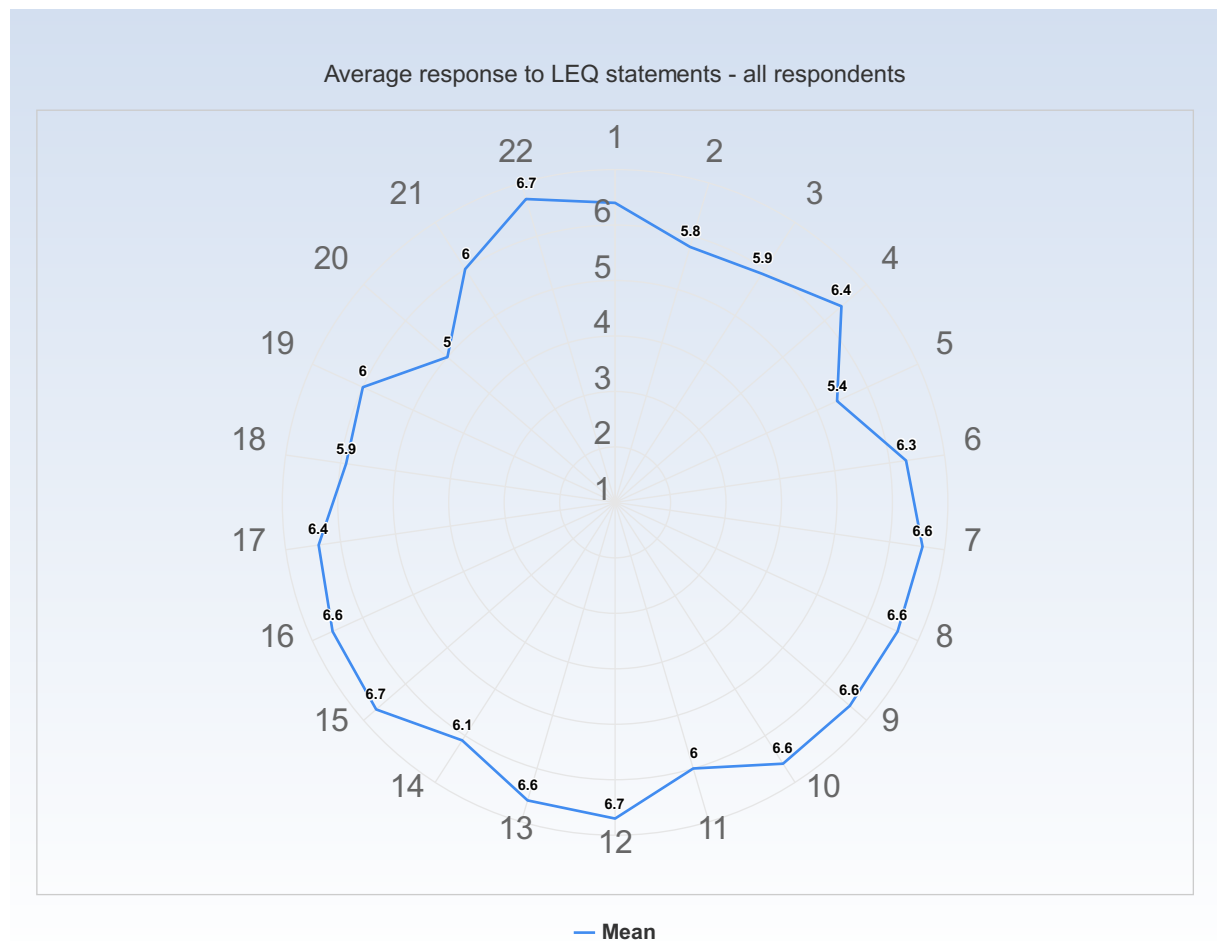
Some weeks i spent a lot of time, other weeks much less

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

Literature

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

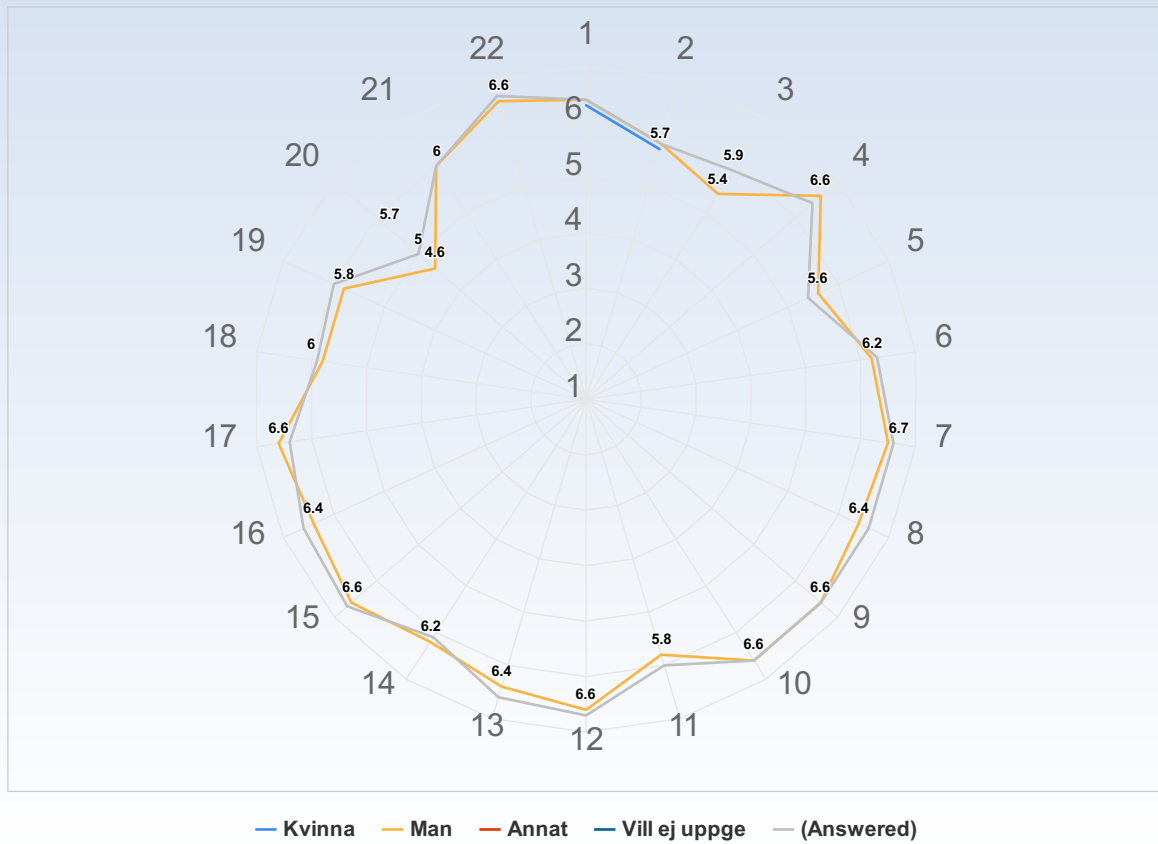
Biggs J. & Tang, C. (2011). *Teaching for Quality Learning at University*, Chapter 6, pp. 95-110. Maidenhead: McGraw Hill.

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



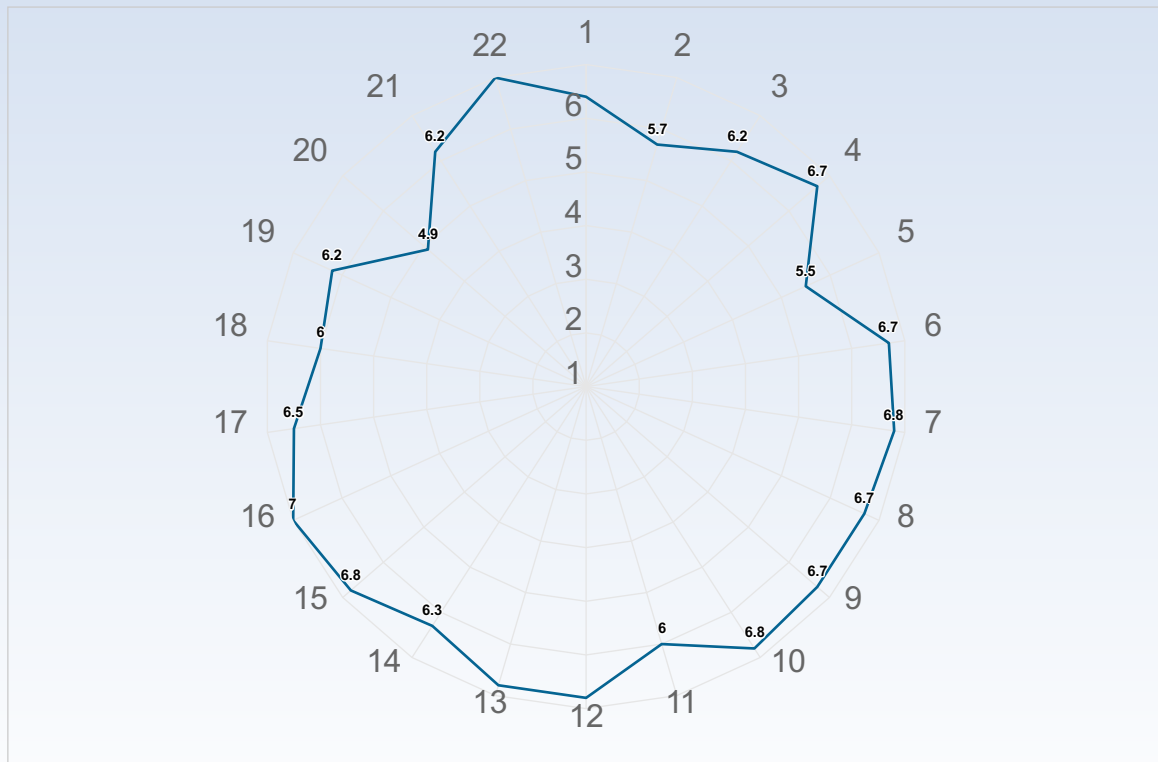
Comments

Comments (I am: Man)

no comment

It is fine but I would make the groups randomly to make people work with different partners.

Average response to LEQ statements - per type of student



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

Comments

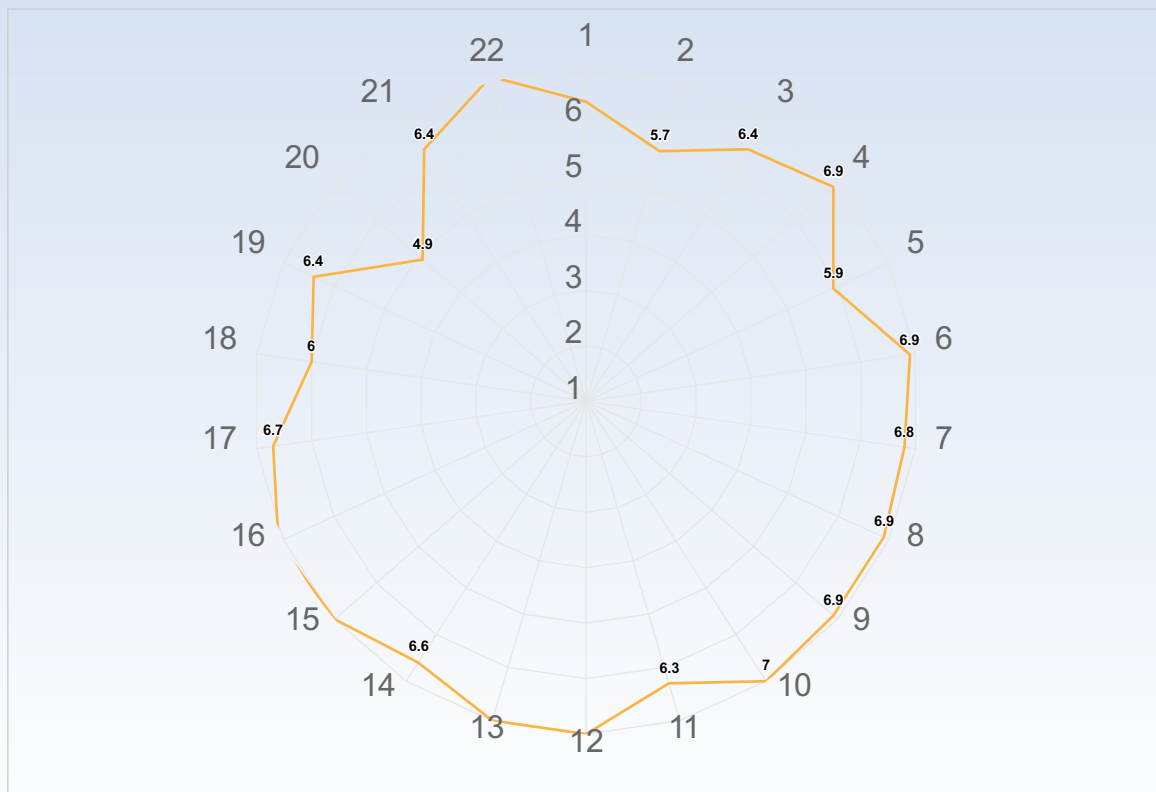
Comments (I am: Internationell utbytesstudent)

Most of Swedish students do not want to relate with other foreign students.

Comments (I am: Svensk student i årskurs 4-5)

Good level

Average response to LEQ statements - per disability



— Ja — Nej — Vill ej uppge

Comments



GENERAL QUESTIONS

What was the best aspect of the course?

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

You learned alot on the scheduled labsessions

Lasse och Per! Bästa lärarna, väldigt inkluderande att ni lär allas namn

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

The "obligation" to assist to labs and take the course day-today.

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

The labs

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

Computer labs were good as they helped you learn everything properly

What would you suggest to improve?

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

Nothing

-

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

Instead of having voluntary assignments, in order to make sure that the concepts are learned, to make exams so that everyone have the opportunity to take good grades with same conditions. Some voluntary assignments could have easier parts.

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

make the additional assignments a bit shorter or clearer, especially the product communication

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

More guides or extra litterature. For example, when doing the homework assignments, even if one had been to the lecture and read the "guide to robust models" it was hard reading the drawing. Perhaps just adding som links to online resources would be very beneficial and help more people get more out of the assignment

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)

Var fokuserade på labbarna, om du jobbar två och två se till att ni turas om att sitta vid datorn

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

Keep up the pace, ask questions

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

Go to the guest lectures

Is there anything else you would like to add?

Is there anything else you would like to add? (I worked: 3-5 timmar/vecka)

No

SPECIFIC QUESTIONS



RESPONSE DATA

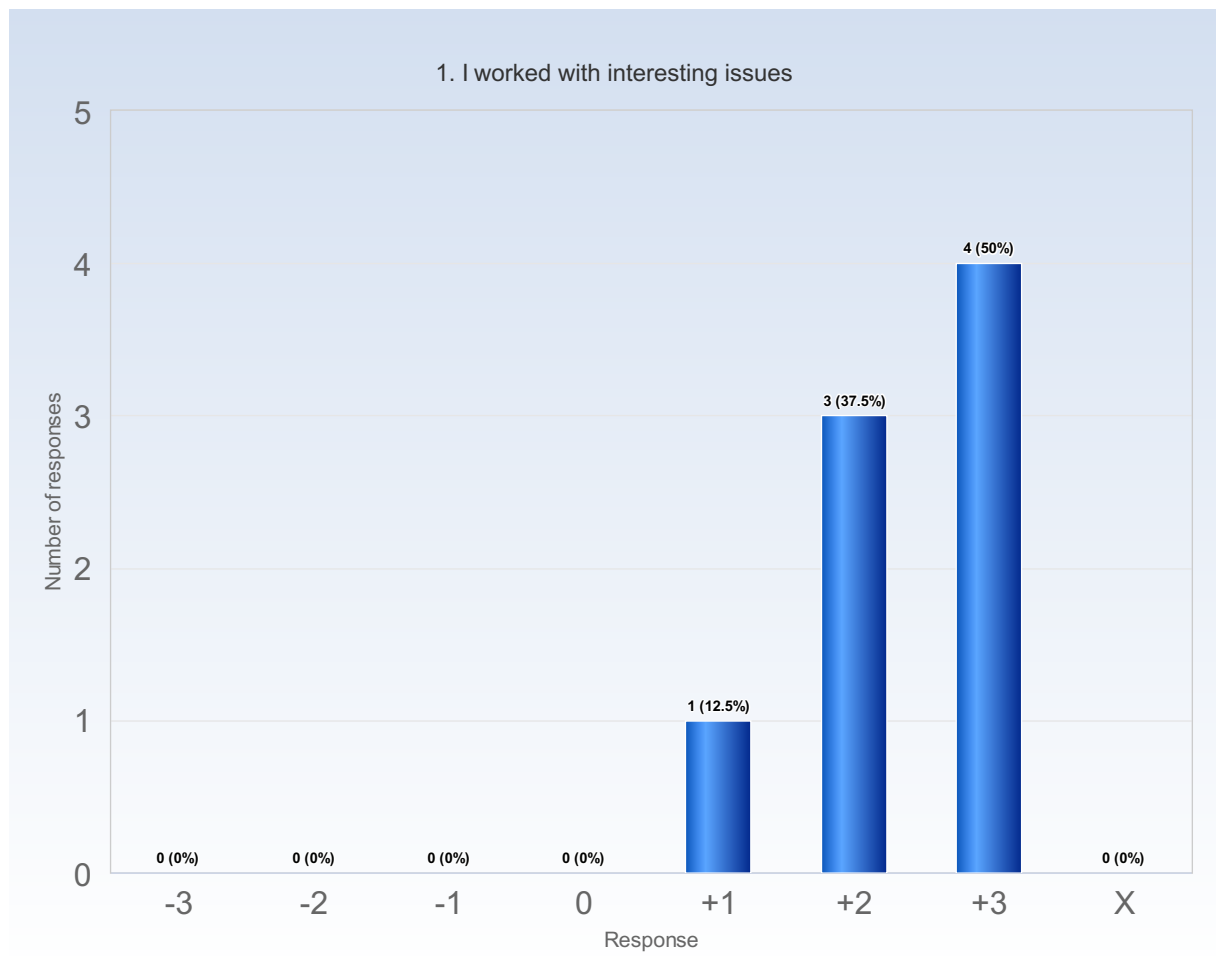
The diagrams below show the detailed response to the LEQ statements.
The response scale is defined by:

-3 = No, I strongly disagree with the statement

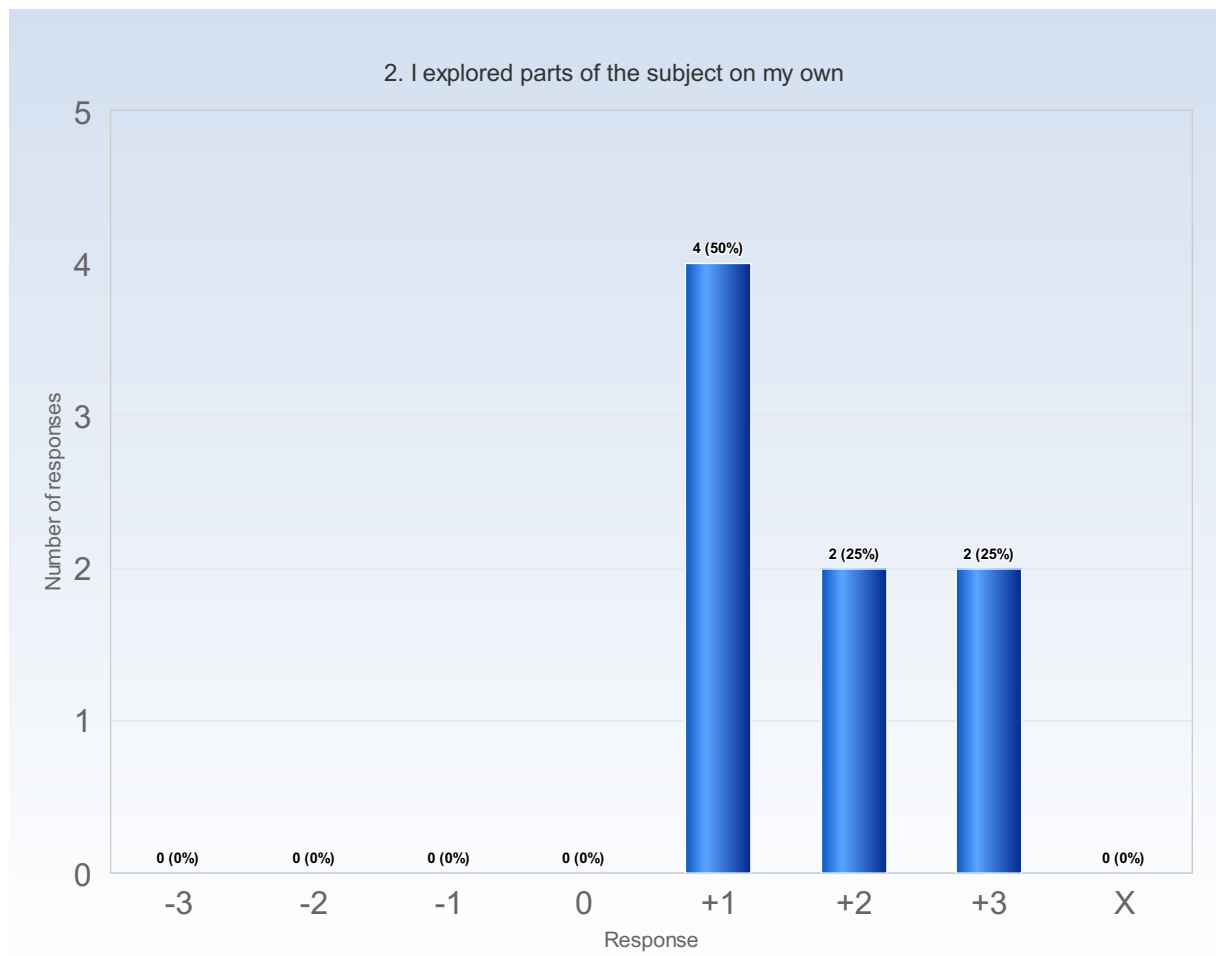
0 = I am neutral to the statement

+3 = Yes, I strongly agree with the statement

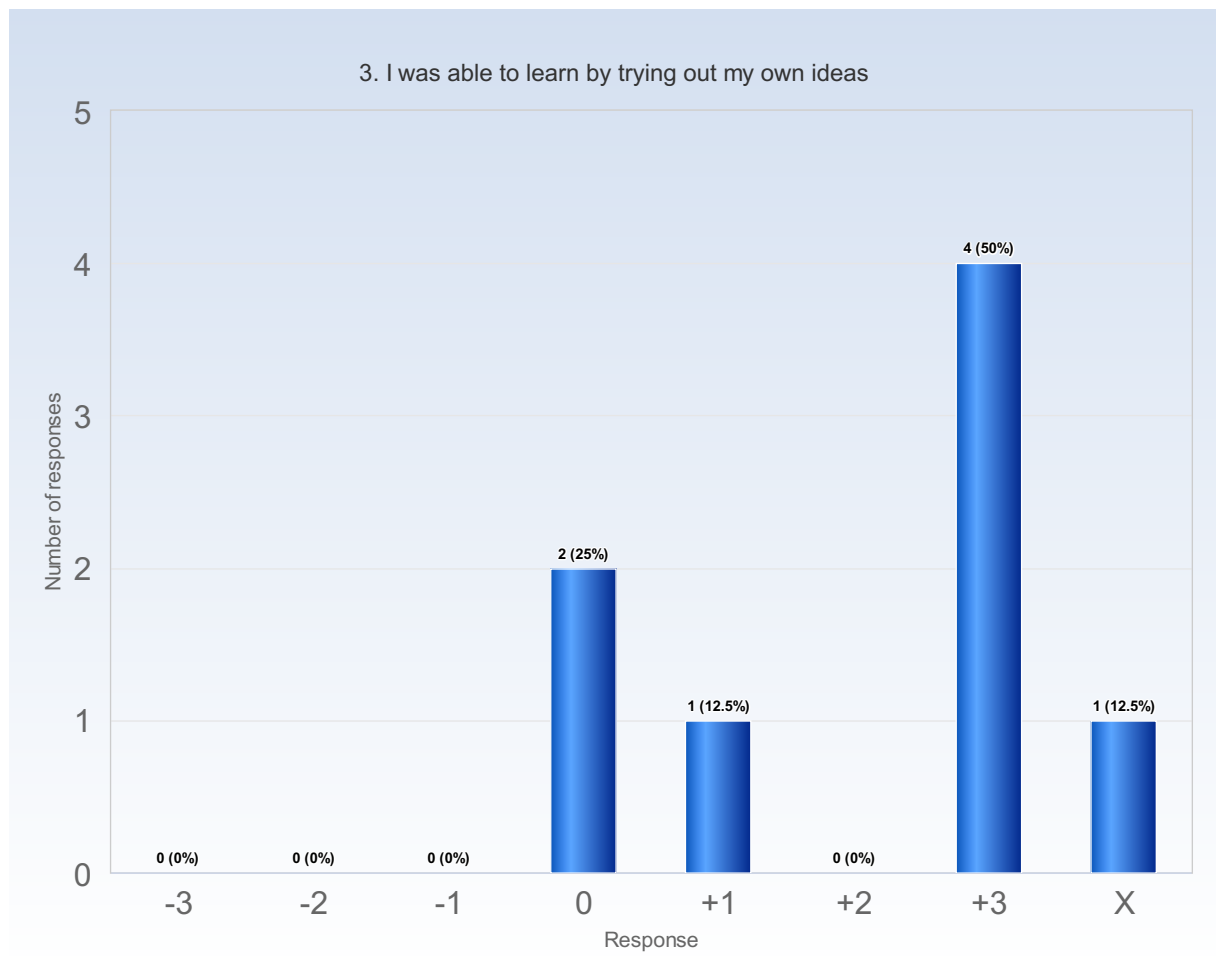
X = I decline to take a position on the statement



