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Video lectures as a tool for filling the gaps in students' background

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Introduction

Students' diversity

In the last years, the number of students enrolled at university has constantly increased. Students come to the university from different educations, realities, and countries, implying a high degree of diversity. Students may have different aspirations, different goals for the future, different expectations, and different experiences. Finally, yet importantly, students come to the university with different skills and knowledge. To improve the learning process of the students, the teacher should take into account this enormous diversity. Generally, the teacher has an idea of the implied student that does not correspond to reality, especially because there may be more than one implied student in a programme (Ulriksen, 2009). If the teacher does not consider the different backgrounds of the students, they might learn things completely different from what the teacher expects. When planning the programme of the course and the teaching formats, the teacher should answer the following questions: Who are the students? What repertoire do they have? What do they know? Why are they here? What do we assume about them? Only answering these questions allow an optimal preparation of the course and, in turn, of the students. The teacher should construct students' knowledge based on what they already know and, most importantly, what they do not know. Giving the student the right tools for building prior knowledge is essential for guiding them through the course and allowing them to reach the intended learning outcomes.

Scope of the project

The scope of this project is to develop online tools for addressing students with different backgrounds and bringing all the students to the same level. In particular, I decided to test the pre-recorded video lectures in a course belonging to the Study Programme of Human Nutrition for the academic year 2021/2022. This experiment had the purpose of giving me ideas for my future course on Metabolomics in the academic year 2022/2023. This is a new course that has never been held before and that has been (or will be) included as an elective course in different study programmes including, biology, molecular biology, biochemistry, pharmaceutical science, chemistry, and nutrition. The number of students attending this future course is still undefined, but the different backgrounds of the students will surely represent a major challenge, requiring careful planning of the activity and the development of special tools. The course I have chosen for performing the experiment presents the same challenges as the future Metabolomics course, representing a good model for assessing the pre-recorded video lectures as a tool for filling the gaps of students with different backgrounds. Pre-recorded video lectures on chemistry and metabolism were prepared together with exercises to carry out in class. The outcome of the video lectures was evaluated by an informal oral course evaluation, by the official anonymous written course evaluation, and by interviewing three volunteering students.

The course chosen for the experiment

In the course I have chosen for the project, I am co-coordinator together with the leader of my research group, who is the main coordinator and main lecturer. In the past two years, I have helped him in the organization of the course, I have given a few lectures in the course and I have supervised students in their group works.

The learning objective of the course is to get knowledge on the effect of food bioactive compounds on human health and in particular to be able to critically assess methods, results, and conclusions in scientific papers on bioactive compounds and human health. The used teaching activities include lectures, exercises in class, and participation in group work, which includes writing a report and preparing a presentation in class. The assessment is an oral exam.

The course is generally very well structured. However, one of the main aspects that makes it particularly challenging is the diversity of the students.

The course is very interdisciplinary and thus it attracts students from more than five educations, e.g. Human Nutrition, Food Technology and Health, Biotechnology, Business, and a few others. Moreover, the students come from more than 20 different nationalities, implying a big cultural and social diversity in addition to the differences in educational backgrounds. In the past, some of the students complained of not being able to follow part of the course because of their lack of specific subjects such as chemistry, biochemistry, and metabolism. This complaint raised some concerns regarding the need to bring all the students to the same level. Therefore, we decided to introduce some basic lectures on chemistry and metabolism at the beginning of the course. These were pre-recorded lectures followed by exercises in class. A few other lectures included in the curriculum were also turned into pre-recorded video lectures followed by exercises in class to diminish the number of classical lectures and improve the dialogue between teacher and students, and among students.

Methods

Planning with departmental supervisor and course co-organizer

Before starting the project, I asked both my departmental supervisor and the co-organizer of the course whether they approved my project and if they had any suggestions. My departmental supervisor helped me to focus on which methods I should use to assess the outcome of the pre-recorded video lectures. Therefore, I decided to include both the course evaluation and the interview with the students as an assessment tool. The co-organizer of the course offered his help in informing me of the results of the oral examination. He also agreed on organizing an informal course evaluation meeting of one hour to hear the students' opinions. In addition, he agreed that I could contact the students on Absalon after the exam to ask who would volunteer for my interview. He also suggested using these pre-recorded lectures for new Master's students starting a thesis in our lab to give them some useful basic knowledge. Even though this was a good idea, it was outside of the scope of the current project.

Pre-recorded lectures

I prepared eight small videos on Basic chemistry and Metabolism of foreign compounds. I used the program Kaltura Capture since it allows to

switch between slides and presenter mode when watching the video. Then I uploaded the videos to Absalon. I created one page on Basic Chemistry and I uploaded four videos entitled: Functional groups (14 min); Core of a molecule and monomers (9 min); Classes of compounds (11 min); Conjugation (8 min). I created one page on Metabolism of Foreign Compounds and I uploaded four videos entitled: Bioavailability, digestion, and absorption (9 min); Metabolism and excretion (13 min); Phase I and II metabolism (16 min); Phase III metabolism and conclusion (8 min). I decided to split the videos into small topics to make them clearer to the students and since it is recommended not to produce videos longer than 10 minutes for allowing the students to remain focused. In addition, I asked the students to watch the videos in advance before the exercises in class.