Comments

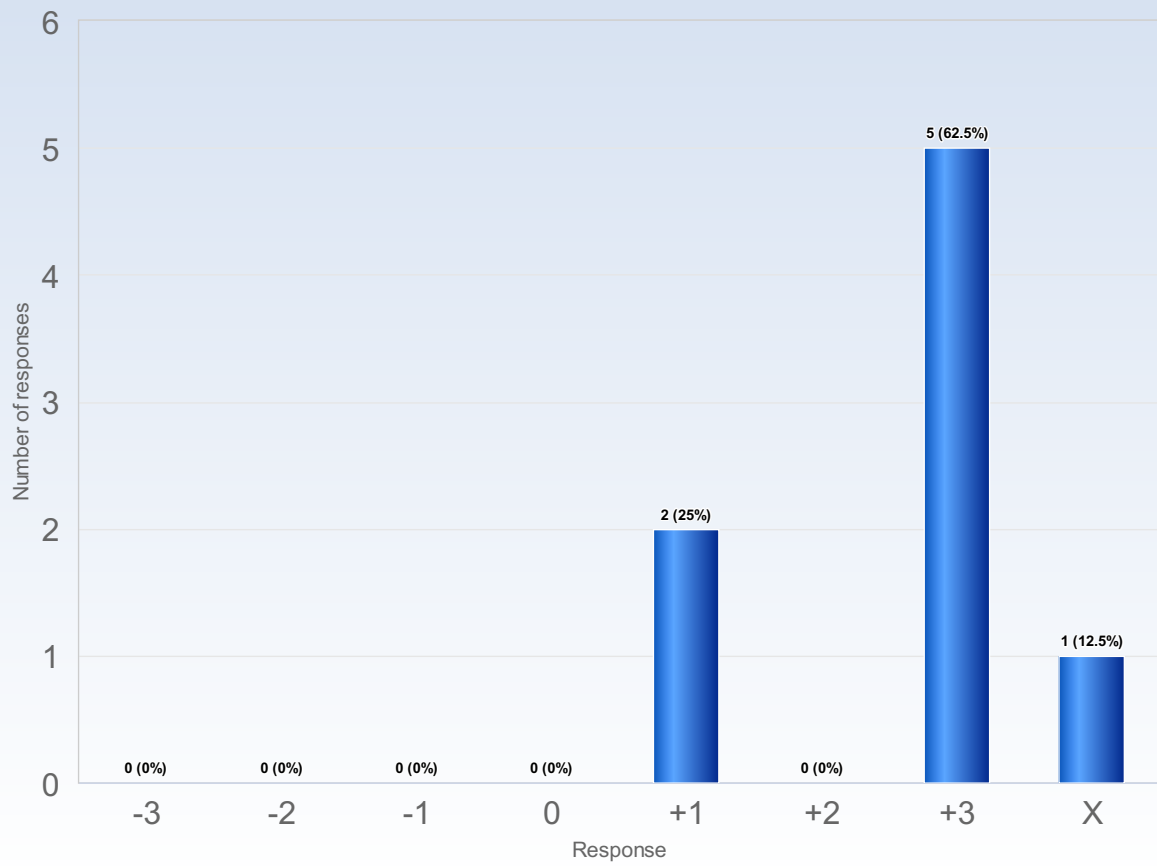


Comments

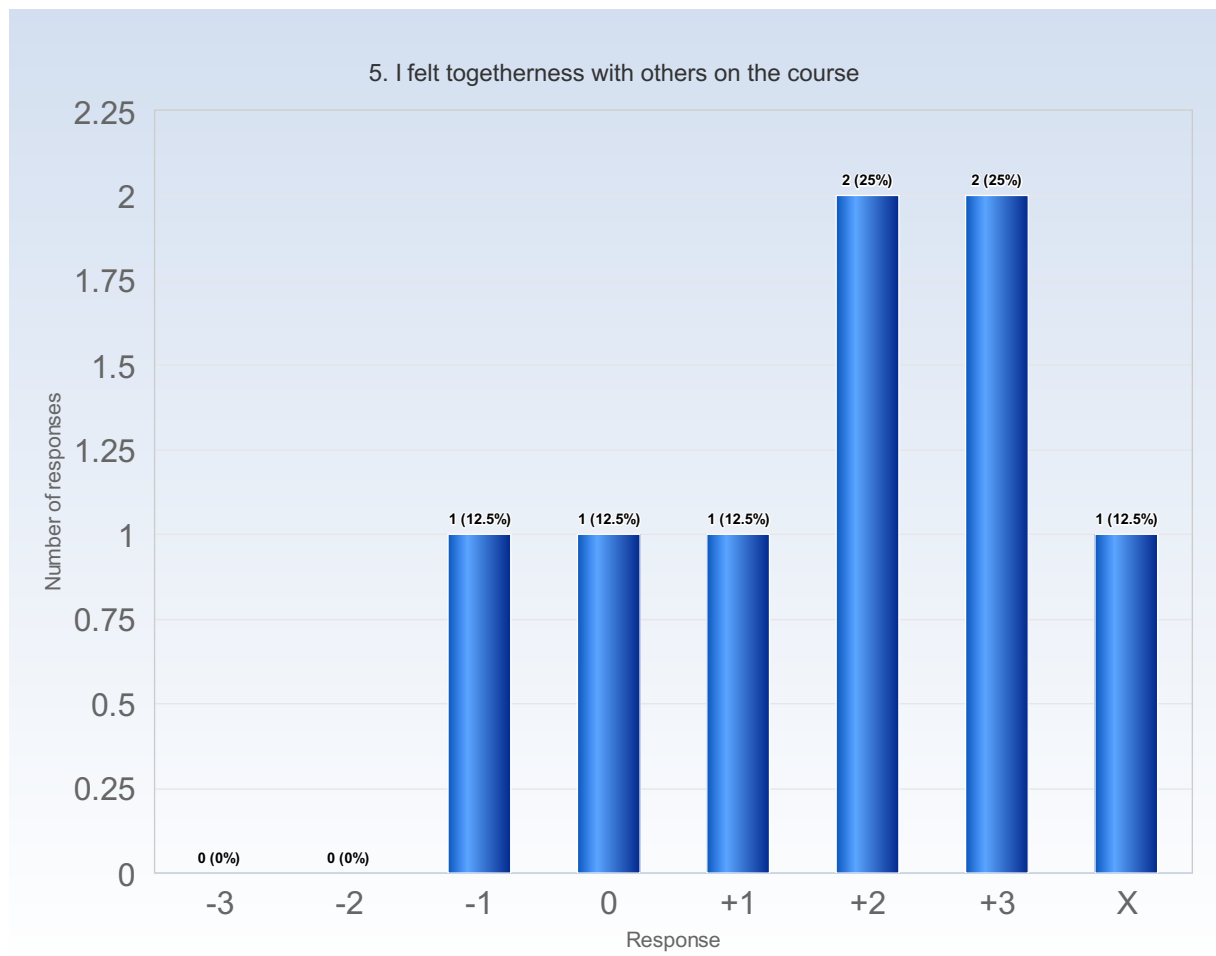


Comments

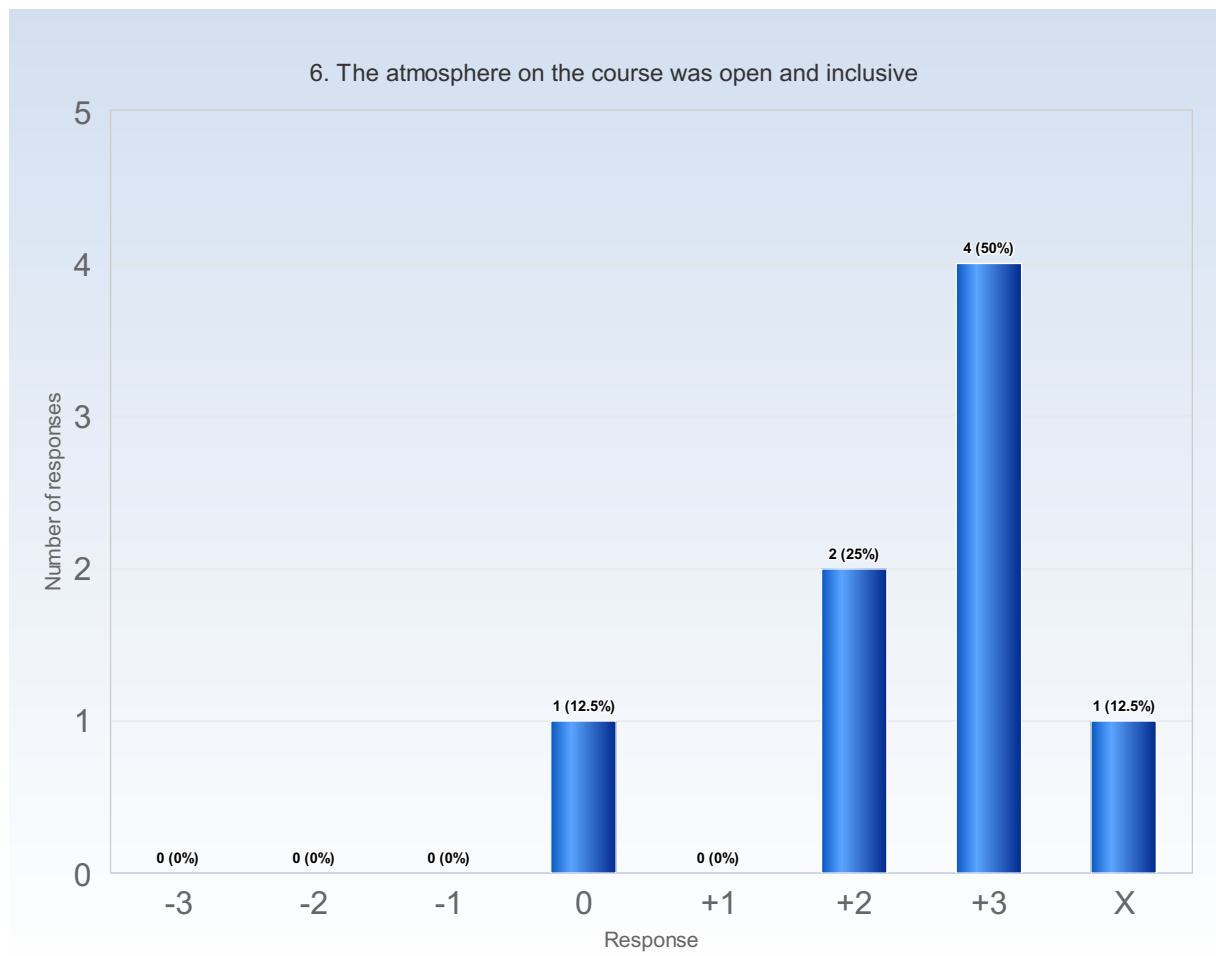
4. The course was challenging in a stimulating way



Comments

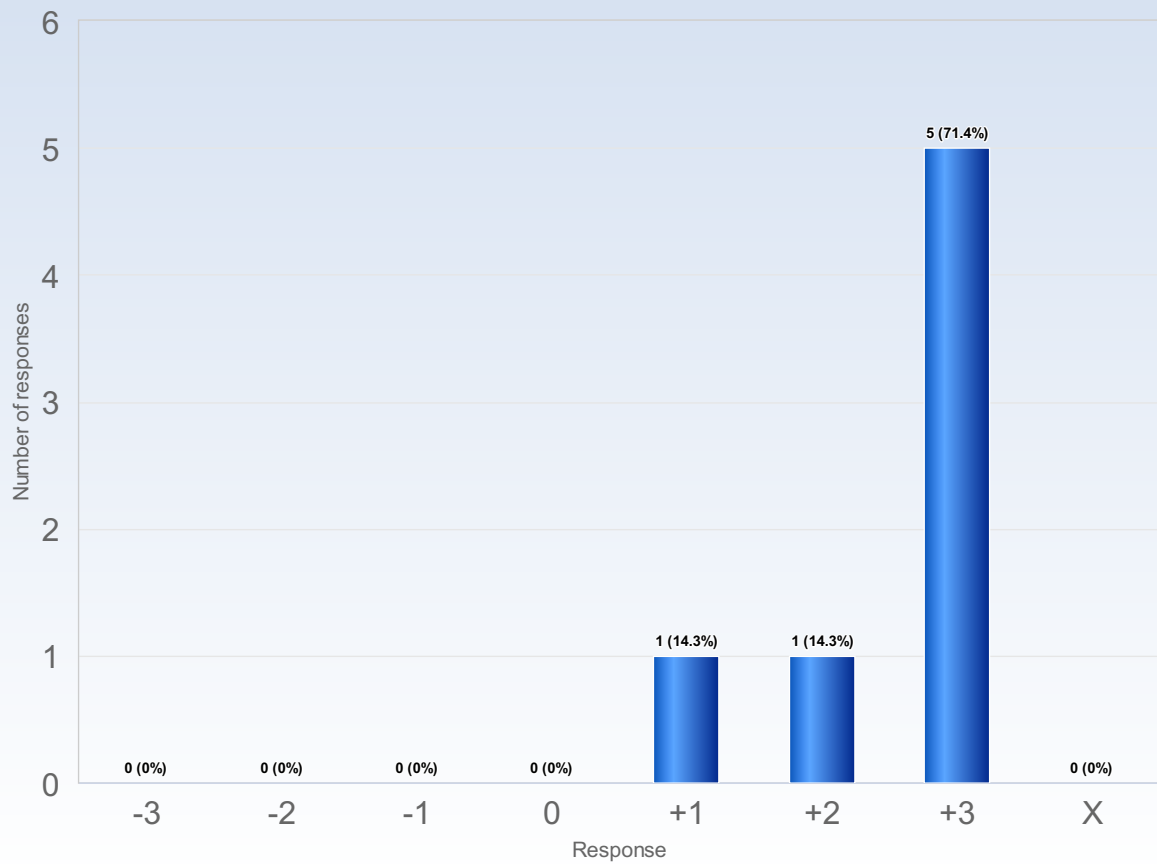


Comments



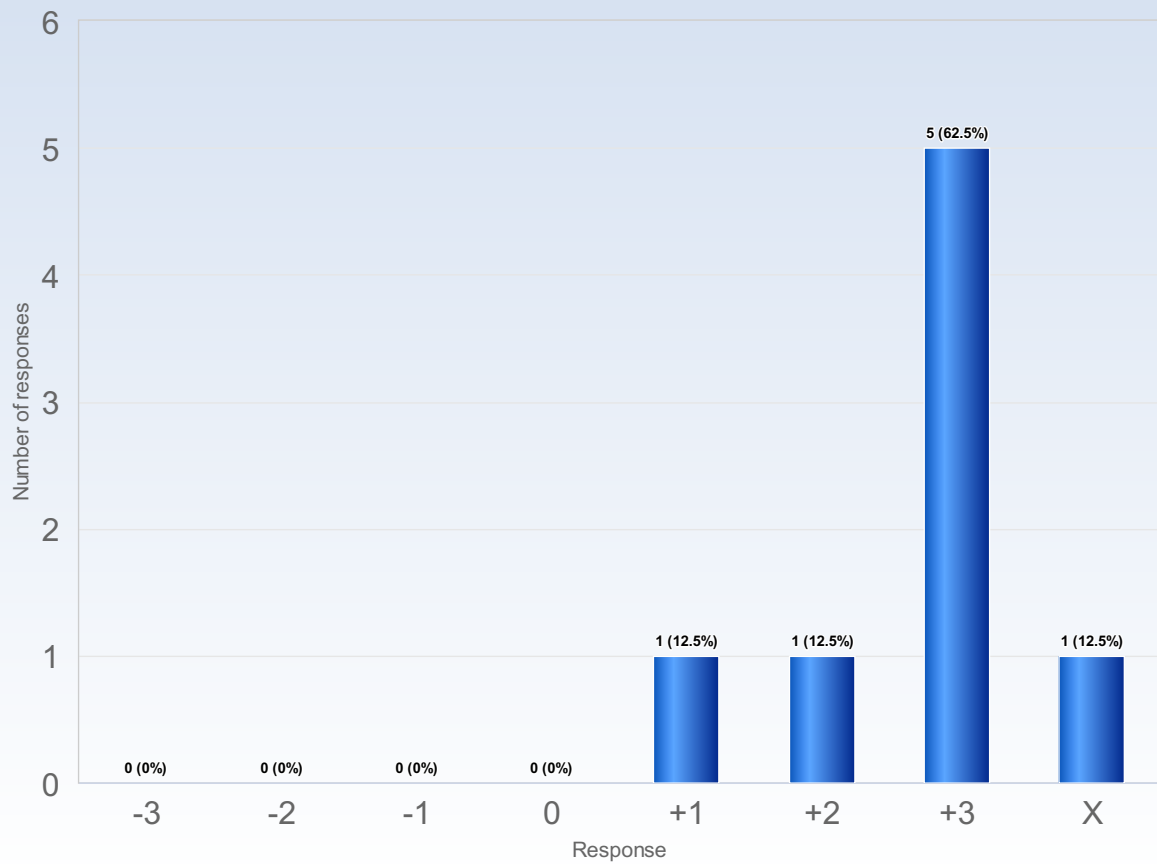
Comments

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



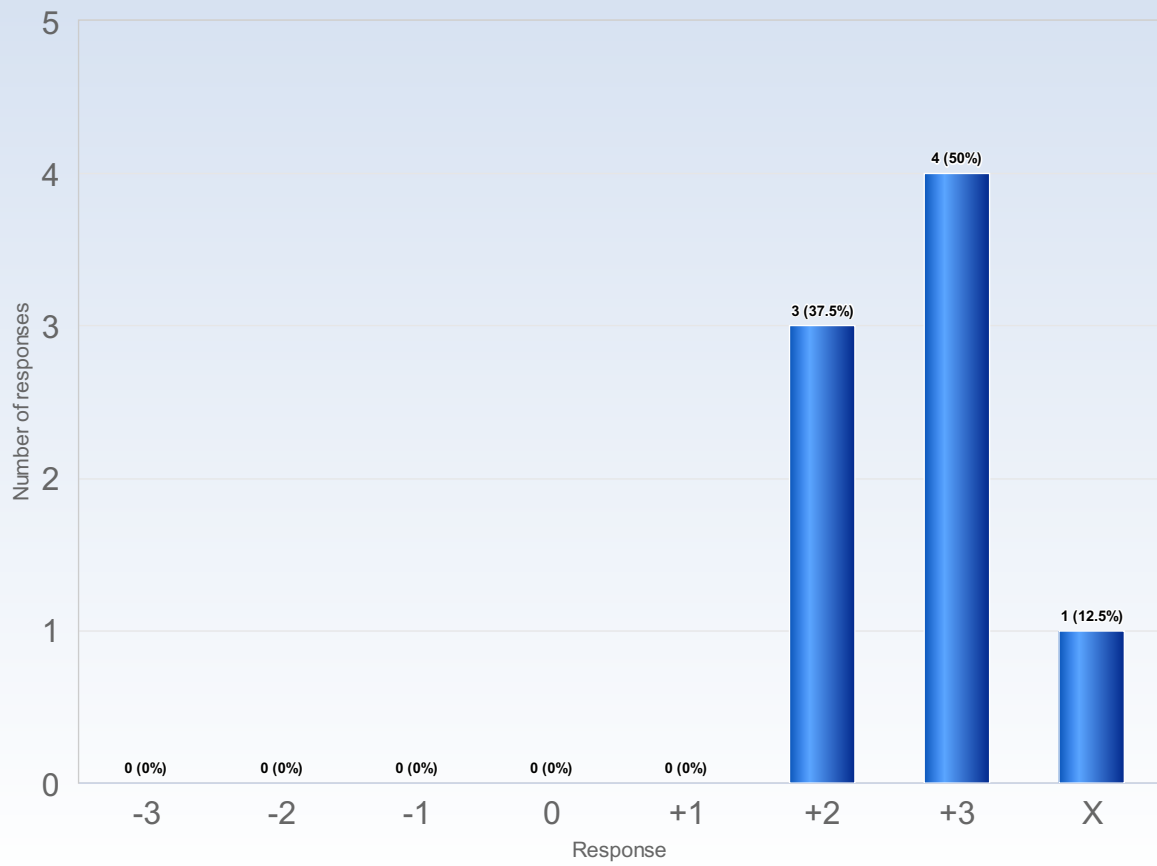
Comments

8. The course was organized in a way that supported my learning

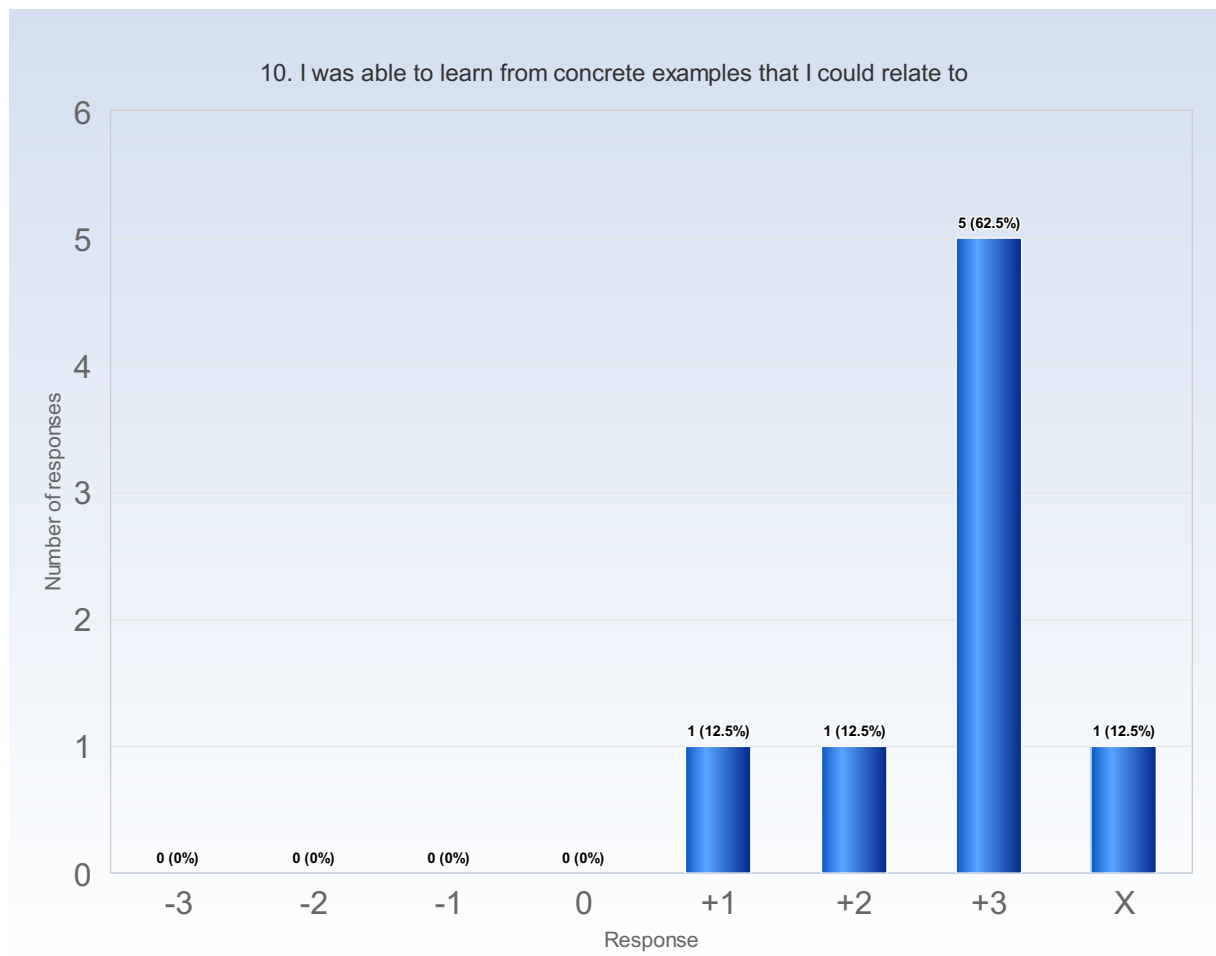


Comments

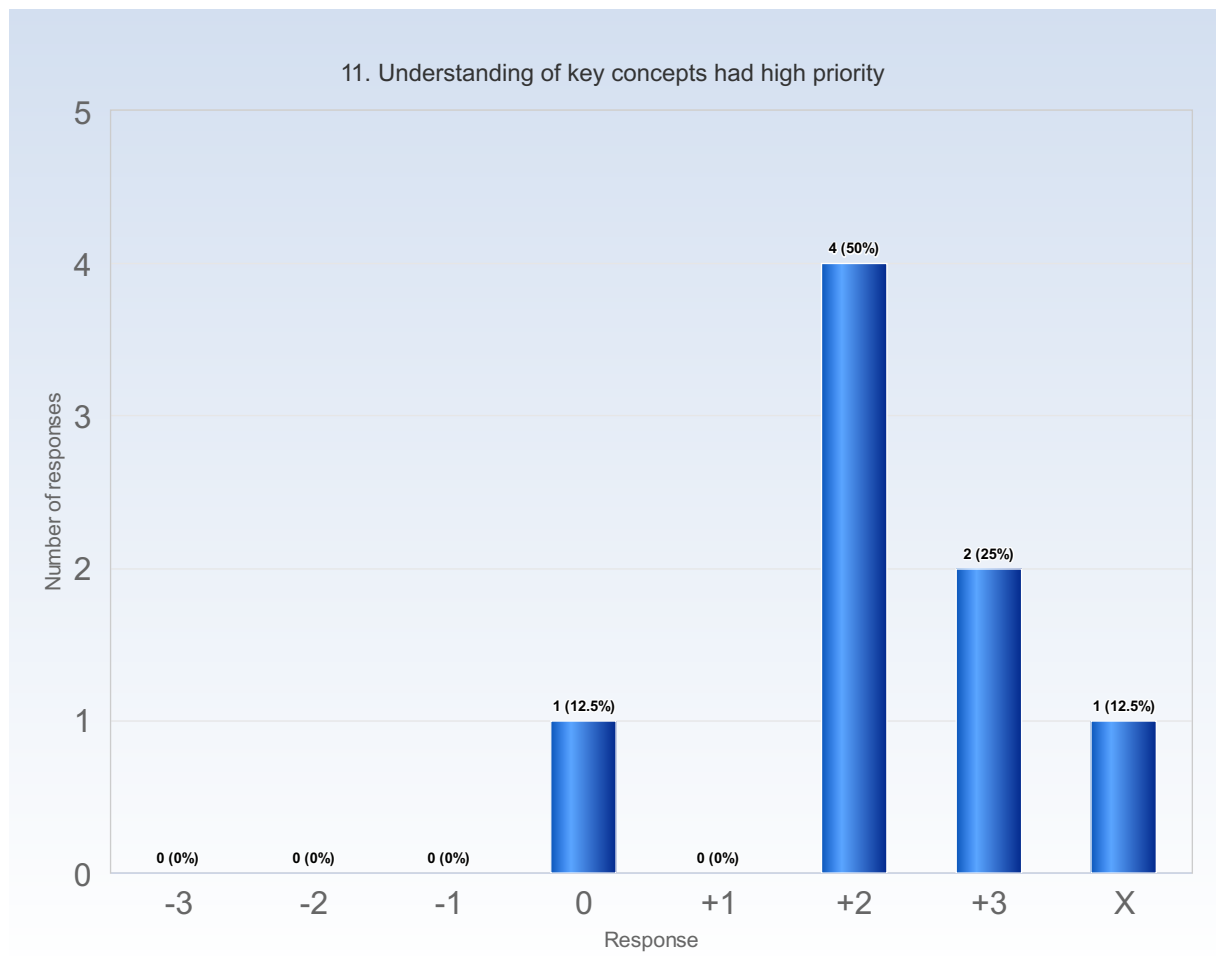
9. I understood what the teachers were talking about



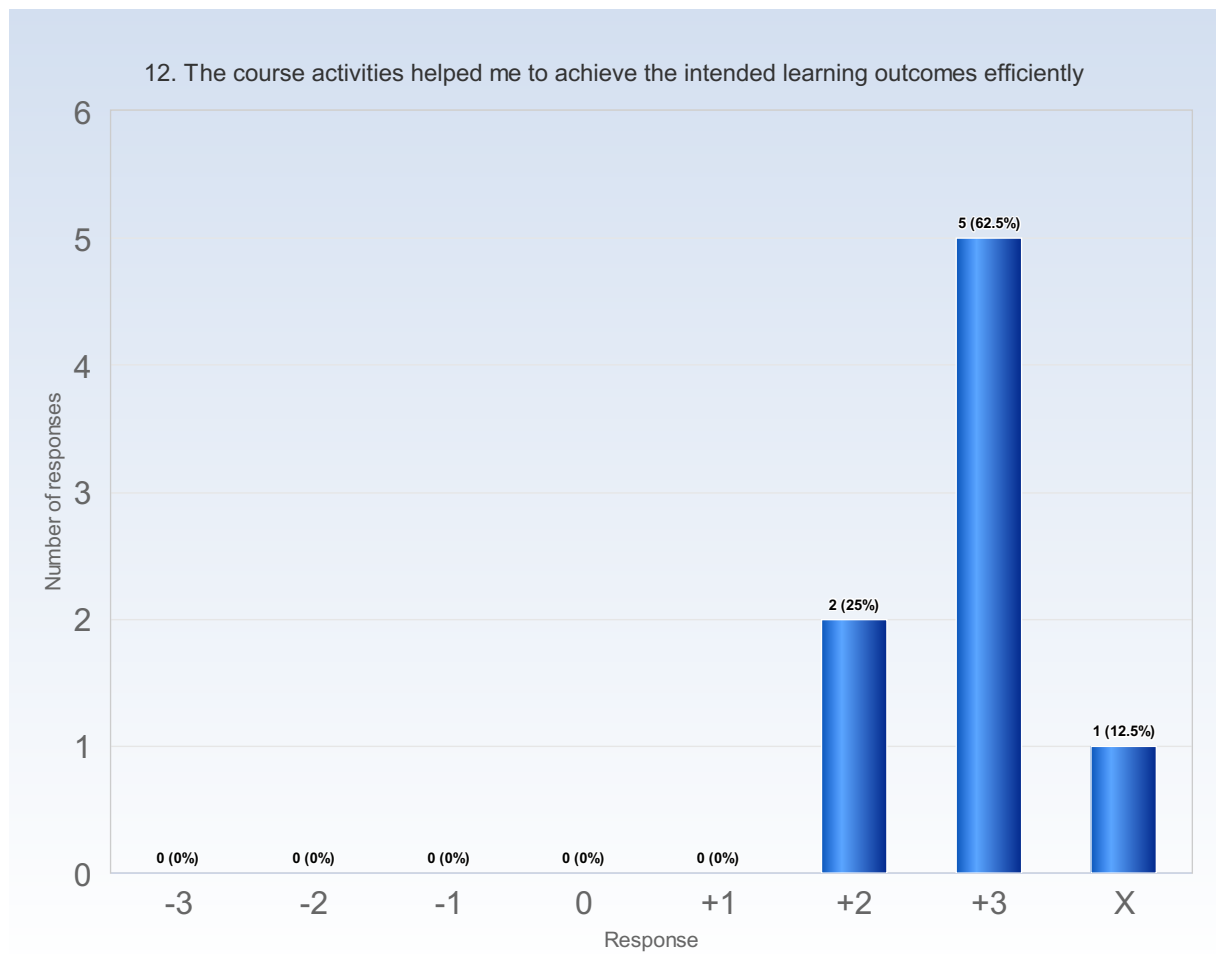
Comments



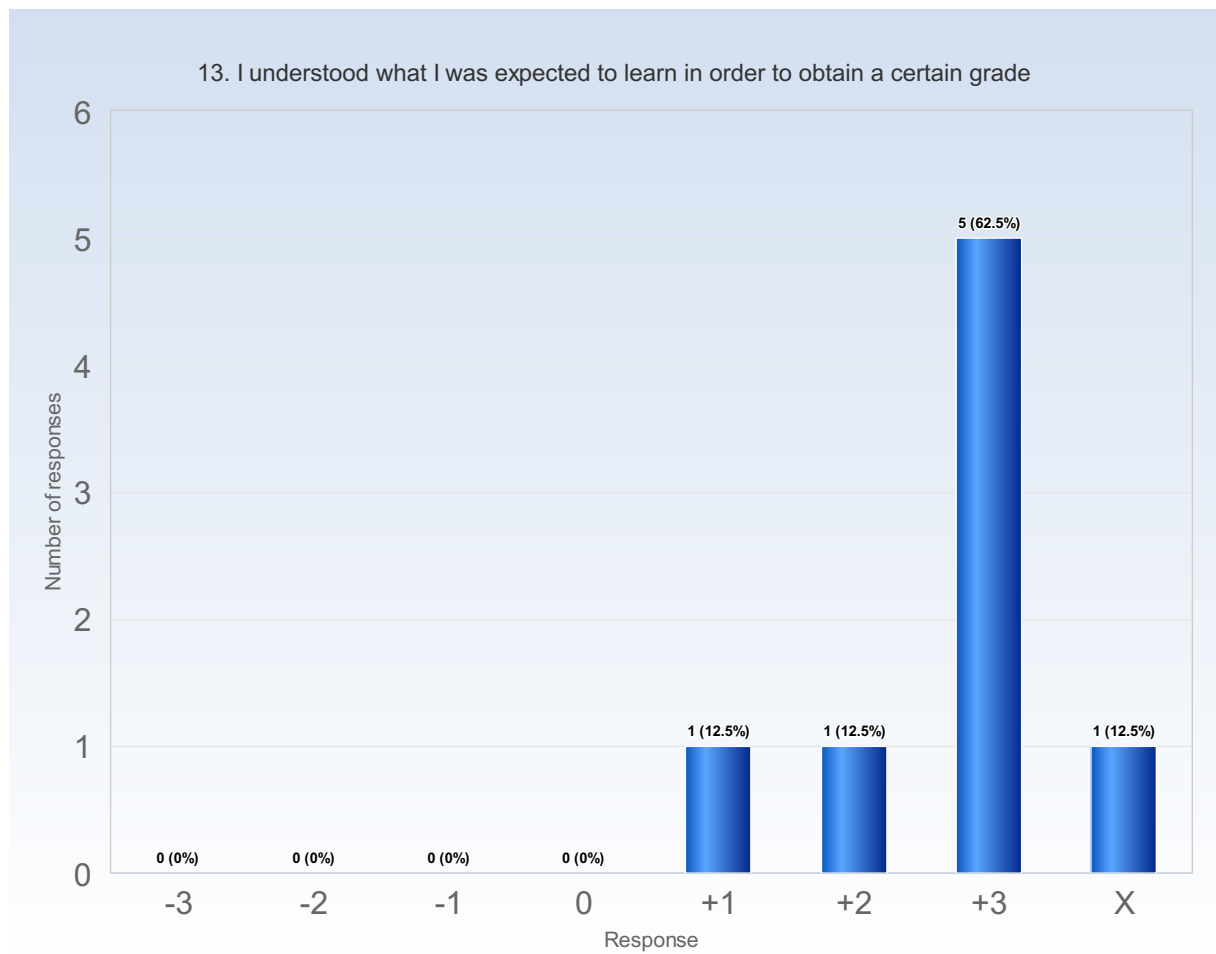
Comments



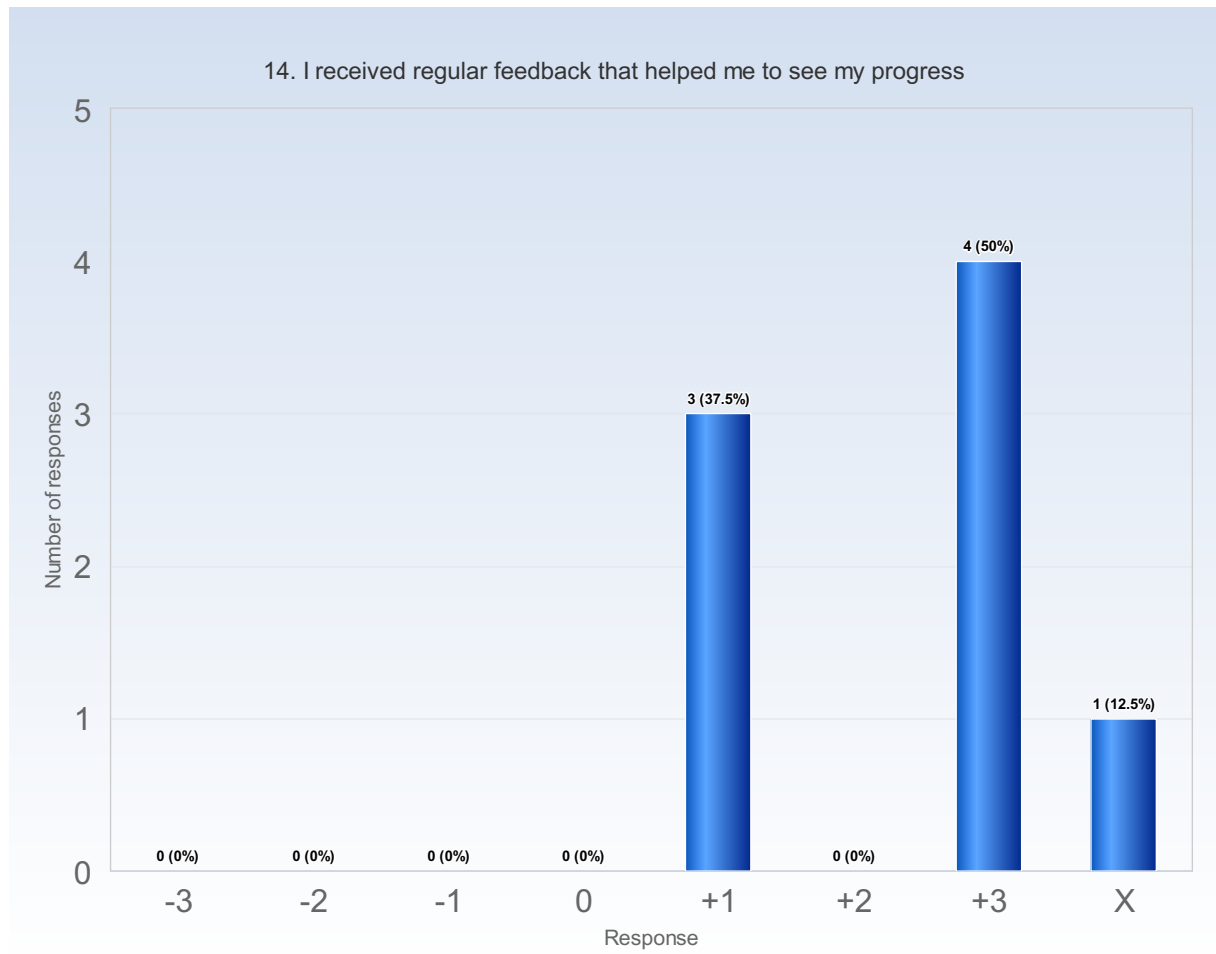
Comments



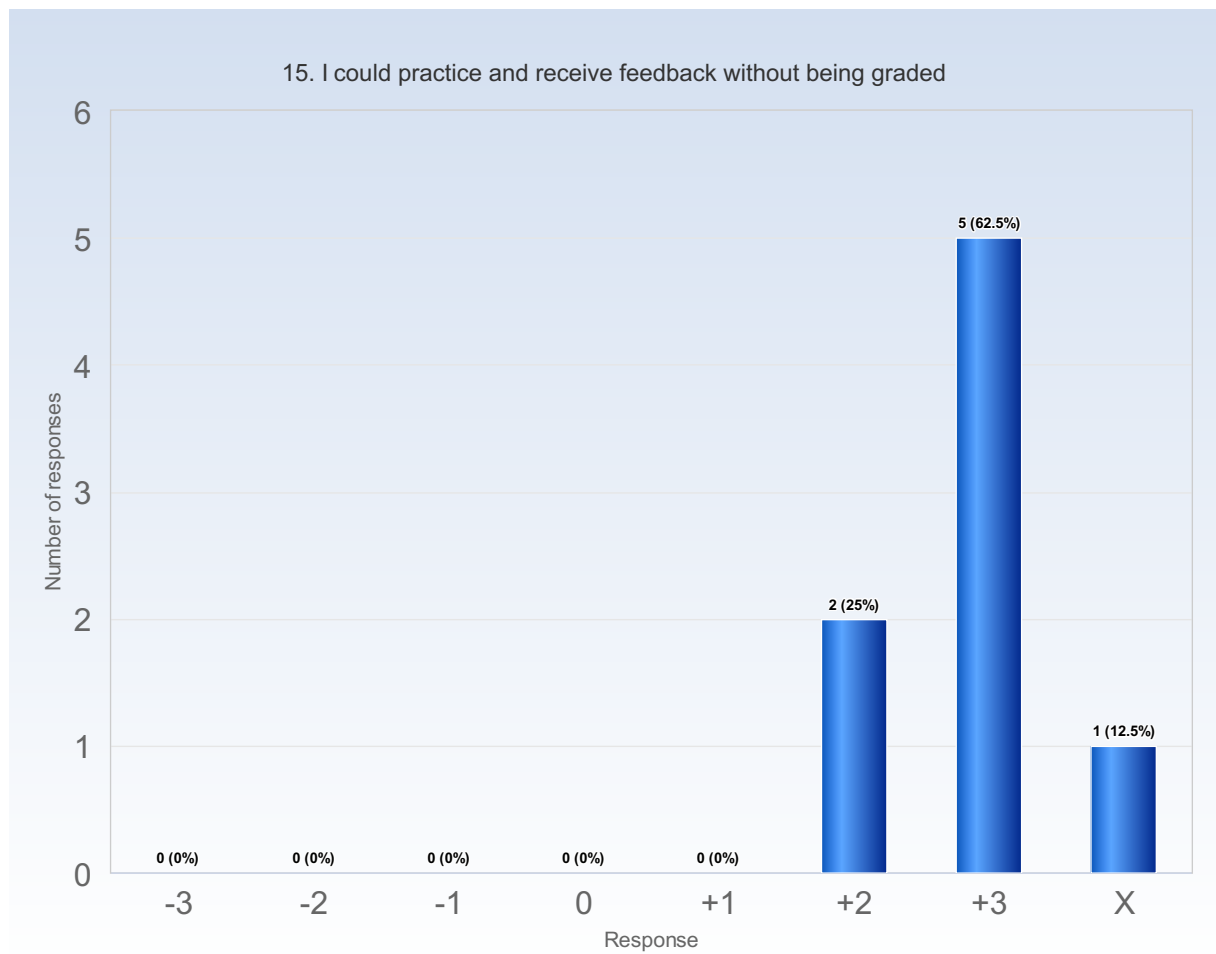
Comments



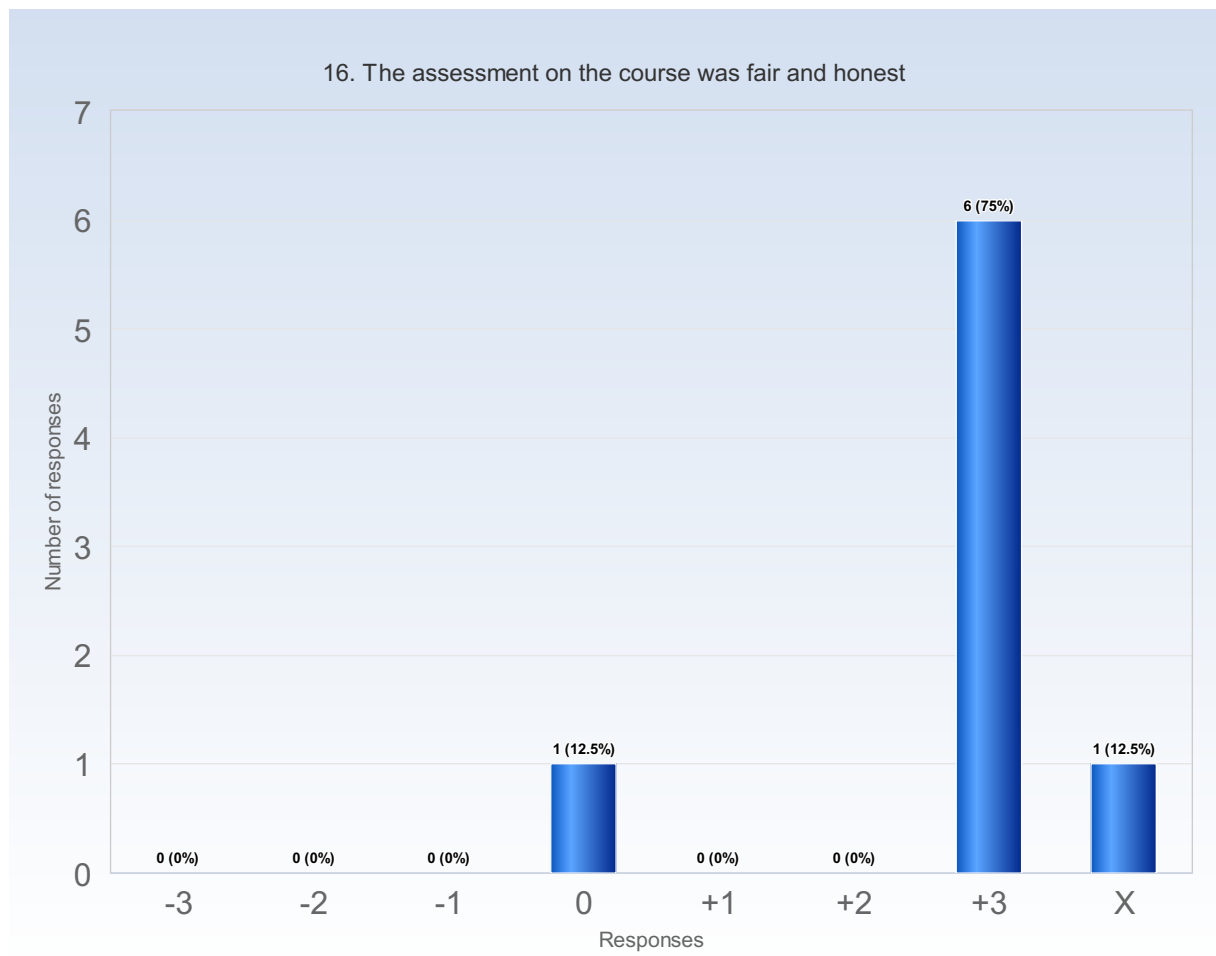
Comments



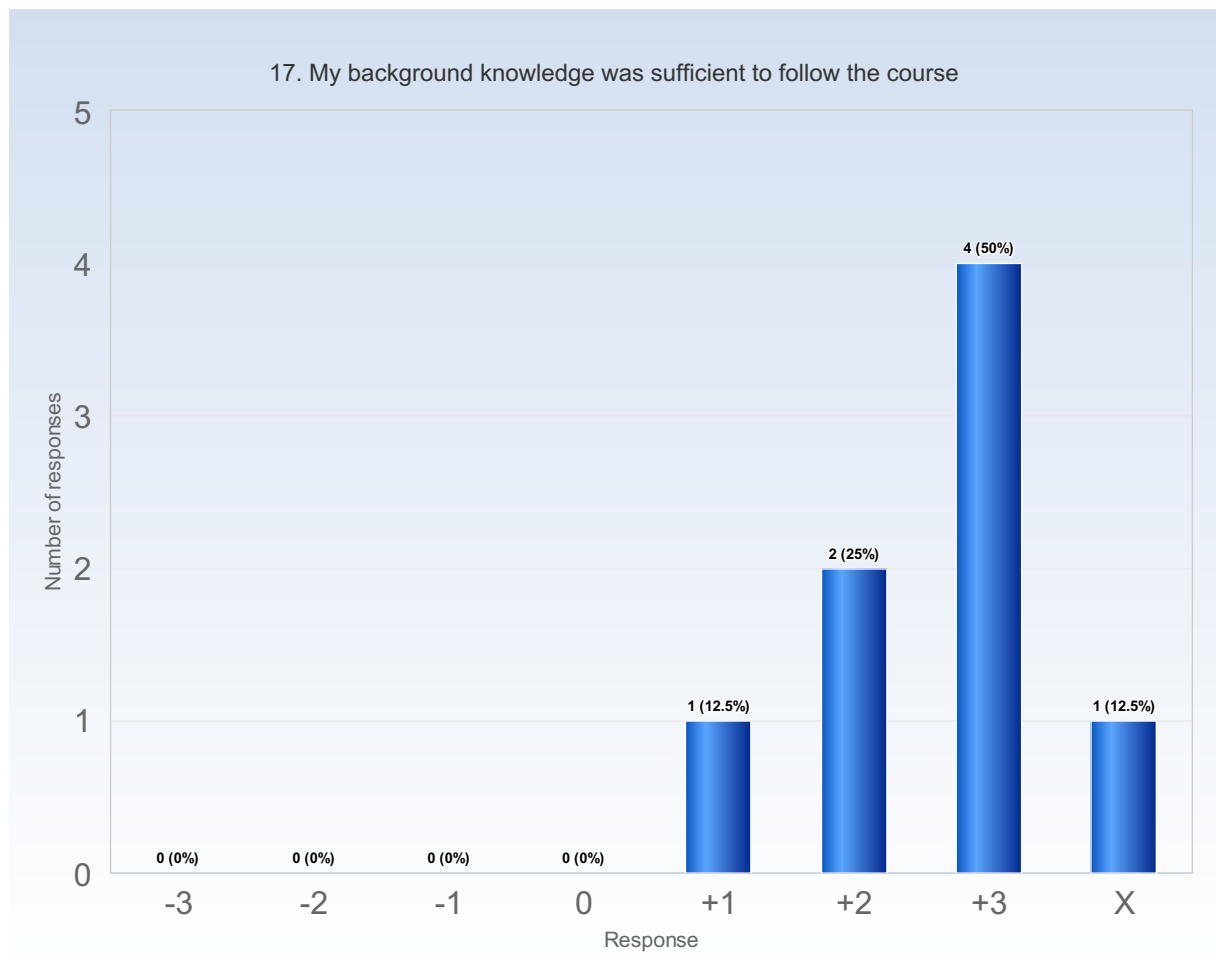
Comments



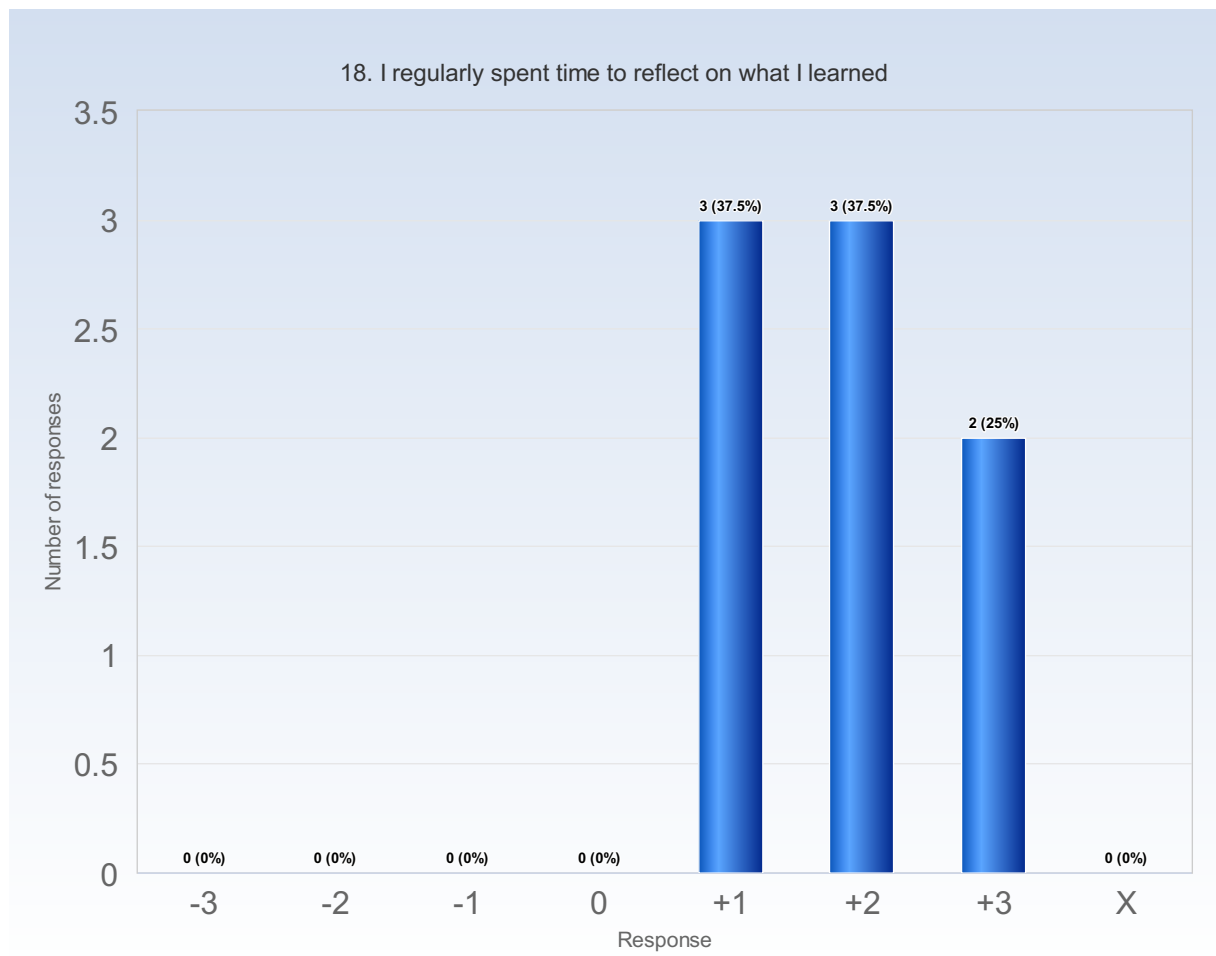
Comments



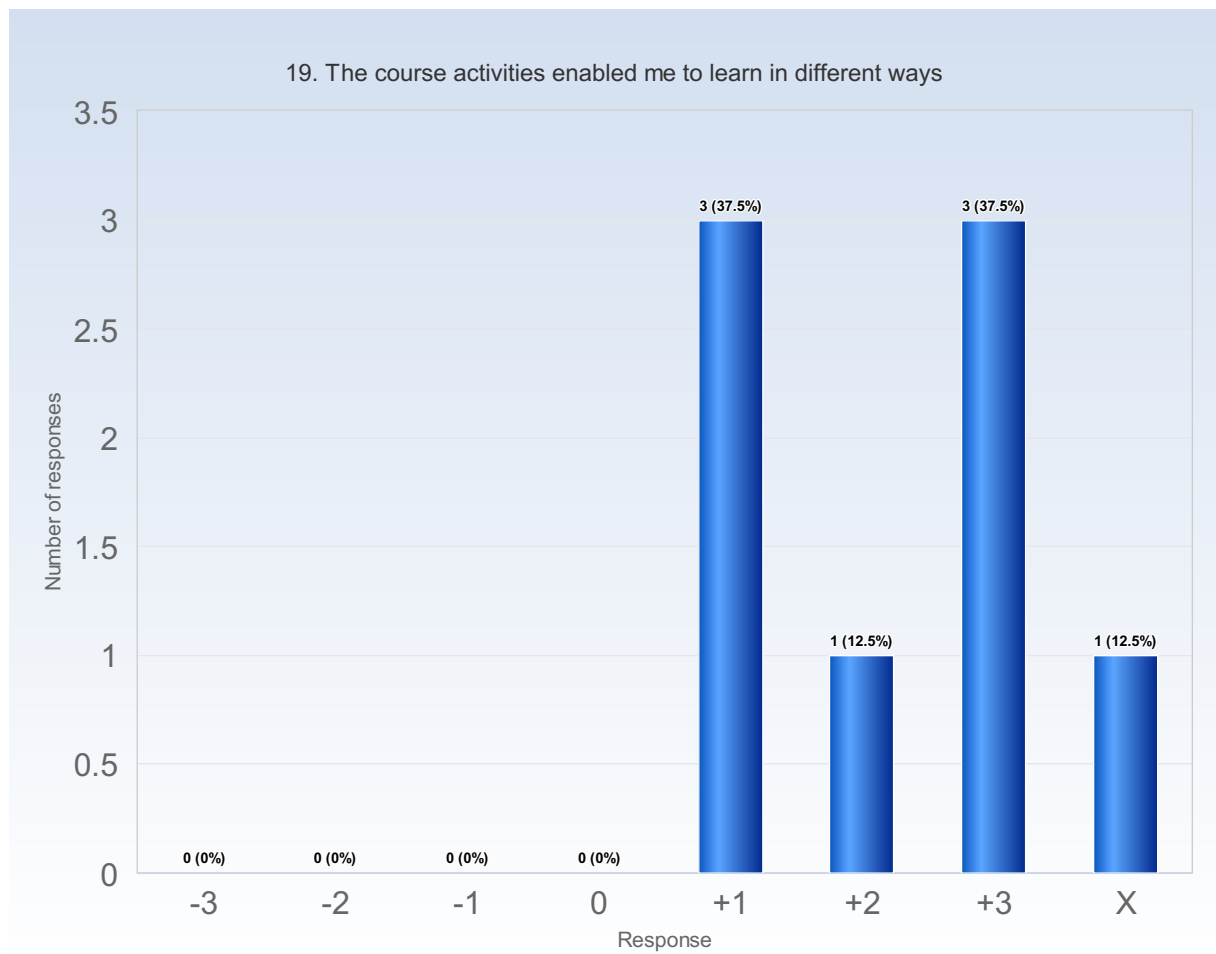
Comments



Comments



Comments



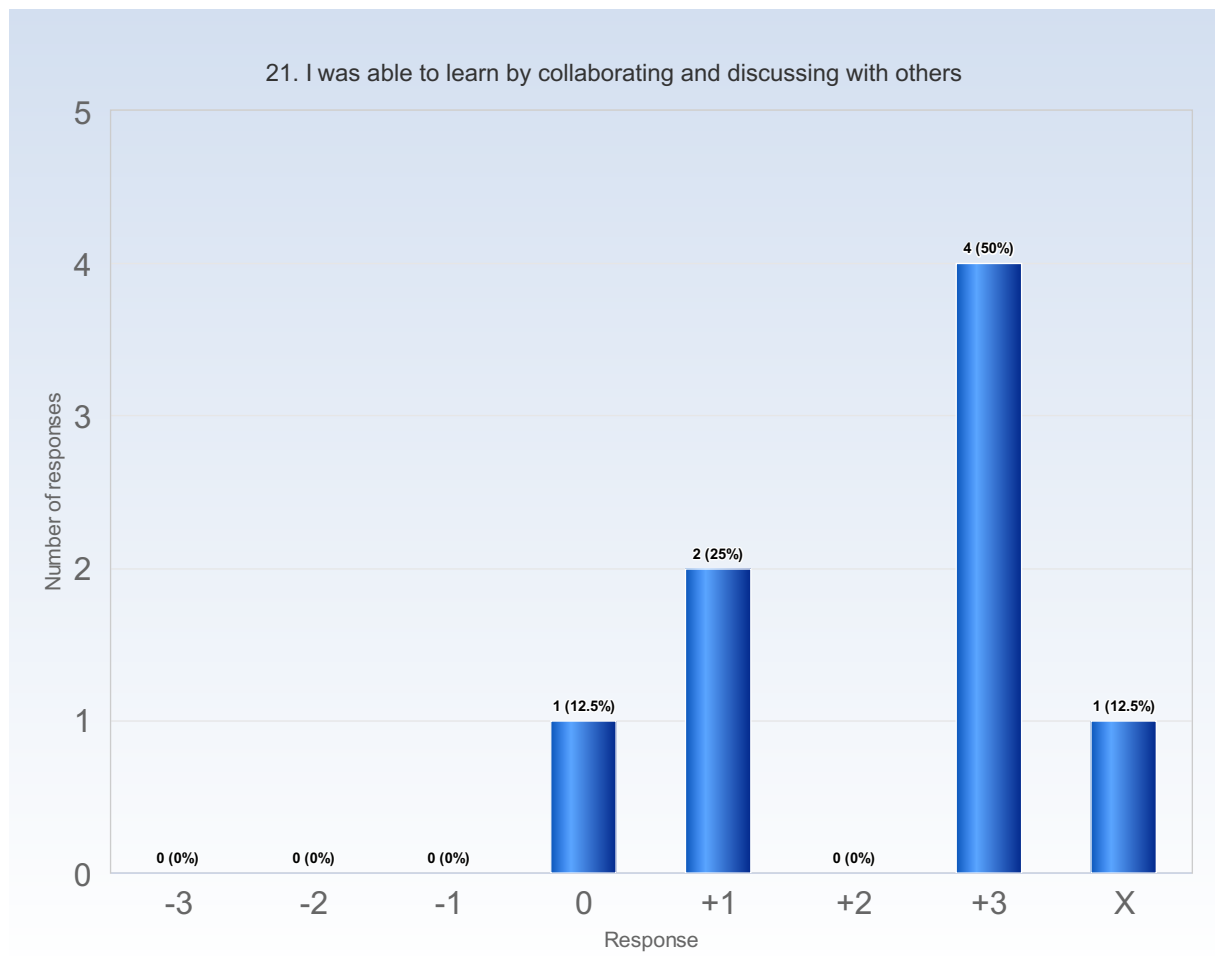
Comments

Comments (My response was: +1)

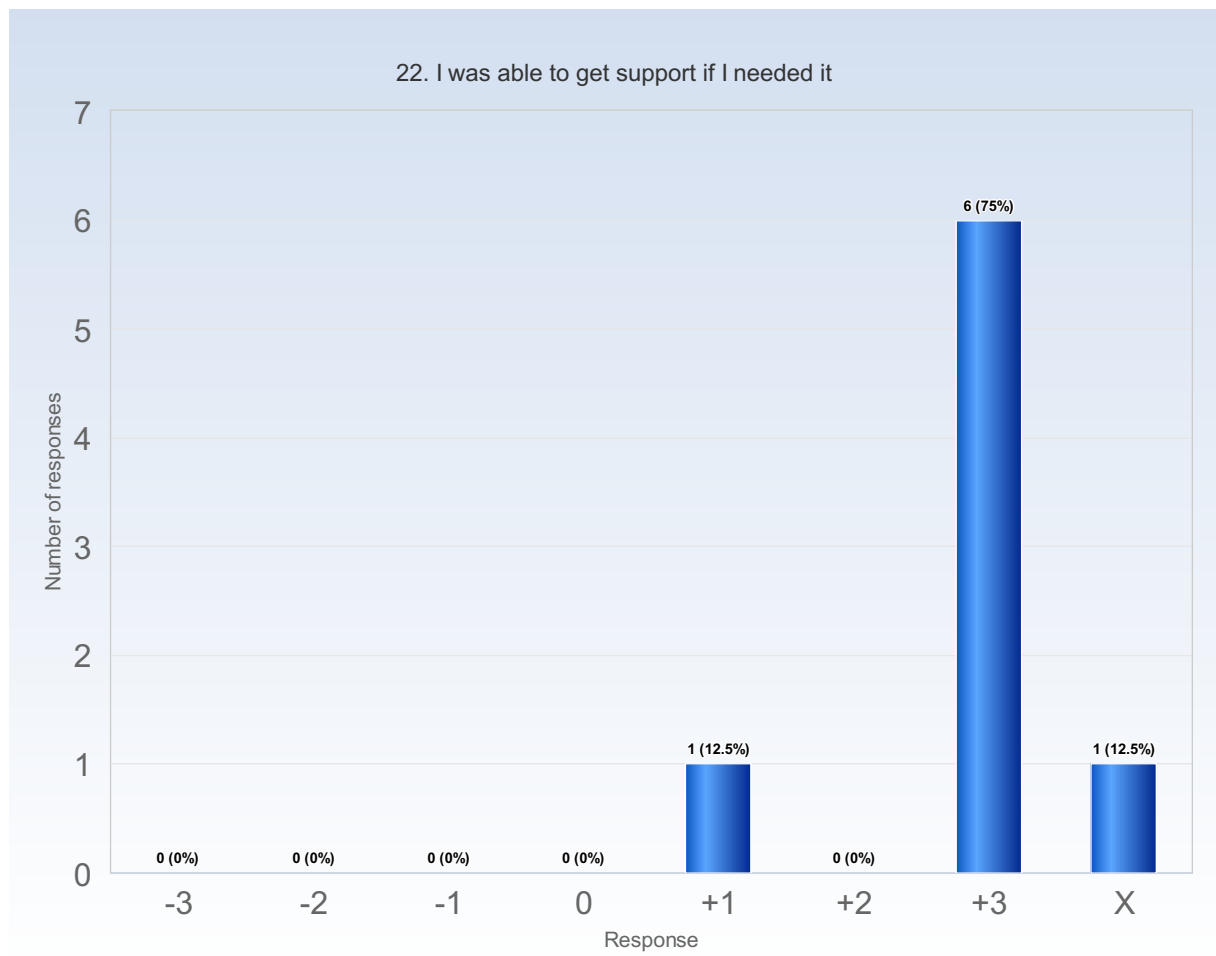
This was good though



Comments



Comments



Comments

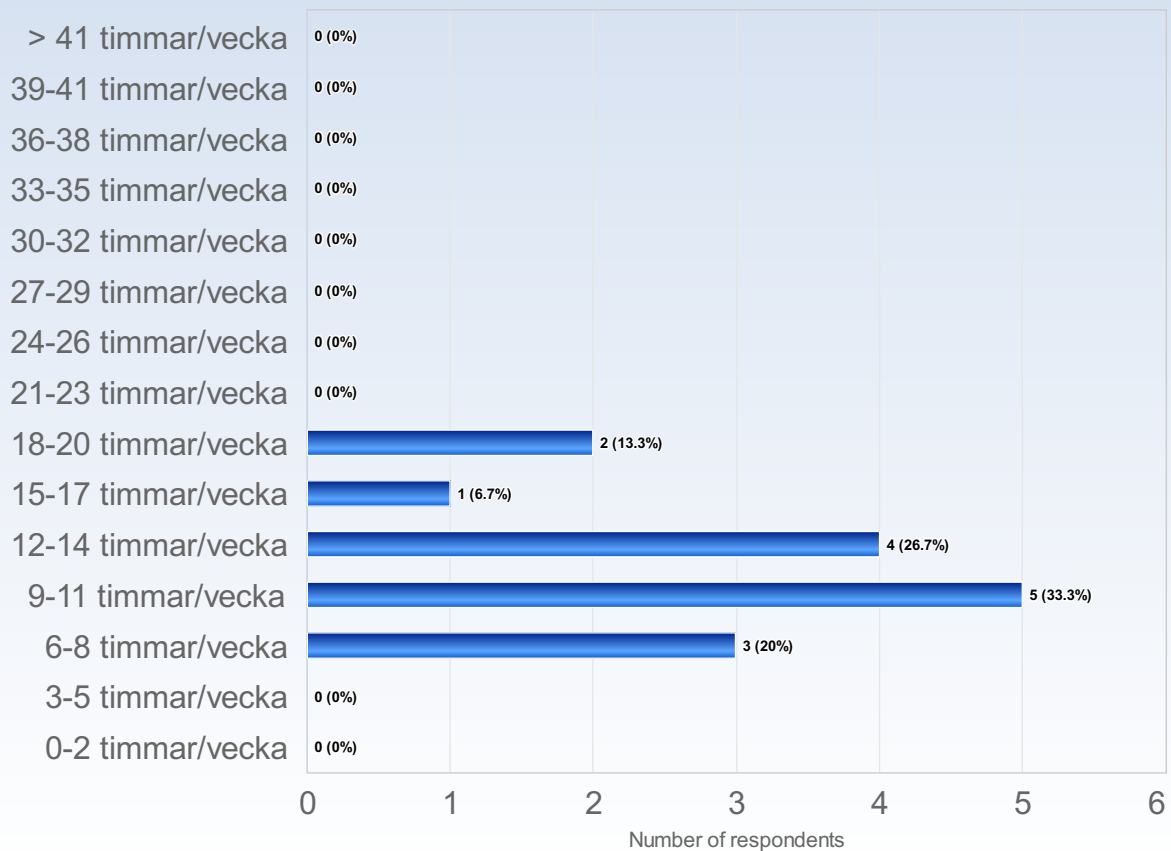


MG2128 - 2022-01-13

Antal respondenter: 42
Antal svar: 15
Svarsfrekvens: 35,71 %

ESTIMATED WORKLOAD

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





Comments

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

A very interesting course for beginner's! Very helpful to understand the basics of CAD

some weeks less if no lab, others more if lab was hard

I had some personal things to take care of besides the studies and therefore I was not able to put in enough time on any course. I did however love the course and Lars and Per did a tremendously good job.

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

It was a very intense CAD course, and I have the feeling that I have learned a lot about robust Modeling and working with Solid Edge

It was good as the working hours were utilized for assignments which was the best part of this course.

Comments (I worked: 12-14 timmar/vecka)

I spend more time during the voluntary assignments

Comments (I worked: 18-20 timmar/vecka)

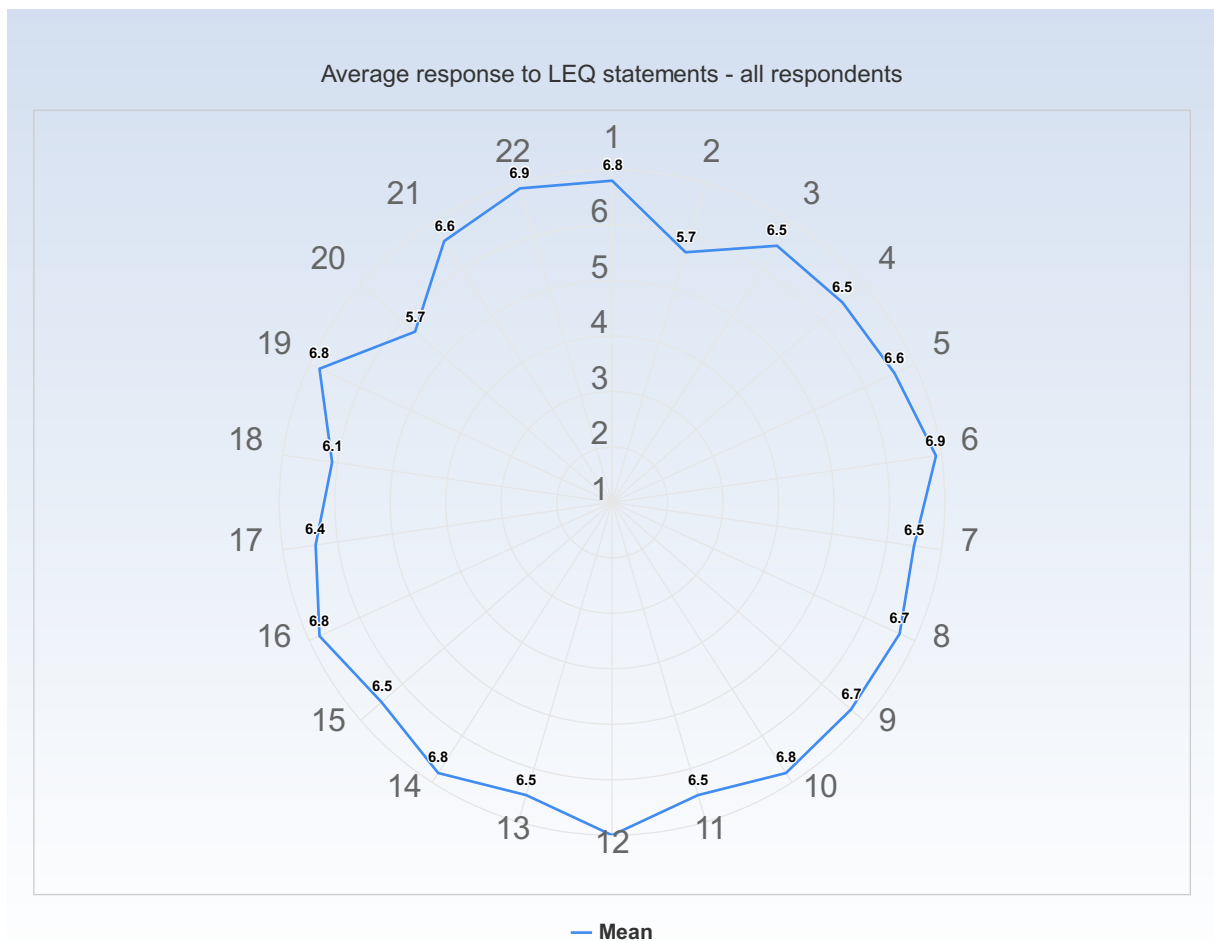
Completing voluntary assignments was really fun and I gained lots of knowledge through these assignments.

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

Literature

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

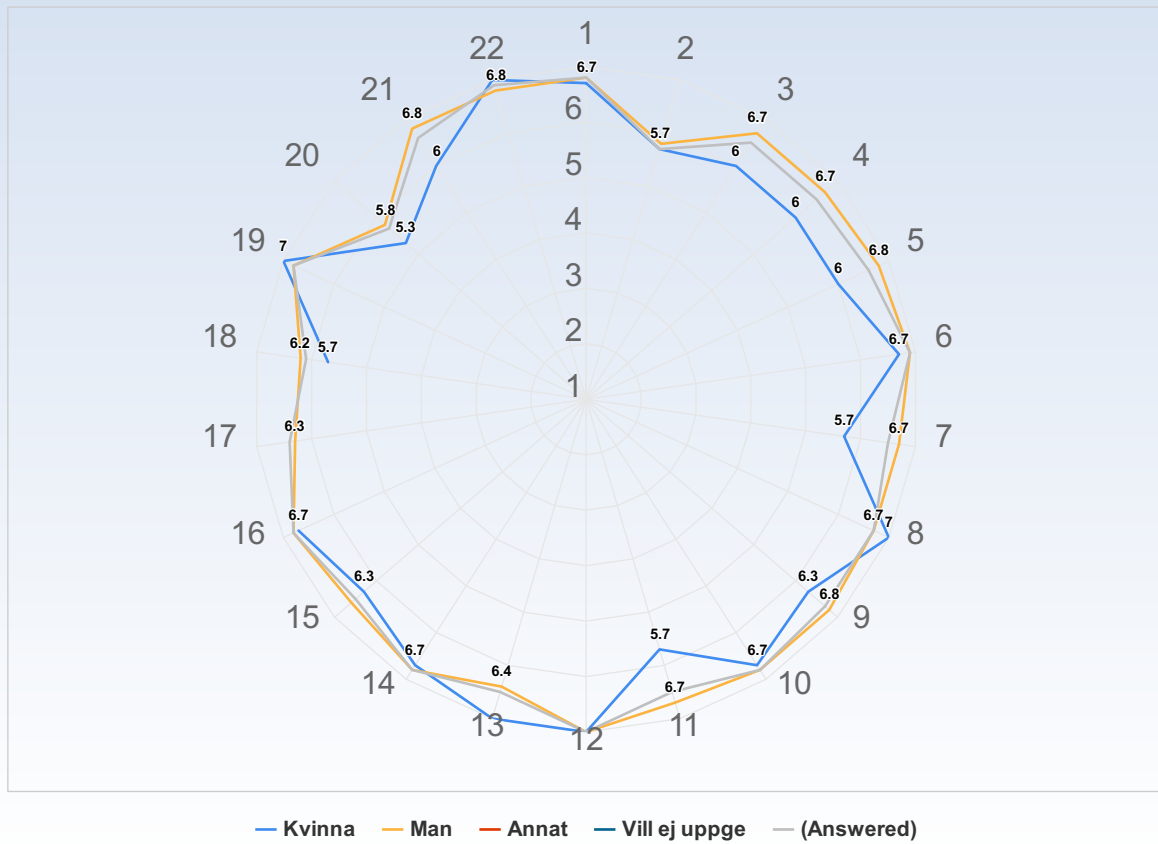
Biggs J. & Tang, C. (2011). *Teaching for Quality Learning at University*, Chapter 6, pp. 95-110. Maidenhead: McGraw Hill.

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.

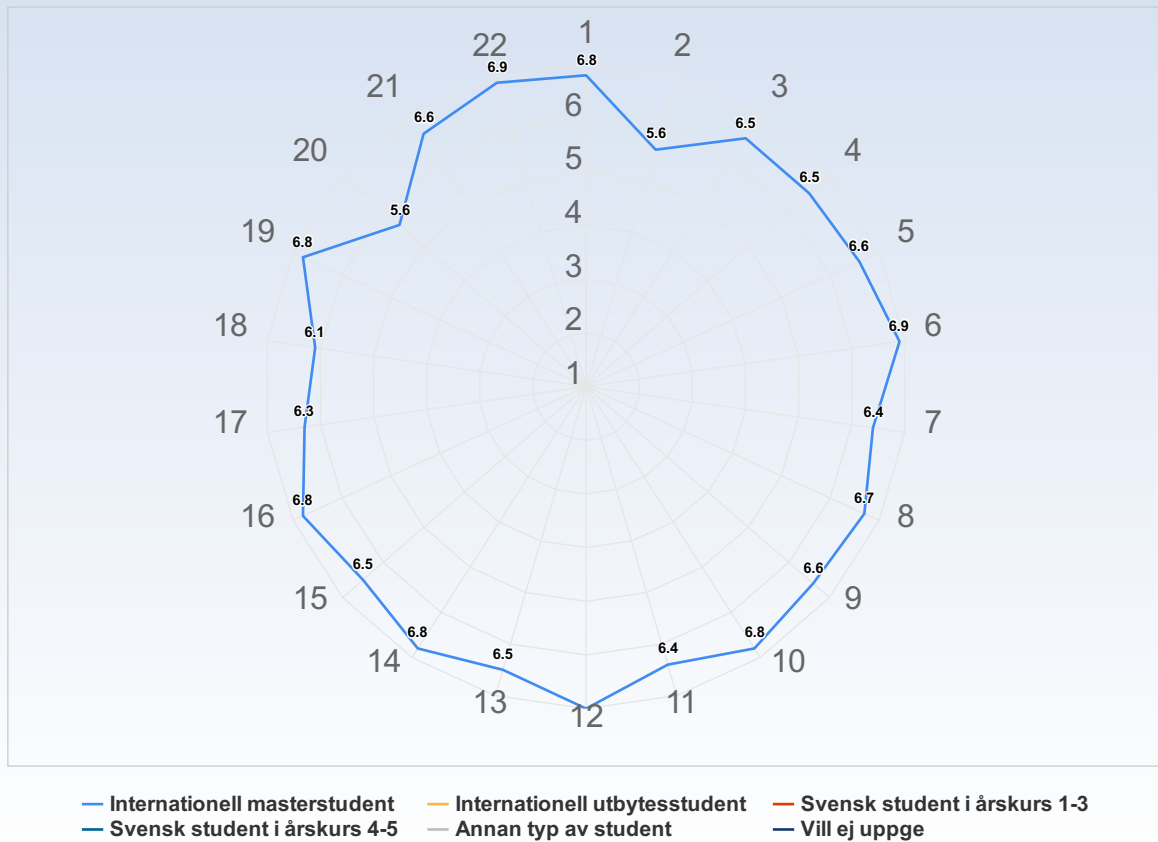
Ramsden, P. (2003). *Learning to Teach in Higher Education*, Chapter 6, pp. 84-105. New York: RoutledgeFalmer.

Average response to LEQ statements - per gender



Comments

Average response to LEQ statements - per type of student

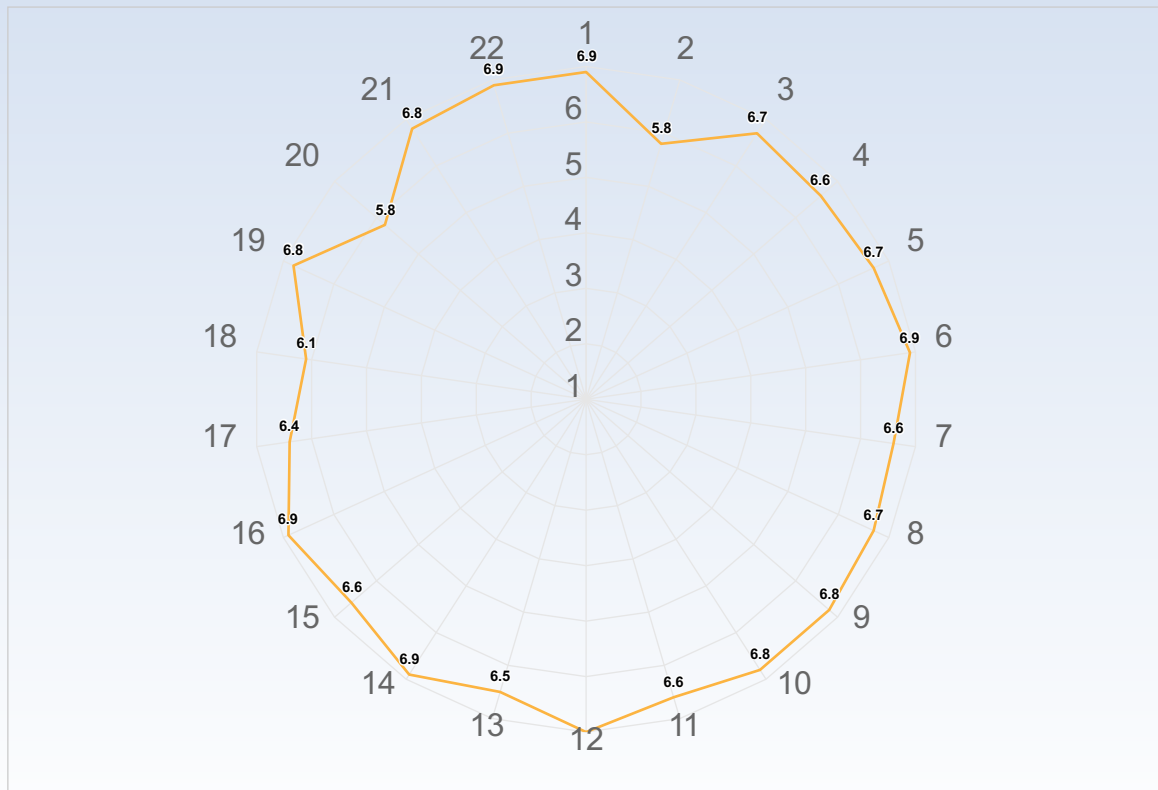


Comments

Comments (I am: Internationell masterstudent)

As a new master student in a foreign country, this course was the best thing that happened to me as I managed to meet many new students and worked with them from day one. The professors associated with this course made it very easy for me to adjust to this new study curriculum and I think this course should always be there in P1 of 1st year Masters in future.

Average response to LEQ statements - per disability



— Ja — Nej — Vill ej uppge

Comments



GENERAL QUESTIONS

What was the best aspect of the course?

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

Learning different softwares like Tacton, Additive manufacturing, Gibbs Cam

I knew what was coming, what I needed to do and it happened as was said.

I also liked the guest lectures.

The best aspect was that we learned by doing. Per and Lars were very efficient in teaching the errors of our ways.

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

I really appreciate the way this course is held. The best aspect for me was probably the interaction between the guest lecture and the labs. I found it really interesting to hear how something is used in the "real world" and afterwards try it out on my own in the lab.

The support from Per and Lasse throughout the course was very helpful, also the assignments were designed in a way that made me think in a creative manner. The suggestions received made me learn and correct my mistakes from an industry-level perspective, which I found very insightful to develop my skills.

The best aspect of this course was:

The Professors

The instructions for Lab

The assignments

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

Working on assignments that interrelate to each other and guest lectures that provided assistance in understanding the software implementation

The structure of the course is beautifully designed and we have learnt many new IT tools/ software, getting to know various aspects in a product design, from designing to configuration to process planning and knowledge of GD&T.

The best part of the course according to me were the assignments, which though were challenging but surely we have learnt a lot through trial and error and with the guidance of the professors. The assignments were designed in such a way that we apply our knowledge as well as try to dig into the software and learn some things on our own.

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

- transparency in terms of grading

- opportunity to get help

What was the best aspect of the course? (I worked: 18-20 timmar/vecka)

Product configuration voluntary assignment

What would you suggest to improve?

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

Investing more hours on teaching the basics for beginner's

Its a good course, so nothing.

I can't really find anything to improve. It was the best course I've taken in all my university years.

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

To improve additive manufacturing Lab with some kind of increased activity during the lab session.

I lost interest in some of the guest lectures because I believe the content or the teacher who were taking that lecture was not interesting for me. I would suggest to make the guest lectures more interesting like the assignments in this course. The most interesting Guest lecture for me was Additive manufacturing and Tacton lectures.

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

Better access to program files, certain software were not available in the remote access or the software license provided didn't provide much access to work on with.

It would be nice if Solidworks is used rather than solid edge though knowing the software is important and the knowledge can be used in any software. But as many companies use Solidworks or CATIA for their designing work, I would suggest using popular software used in the industries.

Moving into the solid edge, there is no doubt about the knowledge given to us about the software. But it would be good for a little more in-depth knowledge such as the use of simulation, FEM in the cad software, etc.

More hands-on experience with Tacton works would have been better

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

- Structure of files in Canvas

What would you suggest to improve? (I worked: 18-20 timmar/vecka)

Reflection for all guest lectures



What advice would you like to give to future participants?

What advice would you like to give to future participants? (I worked: 6-8 timmar/vecka)

Be prepared to learn a lot of new things in this course

Keep on top of the lab sessions.

The best advice is to put time into learning the programs. AS everything else with IT, it has quite an exponential learning curve.

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

In the labs: try to not only click after the instructions given. You learn a lot more when you read the whole instructions and think about what you are doing.

I would suggest doing the voluntary assignments as they would help in gaining more knowledge about interesting topics like Tacton designing and product data communication.

1. Believe on the instructions of the lab and you will never face any difficulty.

2. Enjoy this course because I don't think they will ever meet such cool professors in their entire life.

3. The assignments might look hectic but to spend long hours in the lab will make this course memorable and you will learn a lot from this experience.

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

Work on assignments and try varying the intensity of it yourself

This is a course designed beautifully by Per & Lars, which gives you a whole idea on designing products and using various software. Though you spend more time on the assignments, once you get hold of the software, it's like a piece of cake. U will be happy and think "How easy this was. But it just took me time to know the software well and figure out things"

You have got the best teachers! Utilize the resources and enjoy the course (Beware of TactonWorks)

What advice would you like to give to future participants? (I worked: 18-20 timmar/vecka)

Attend all five guest lectures and try to reflect on all of these

Is there anything else you would like to add?

Is there anything else you would like to add? (I worked: 6-8 timmar/vecka)

Nope

In general I don't like CAD which has led to me avoiding it. Having this course as compulsory for my masters has made me come to realise I didn't like it as I have never looked at it seriously, in reality I didn't know CAD. Now I know I can do CAD, I just need to continue learning it.

Kudos to Per and Lars for being legends.

Is there anything else you would like to add? (I worked: 9-11 timmar/vecka)

Overall the CAD course is a great course, and I very much appreciate the way it is structured. Furthermore I really like the way you (The teachers) interact with the students, give advice where necessary and create tasks which support the collaboration between the students.

Is there anything else you would like to add? (I worked: 12-14 timmar/vecka)

It would be wonderful if FEM was thought in the CAD software. The knowledge gained from the guest lectures were delightful, along with that the way the course was thought by Per & Lars was just awesome.

SPECIFIC QUESTIONS



RESPONSE DATA

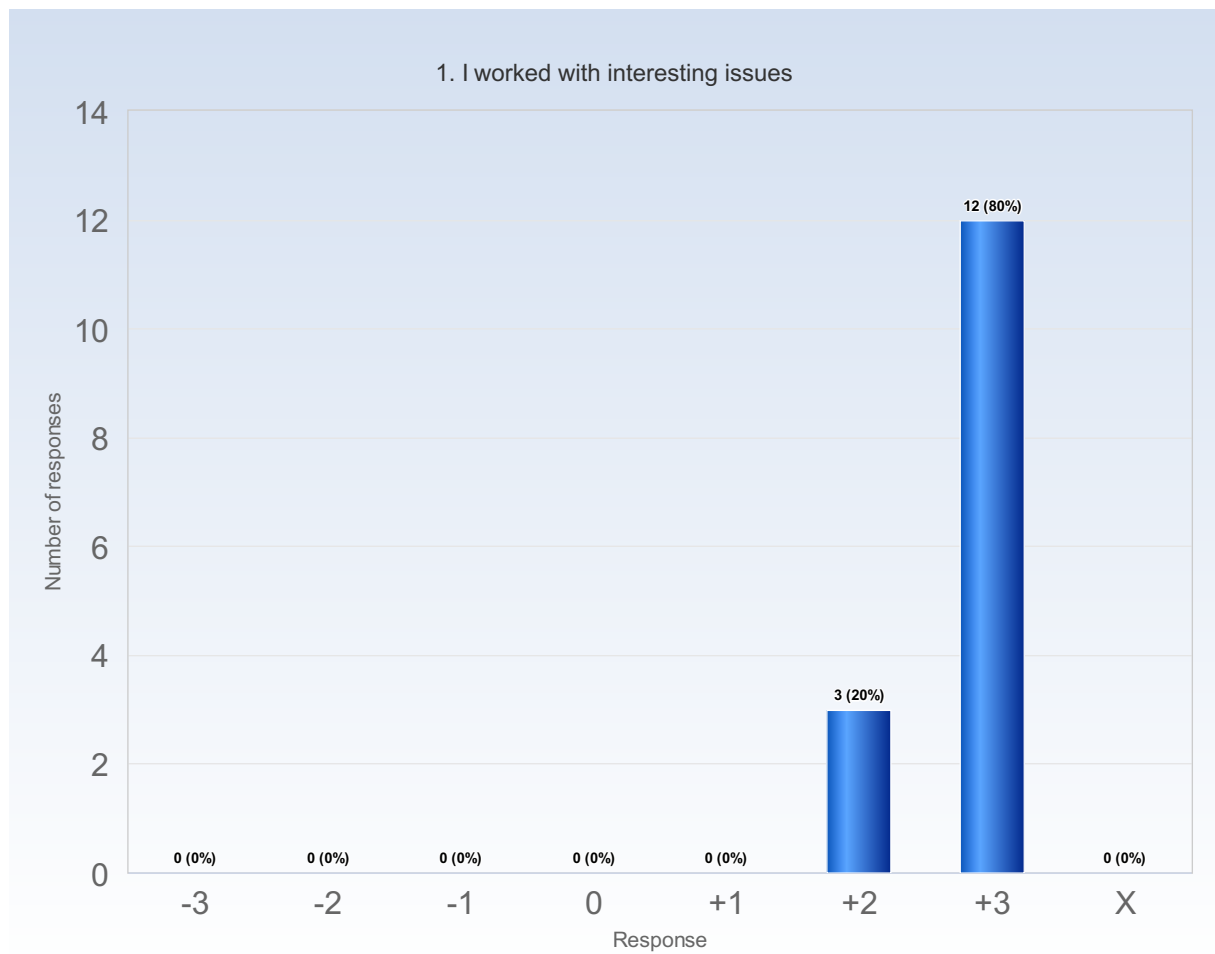
The diagrams below show the detailed response to the LEQ statements.
The response scale is defined by:

-3 = No, I strongly disagree with the statement

0 = I am neutral to the statement

+3 = Yes, I strongly agree with the statement

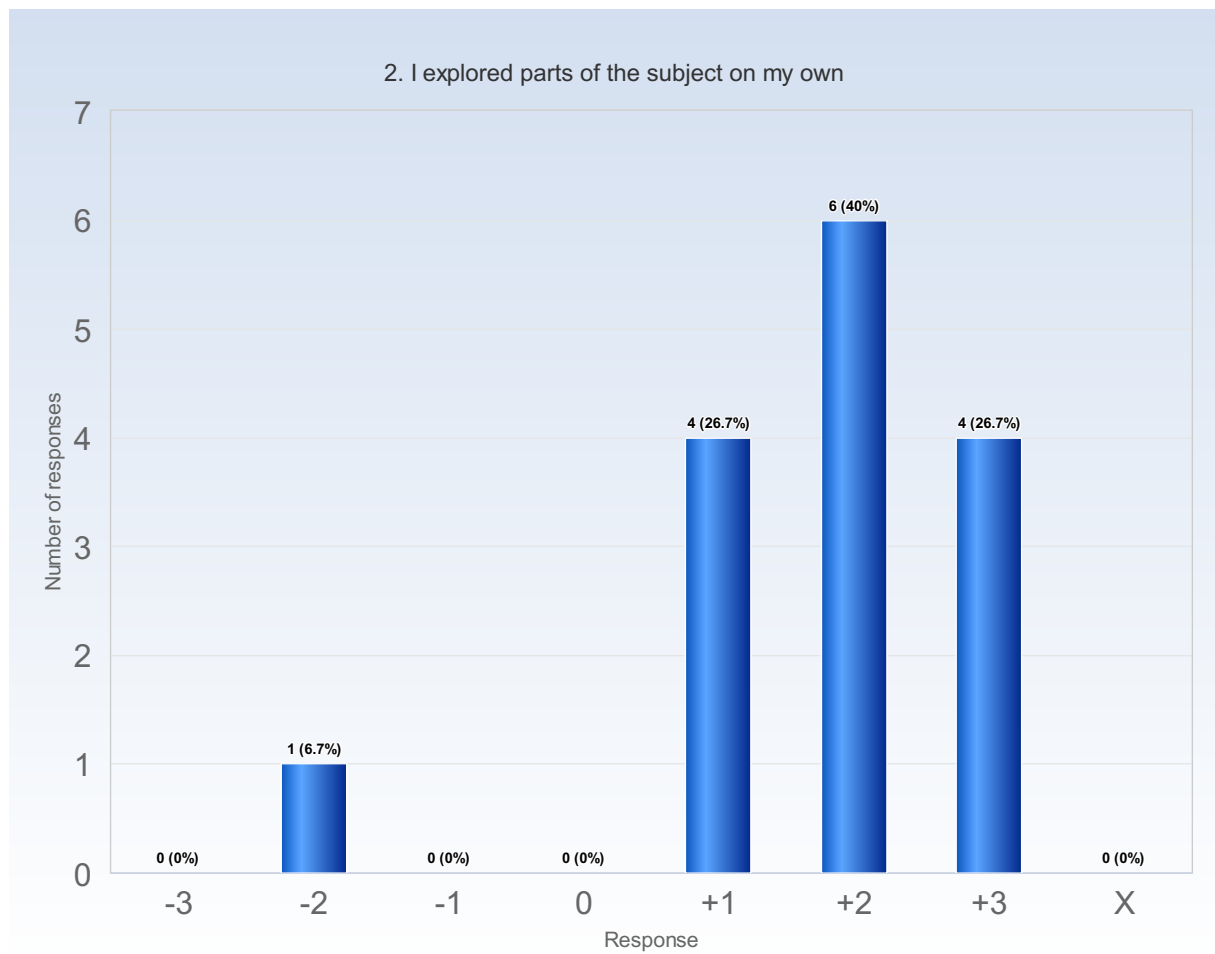
X = I decline to take a position on the statement



Comments

Comments (My response was: +3)

I found it especially interesting that we had labs that worked on the same/similar issues that were presented in the guest lecture



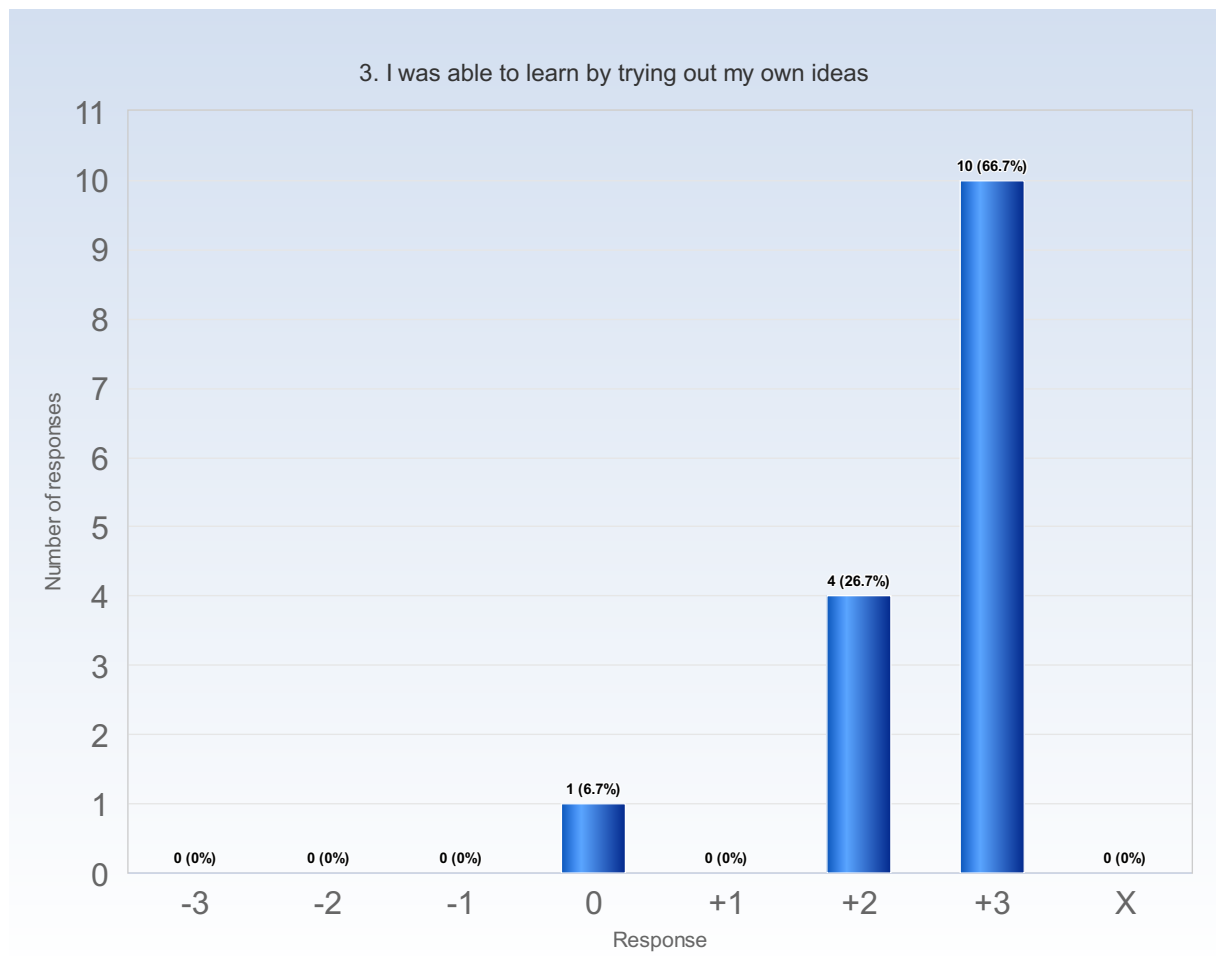
Comments

Comments (My response was: -2)

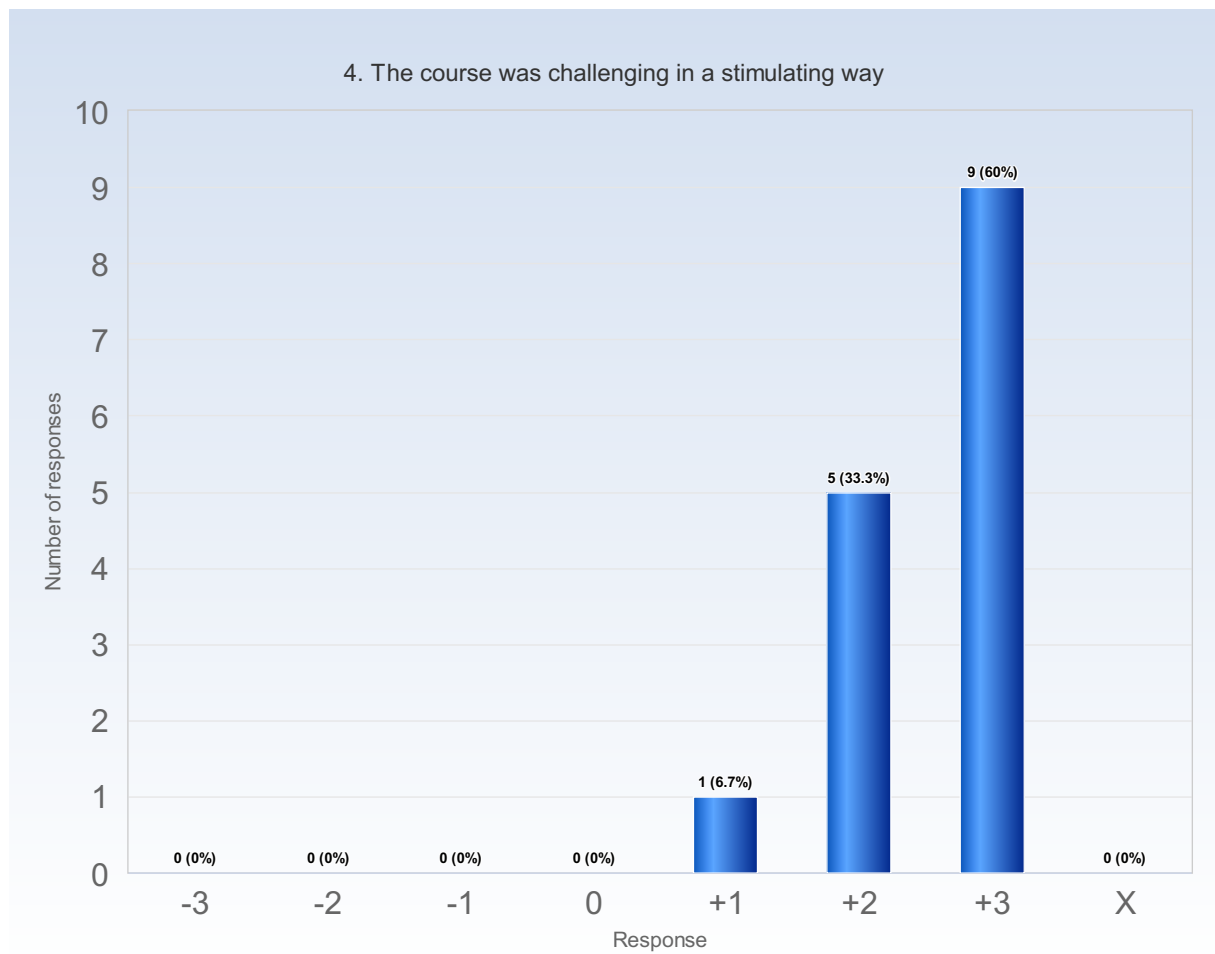
I received sufficient help from the professors

Comments (My response was: +3)

especially the non-compulsory exercises helped me to get a deeper insight into Solid Edge and also the Tacton Addon and the Gibbs Cam Software



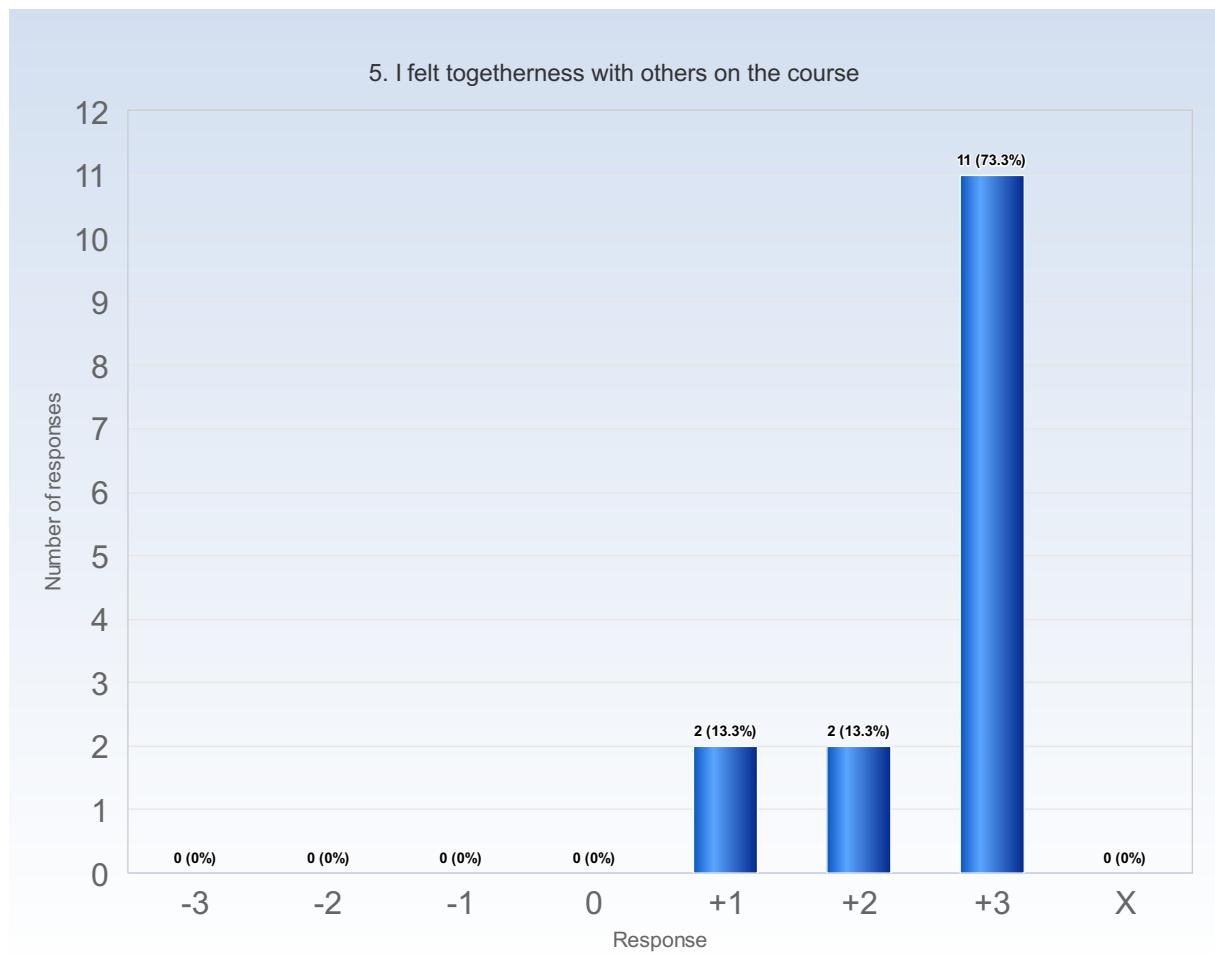
Comments



Comments

Comments (My response was: +3)

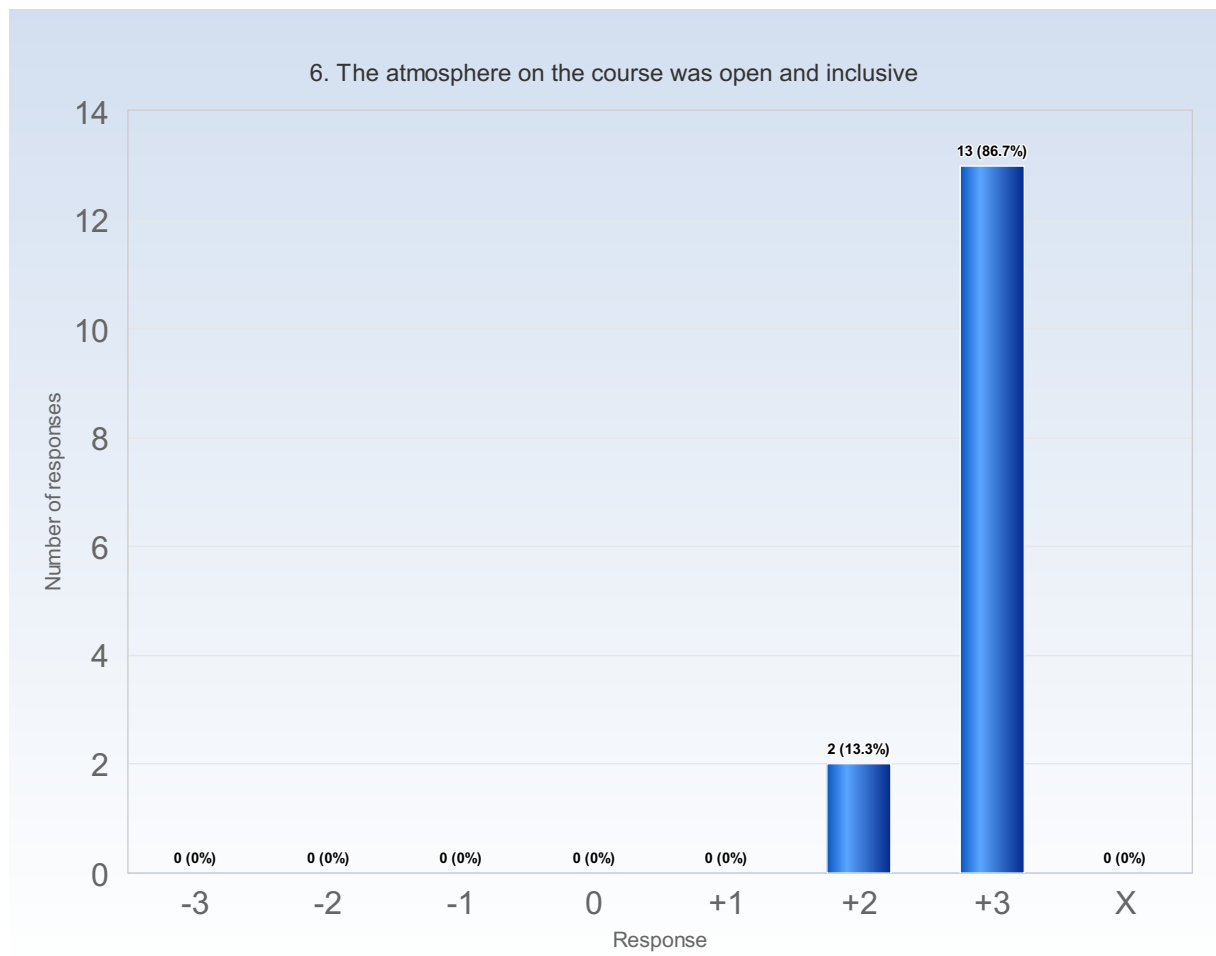
Especially the voluntary exercises were challenging at the beginning, but with the knowledge from the lab, it was possible to teach oneself the relevant things and master the task.



Comments

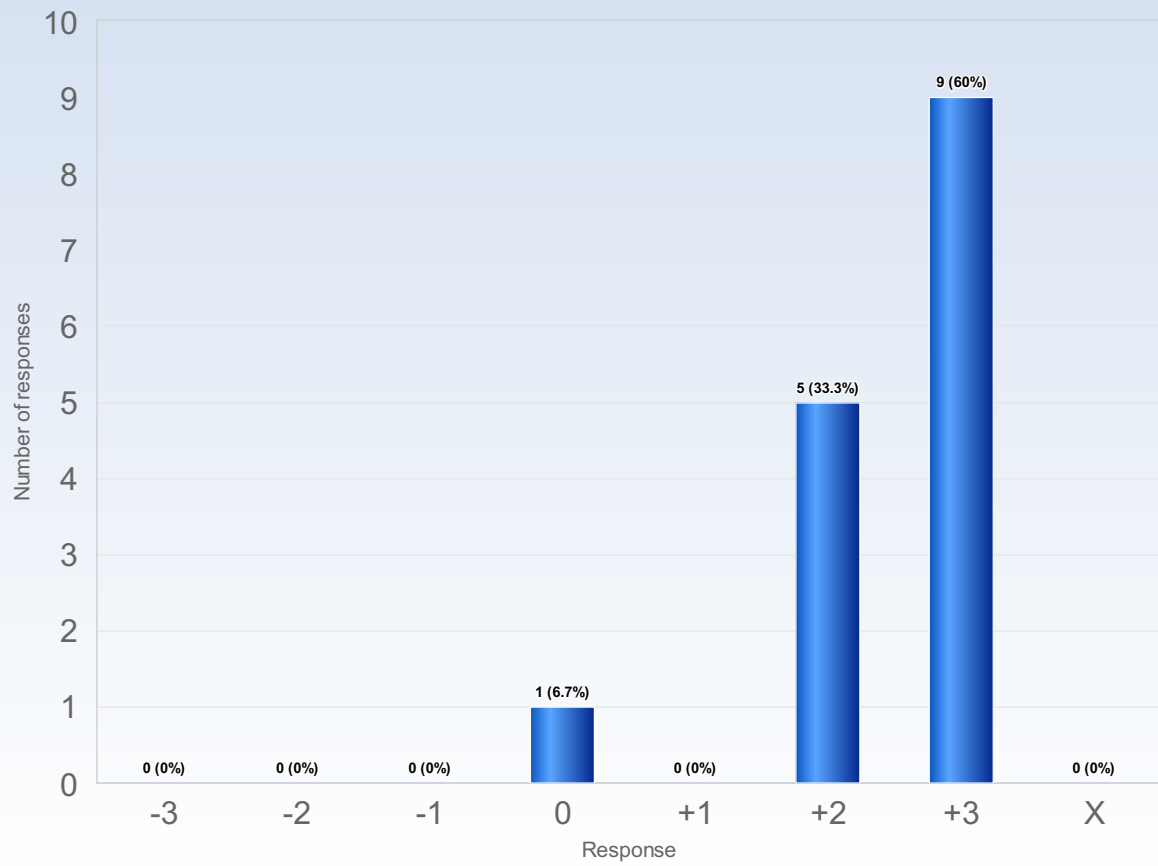
Comments (My response was: +3)

It was really nice to sit in the computer labs with the others and discuss about the lab tasks or the voluntary tasks. The voluntary tasks took a lot of time, but at the same time I really enjoyed working on them in collaboration with the others.



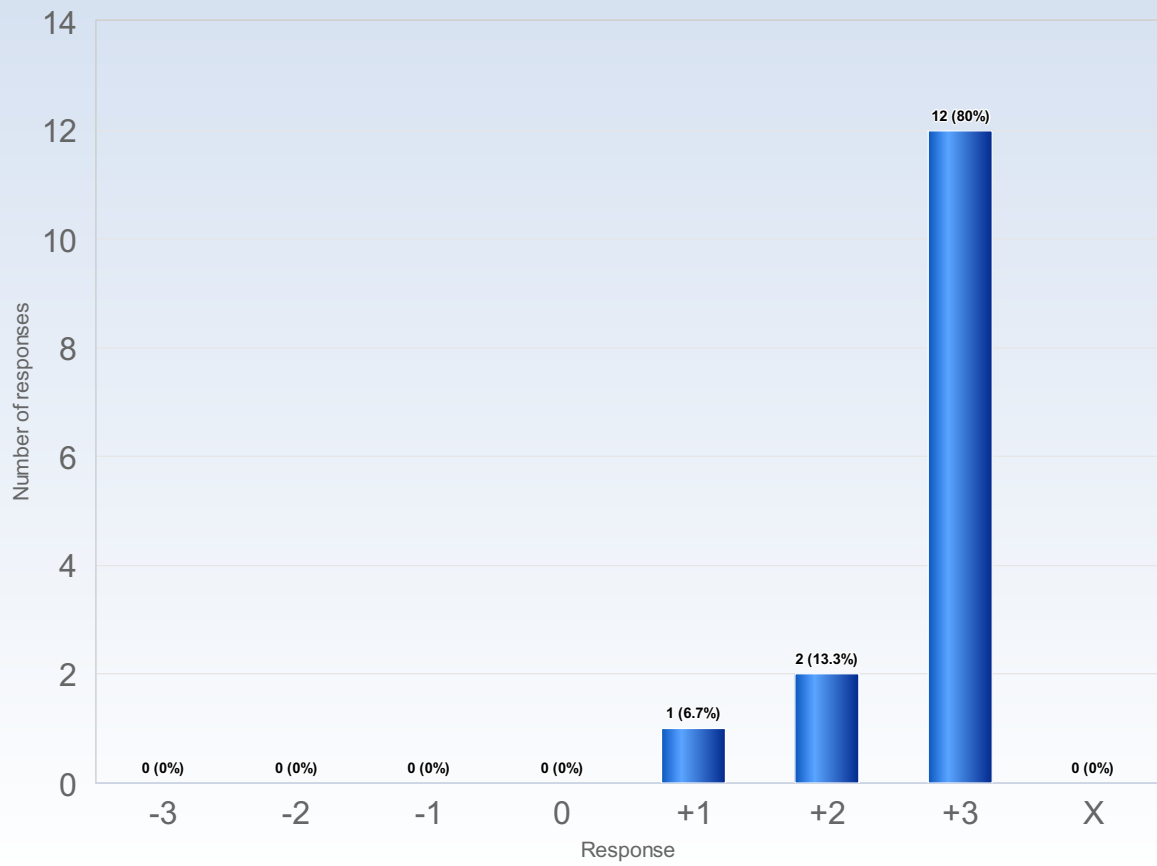
Comments

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

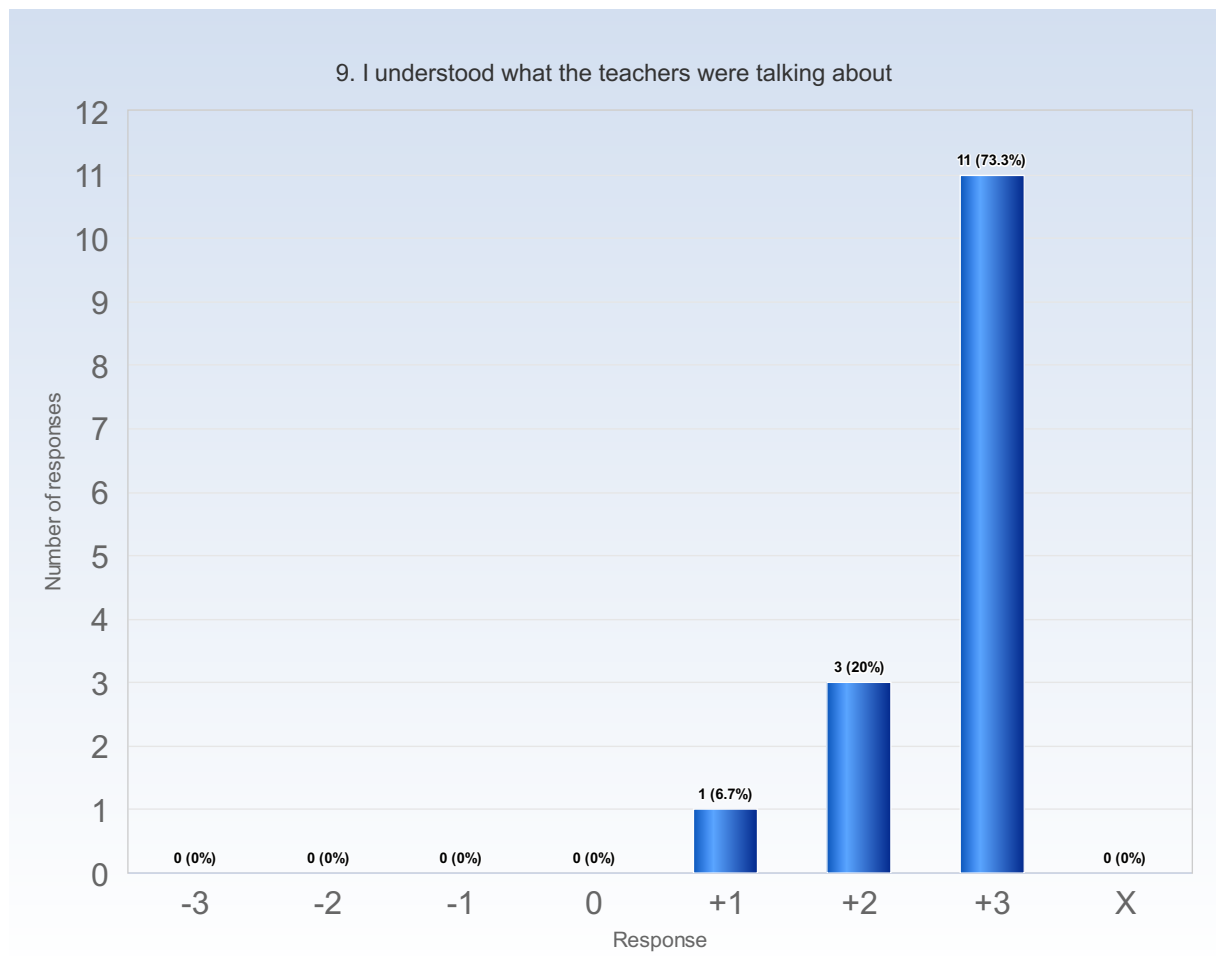


Comments

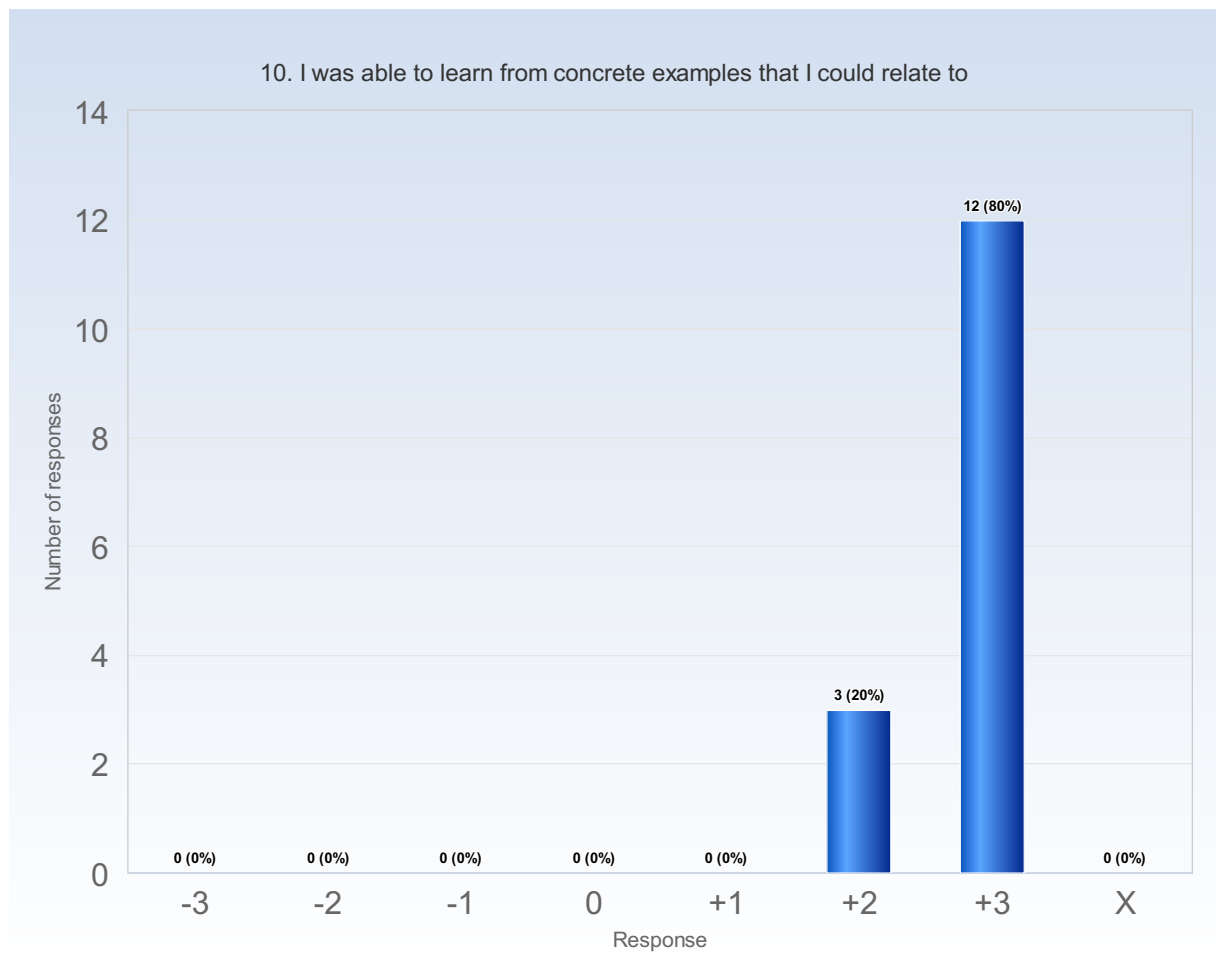
8. The course was organized in a way that supported my learning



Comments

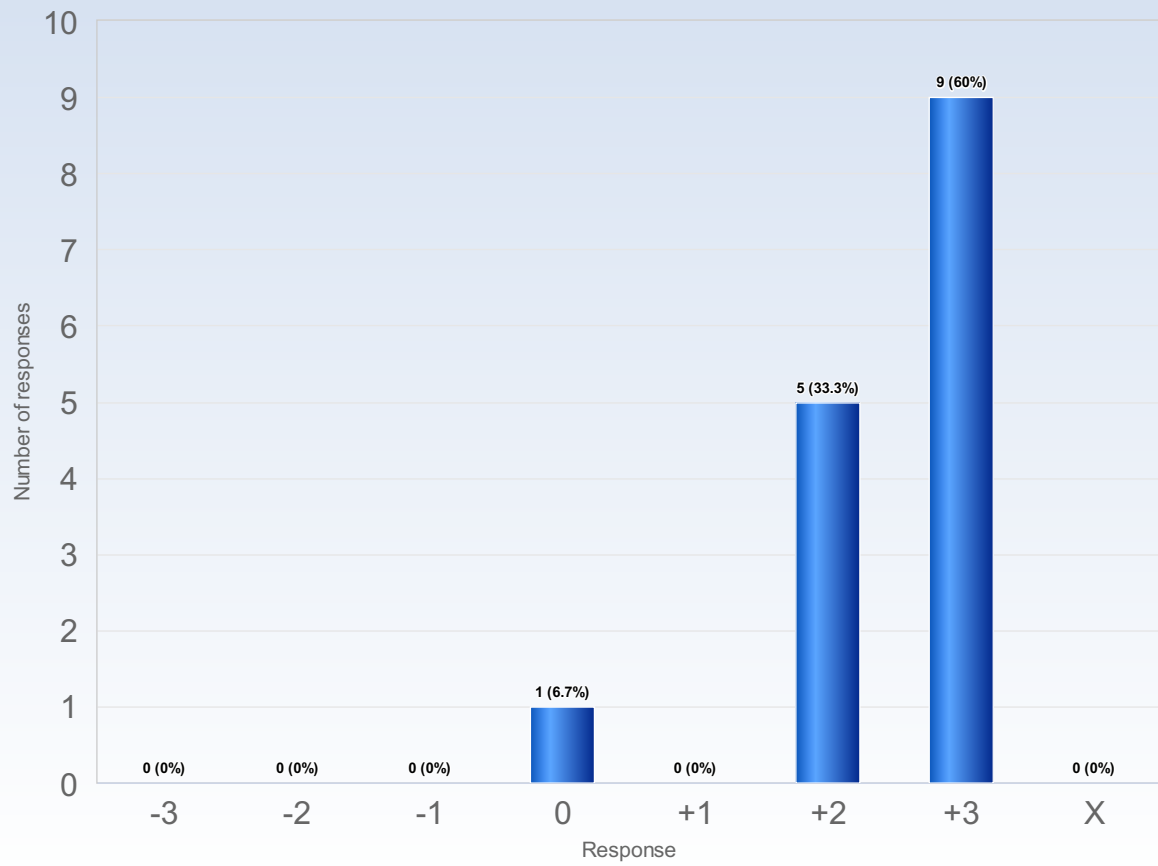


Comments

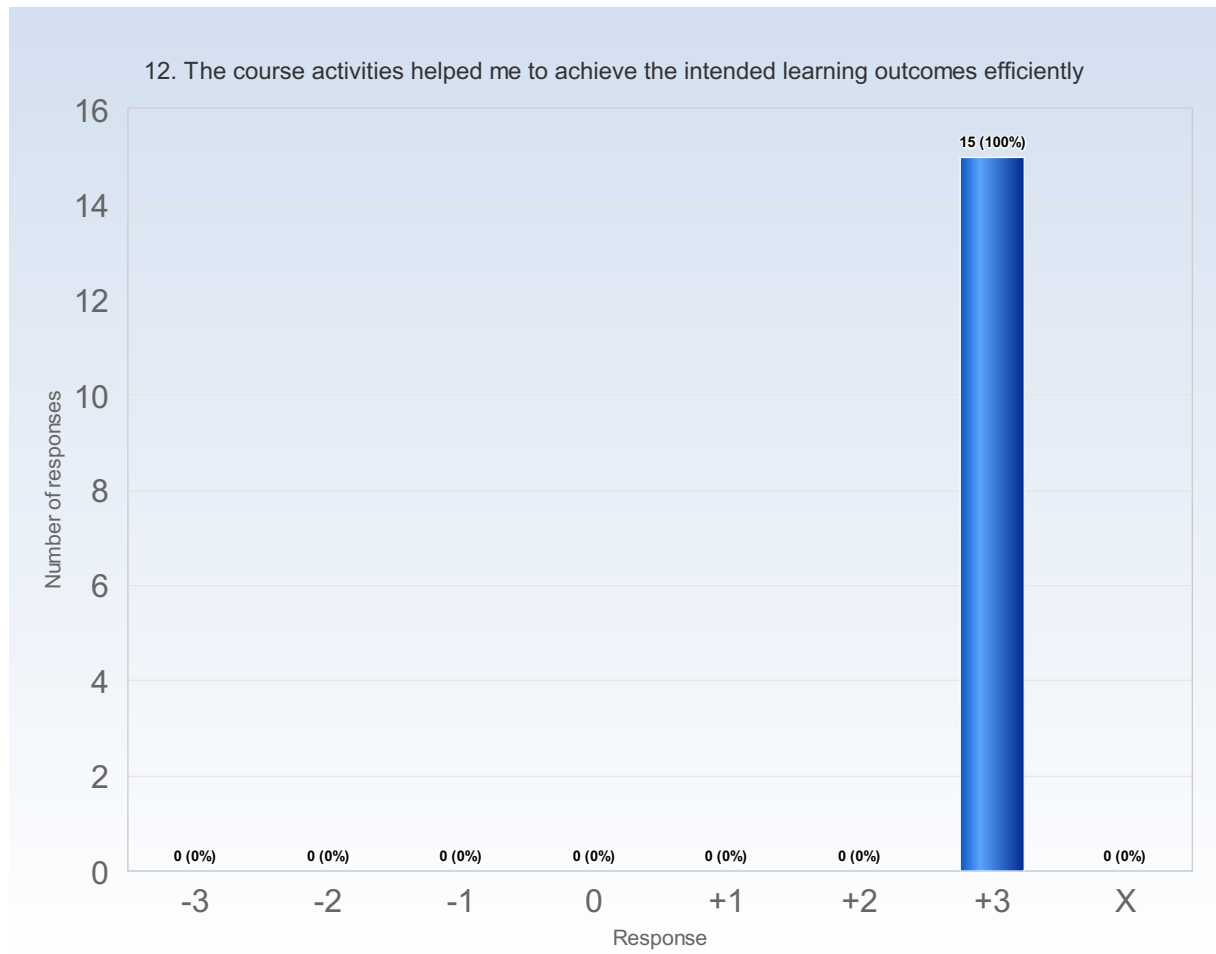


Comments

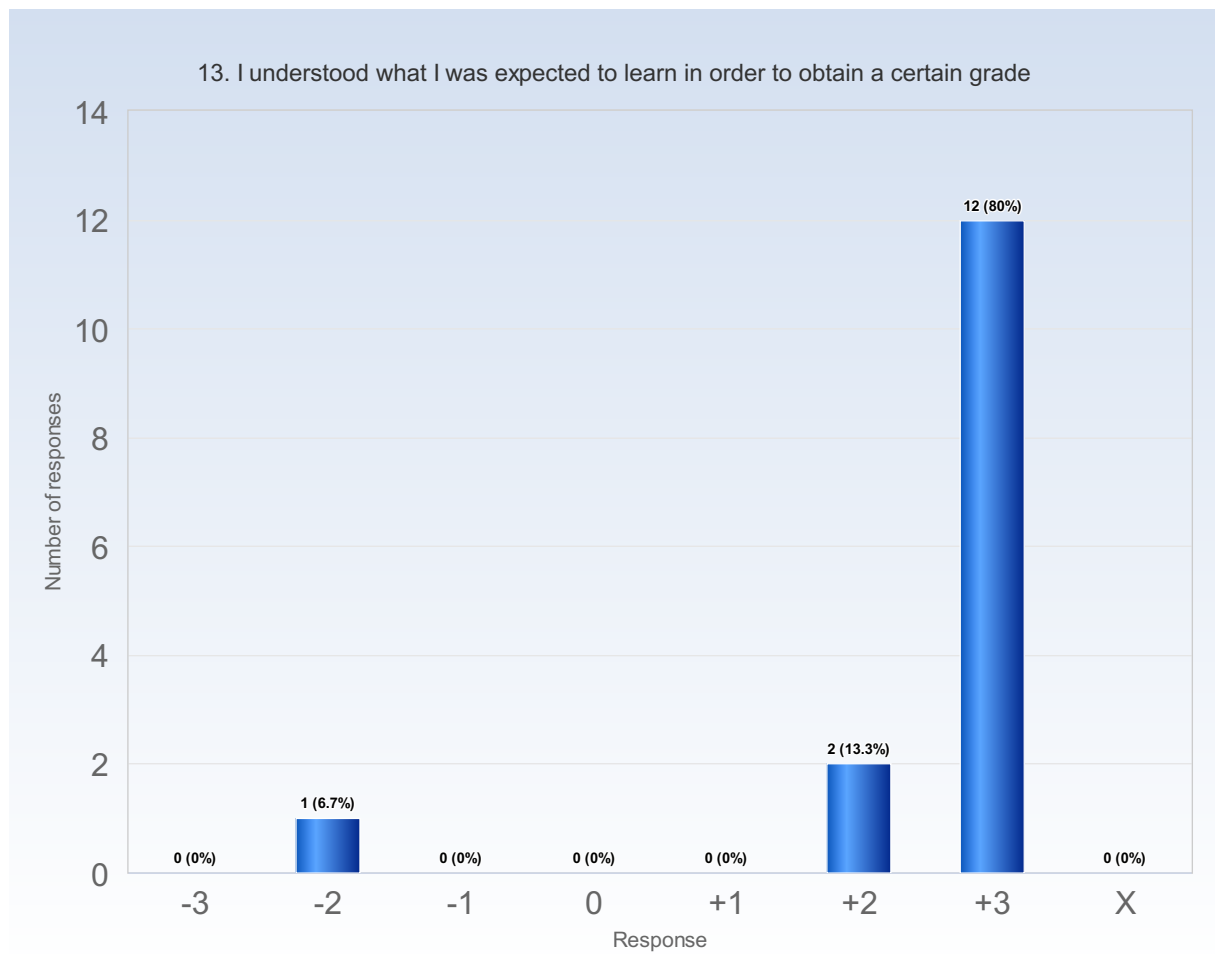
11. Understanding of key concepts had high priority



Comments



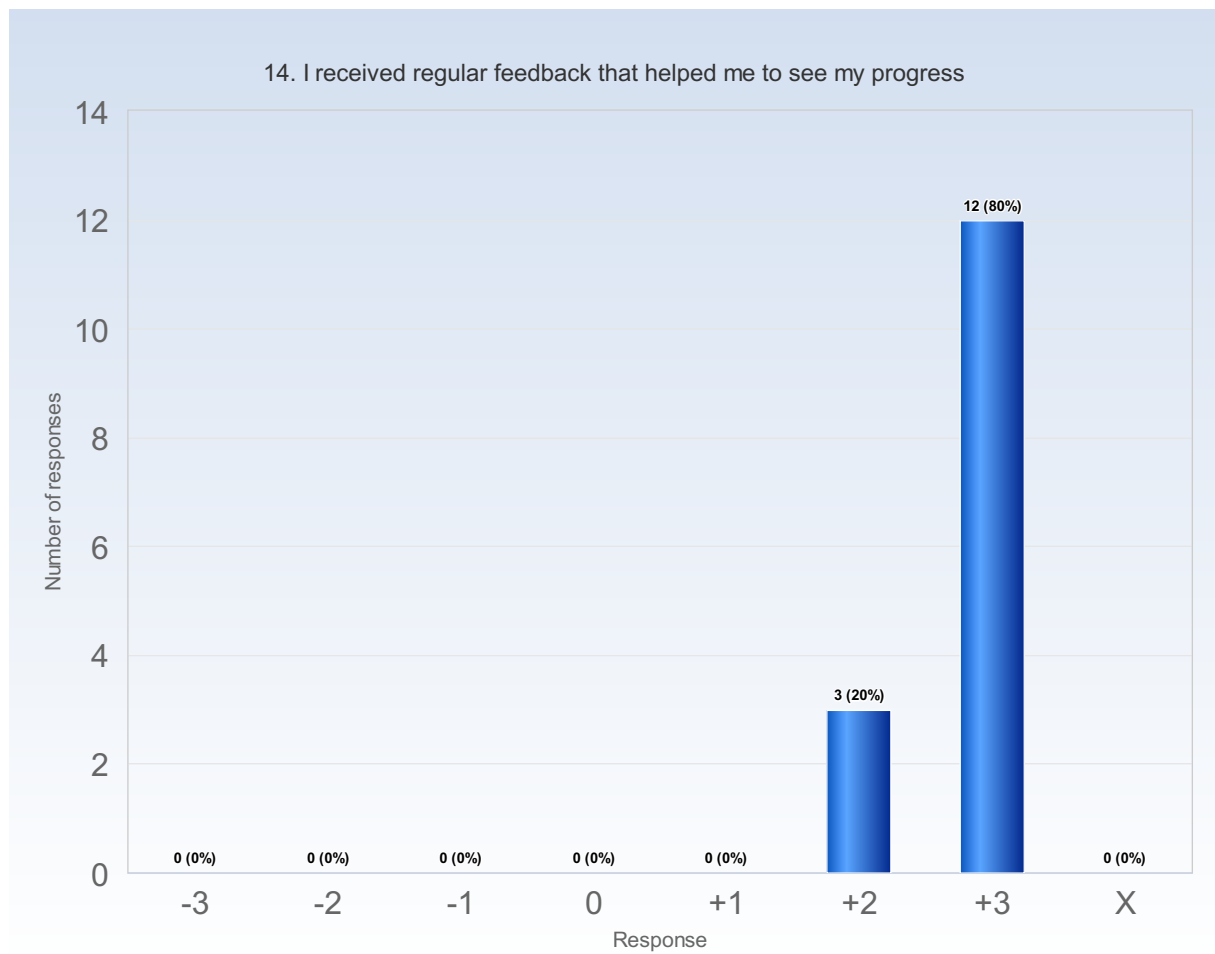
Comments



Comments

Comments (My response was: -2)

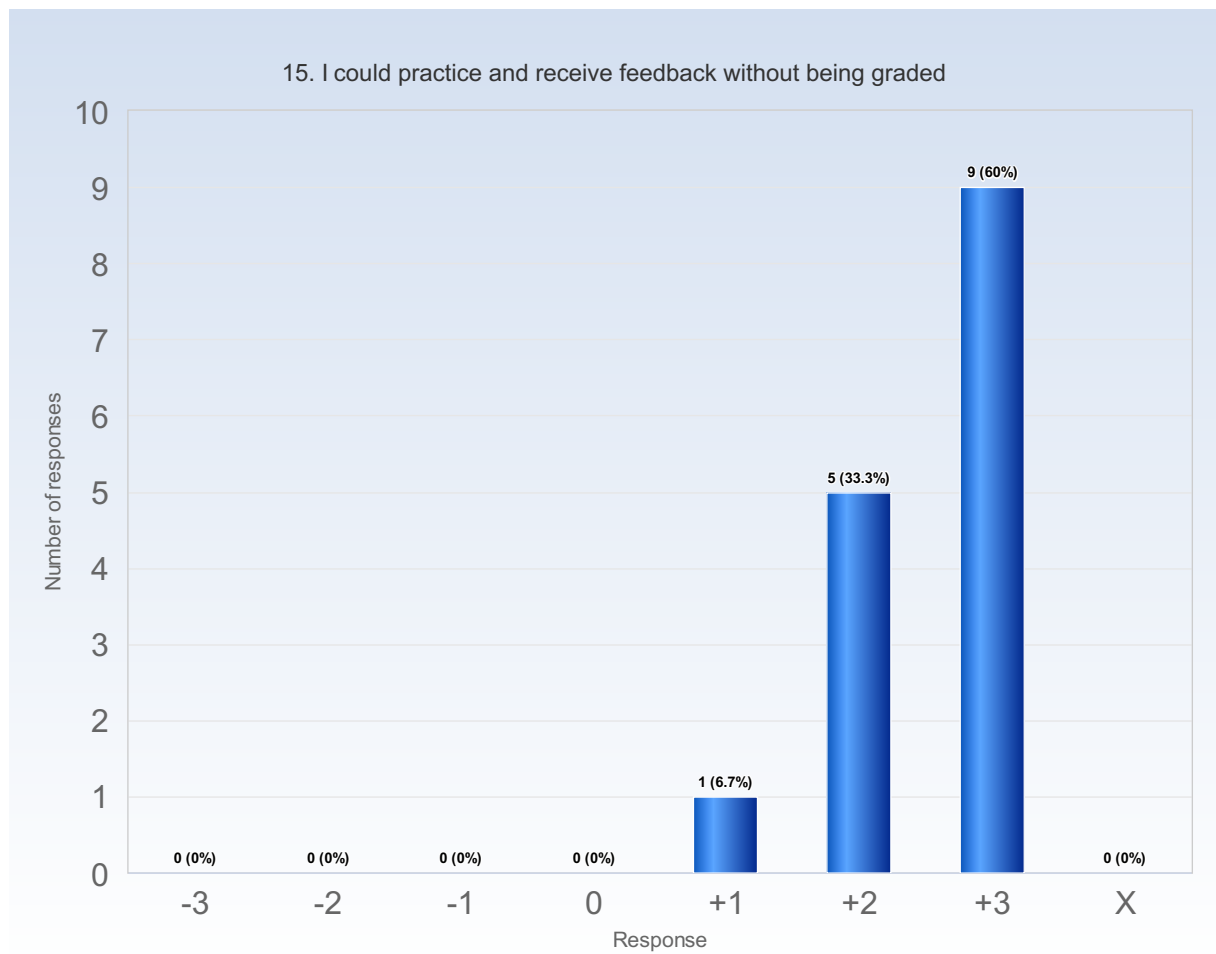
I learned few extra things out of curiosity rather than aiming for a grade



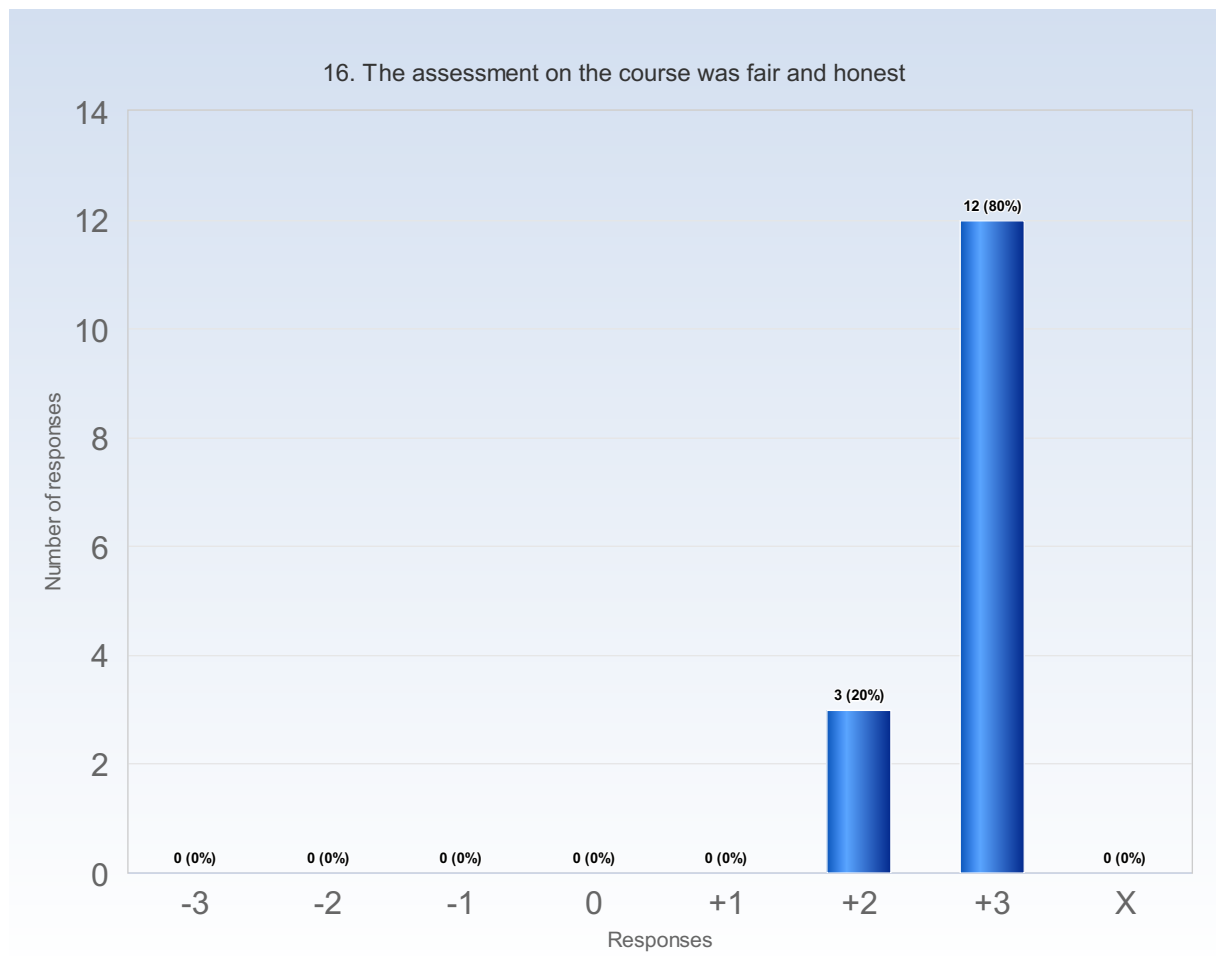
Comments

Comments (My response was: +3)

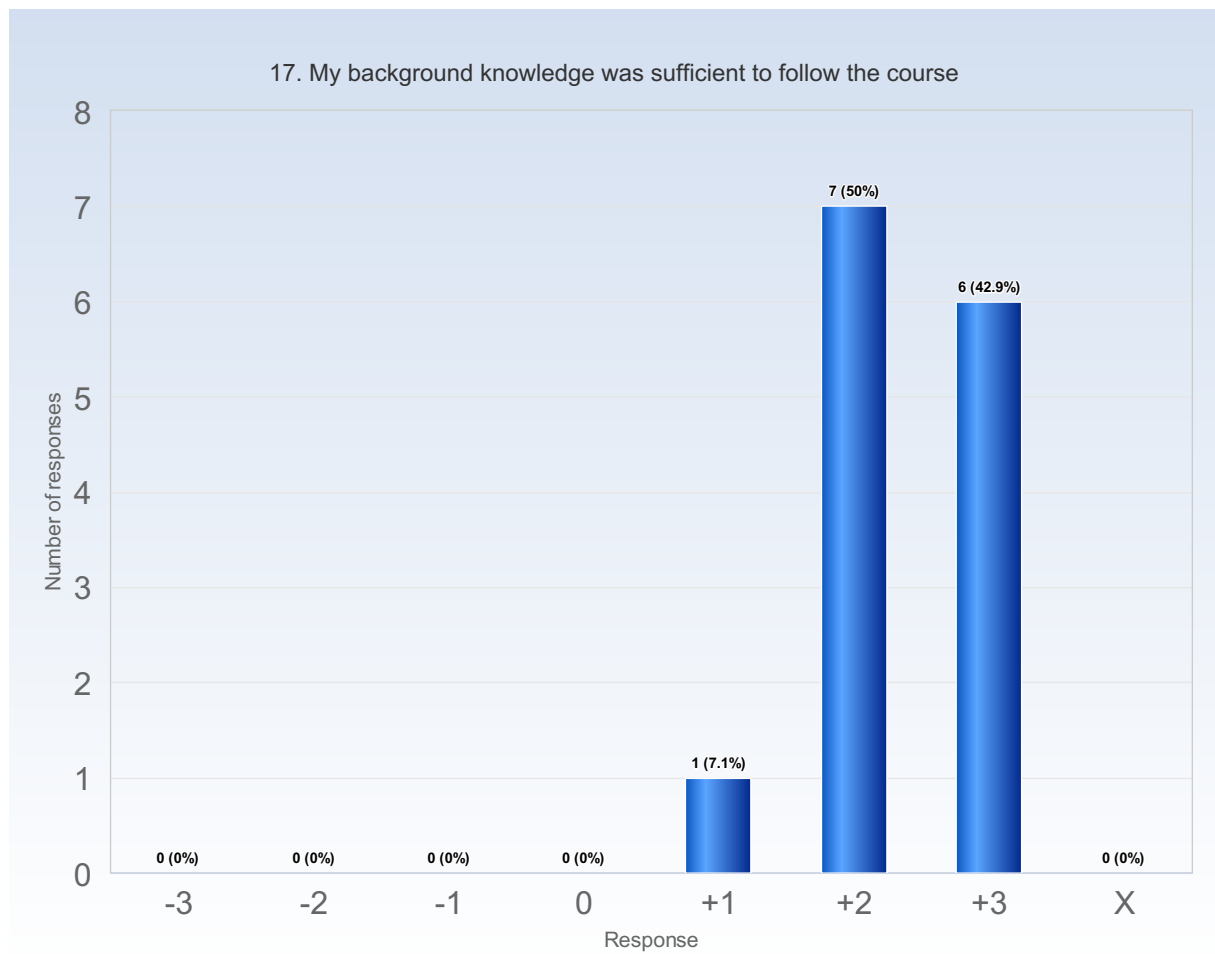
I really liked that you (the teachers) and also the Lab assistants came around and did not only check our Lab results, but also discussed with us about our solutions



Comments



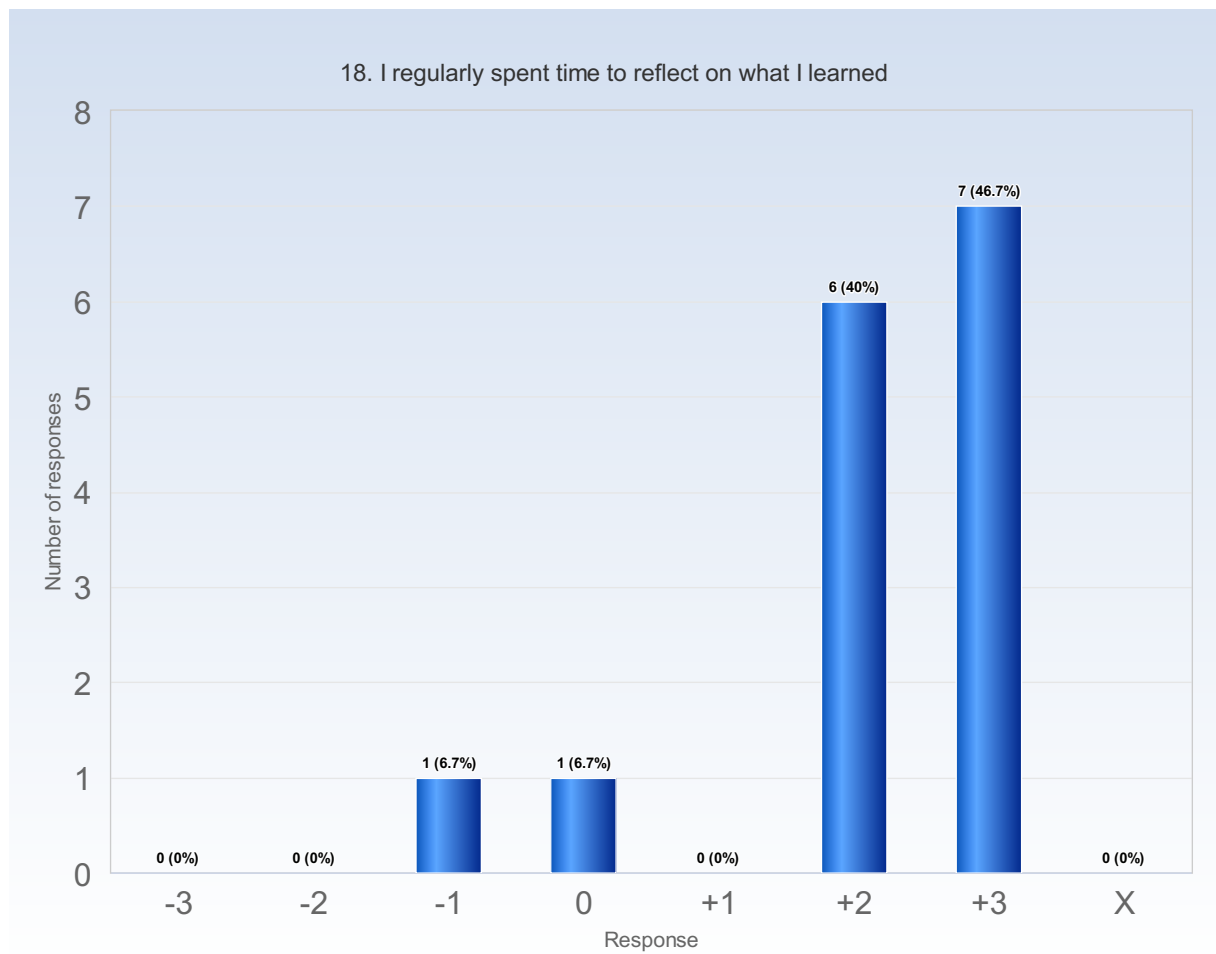
Comments



Comments

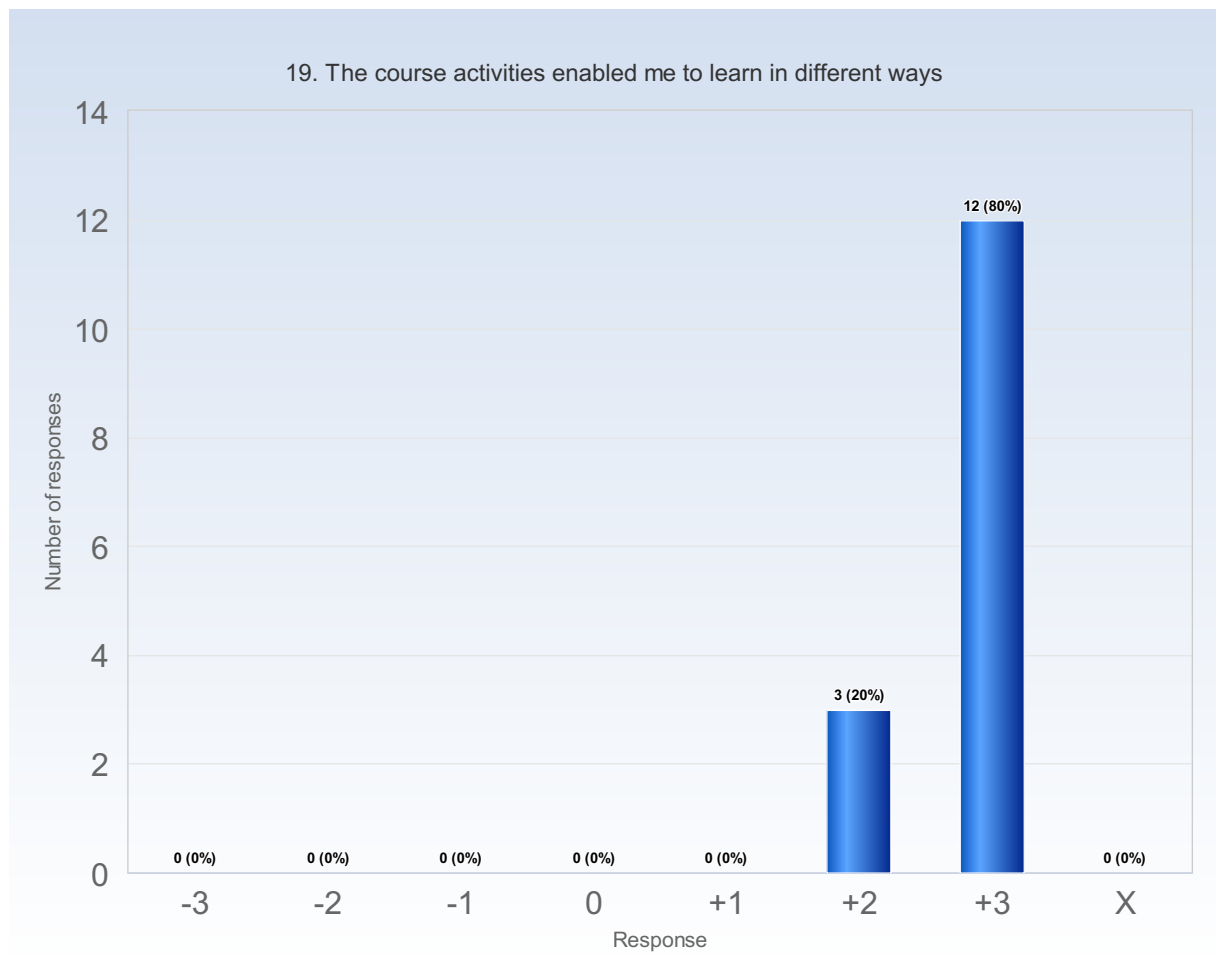
Comments (My response was: +3)

I really liked that the course was sufficiently easy for students that didn't have experience with CAD before to follow the course, but also not too low-level, so that the course was also very interesting for the "more experienced" students

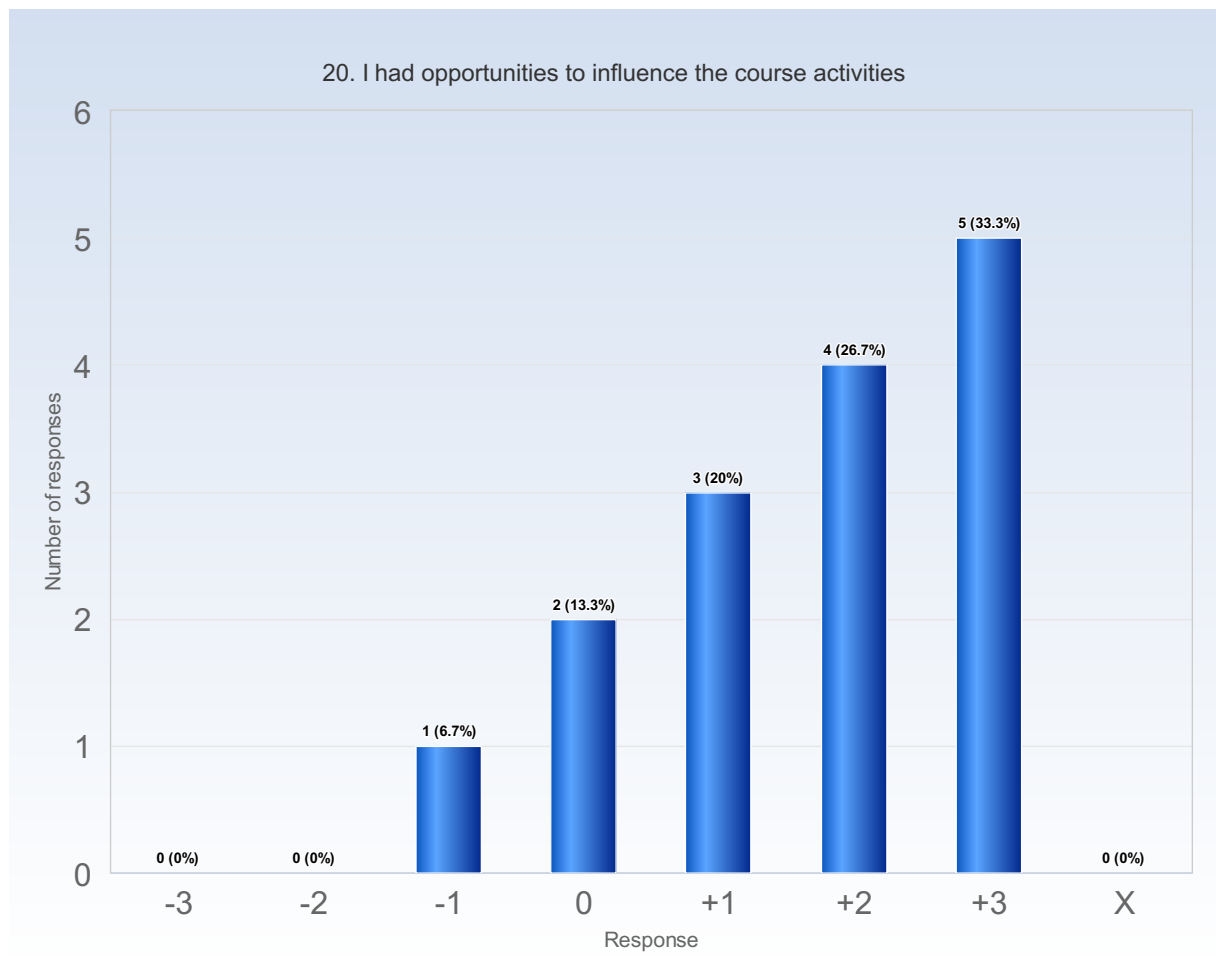


Comments

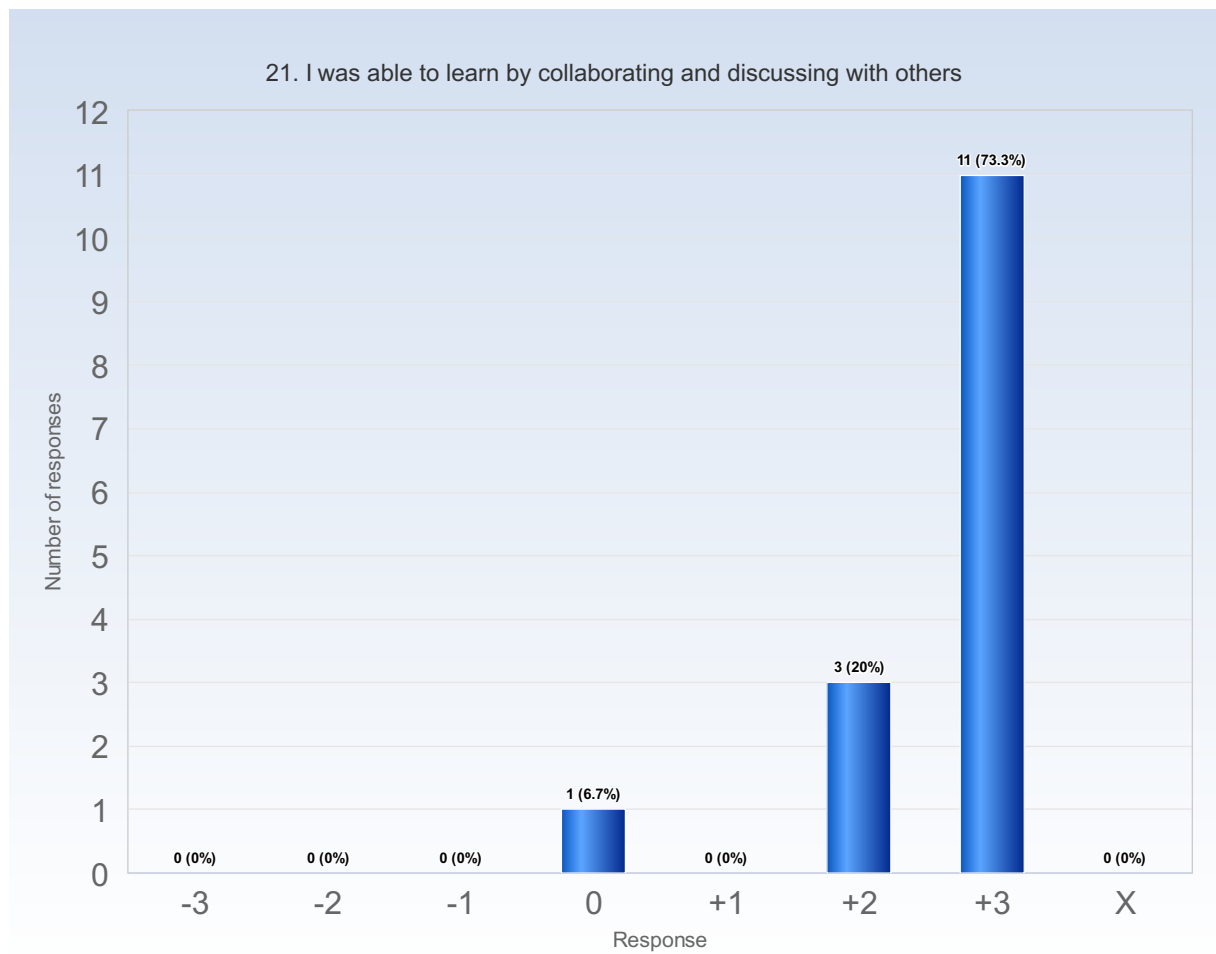
Comments (My response was: +3)
The guest lectures



Comments



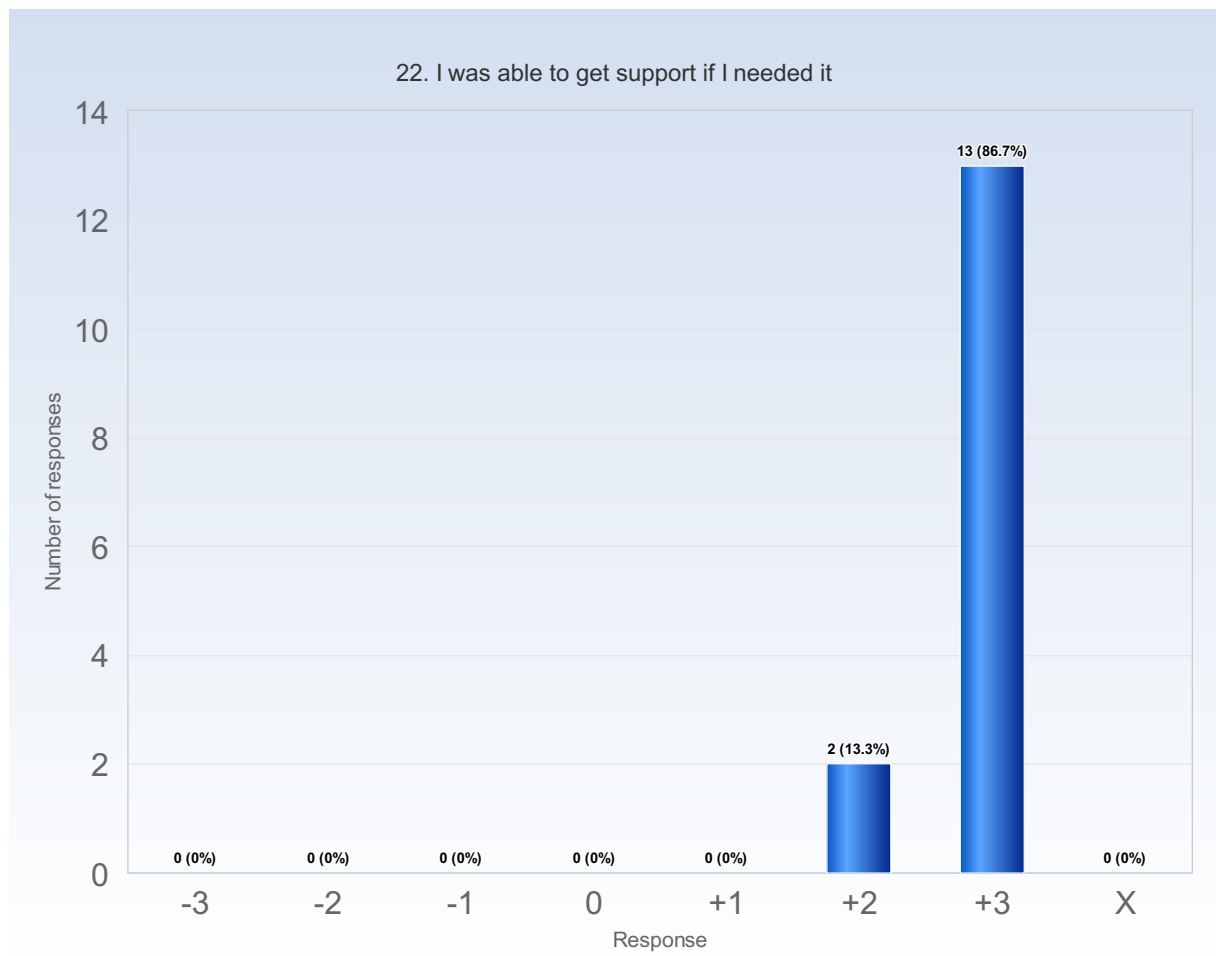
Comments



Comments

Comments (My response was: 0)

though i think this was more due to covid distancing



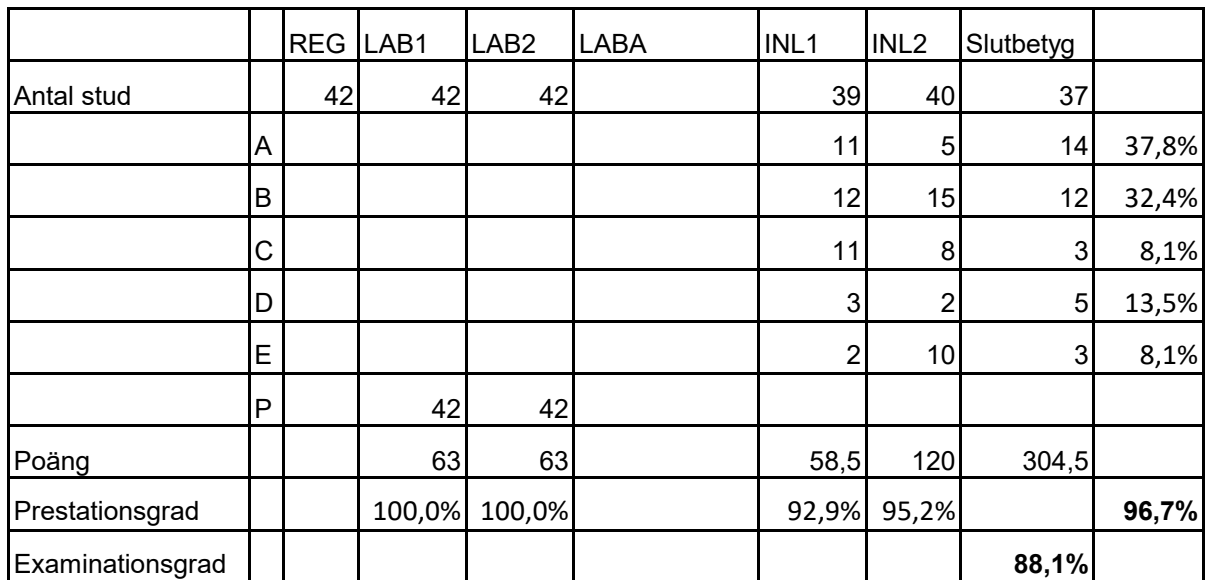
Comments

2022-04-30

Group	A	B	C	D	E
INL1	17	12	16	3	5
INL2	0	3	9	2	37
Slutbetyg	2	10	2	14	21

[illegible]

2022-04-30



2022-04-30