Exercises in class

I prepared one hour of exercises to carry out in class. At the beginning of the hour, I quickly went through the concepts of the pre-recorded lectures (10 minutes). I asked the students whether they had any questions. After replying to their questions, I started the exercise/quiz prepared on Kahoot. I decided to use this specific tool not to give the students the feeling that it was a test. However, I did use their replies to evaluate the efficacy of the video lectures. After the quiz, I explained the correct answers.

Examination

To assess the outcome of the pre-recorded lectures, I have explicitly asked the co-organizer and main lecturer of the course to pay attention to the knowledge of students in chemistry and metabolism during the oral exams. Due to the interdisciplinarity of the topics, the metabolism of bioactive compounds was discussed in all the examinations.

Course evaluation

At the end of the course, I attended a discussion with the students asking for general feedback on the course. I explicitly asked questions about pre-recorded lectures on Basic Chemistry and Metabolism. Besides this unofficial course evaluation, I received the report of the anonymous evaluation of the course, where around half of the students replied to the questions (Appendix A).

Students' interview

At the end of the course, I wrote an announcement on Absalon asking the students whether they were interested in participating to my interview. Three students replied positively and I arranged three separate meetings. On the day of the meeting, I briefly explained the purpose of the interview and my project. I prepared a GDPR declaration on the use of data and they signed it before starting the interview. After, I started the interview by following a specific questionnaire that I prepared in advance (Appendix B). I asked the students information about their background in chemistry and metabolism, whether their knowledge improved after the pre-recorded lectures, and their opinion about pre-recorded lectures for improving their background. I also asked them to suggest any additional tools that could be used for bringing the students to the same level before starting a course.

Results

Results of the exercises in class

The result of the quizzes in class was good. Most of the students replied correctly to my questions, showing that i) most of them watched the pre-recorded lectures, ii) most of them acquired basic knowledge of chemistry and metabolism iii) the content of the video lectures allowed them to reach the intended learning outcomes. In addition, all the students were engaged and actively participated in the quiz.

Result of the examinations

I asked the main lecturer of the course if in this exam session he had noticed that students were better at chemical structures and metabolism of foreign compounds. Although he generally does not ask the students specific chemical structures, his felt that students were a bit better in chemistry this year and they were just generally better in most of the topics. This might be partially due to a better understanding of the basics of chemistry and metabolism.

Result of the course evaluation

During the oral, informal course evaluation, the students provided generally positive feedback about the pre-lectures on chemistry and metabolism:

- They were very happy with pre-recorded lectures and they asked for additional pre-recorded lectures on other basic concepts related to nutrition.
- They asked that exercises performed in class, such as speed-reading, would be turned into pre-recorded lectures.
- They asked to upload the pre-recorded lectures well in advance the lectures.
- Few students mentioned that they lost focus during pre-recorded lectures due to the lack of teacher-student interaction.

The result of the written, anonymous, course evaluation included many aspects of the course. Extracts related to pre-recorded lectures and topics relevant to this project are shown in Appendix A.

- Most of the students dedicated between 16-25 hours per week to the course. The course was perceived as too heavy in a matter of workload. The academic level of the course was considered suitable or too high given the background of the students.
- The students agreed that the use of digital tools for teaching provided good opportunities for interacting with the lecturer and fellow students, and has been beneficial to their academic gain.
- Most of the students declared that they have revisited recorded lectures and that it is an advantage to engage in repeated viewing to understand difficult topics. Moreover, it is an advantage to watch the lectures when it fits their daily schedule. The students also suggested recording all the lectures.
- The students mentioned that they appreciated receiving some basic knowledge since they all have different backgrounds.
- The students complained about the workload of the course. There were multiple hours of additional online lectures beyond the schedule, which summed up to an entire extra week.
- The students asked that the teacher explicitly ask to watch the pre-recorded lectures on basic chemistry and metabolism before the course starts because the workload is high during the course.

- Some students complained that not all the students were equally prepared during the exercises since not all watched the pre-recorded lectures. This was annoying and waiting for other students to catch up was not effective. They suggested reducing exercises and increasing classical lectures in class.
- Finally, as shown in Figure 1, students thought that the topics and lectures were not well organized on Absalon.

UU vurdering (A, B, C)	Vurdering ved forrige afrapp.	Besvarelses% ved elektronisk evaluering	Tilmeldte til eksamen	% bestået *	Gennemsnit *	UU/VILUs kommentarer
B	B	47	53	96	7.3	Rigtig gode evalueringer af underviserne. De studerende nævner rod i absalon, og manglende sammenhæng/manglende struktur. Kursus med mange internationale deltagere.

Figure 1. Comment of the VILU on the course evaluation.

Result of the interviews

Three students with different ages, nationalities, and backgrounds were recruited for participating to the interview. All of them watched the pre-recorded lectures and actively participated in the exercises in class.

- The students were asked to grade their level in basic chemistry and metabolism before and after the lectures. Although the sampling of the students is quite low, the results showed a general improvement in their level of chemistry and metabolism of 2.7 ad 1.6, respectively (Table 1).

Table 1. Average of the level of knowledge of the three interviewed students in Basic Chemistry and Metabolism before and after the pre-recorded lectures.

	Level before video lectures	Level after video lecture	Increment
Chemistry	6	8.7	2.7
Metabolism	7.7	9.3	1.6

- The students were asked opinions about the use of pre-recorded lectures for improving students' background. They all expressed very positive feedback about the video lectures, because of the possibility of watching them multiple times when it better fit their schedule. In addition, they considered them a good tool even for students that do not lack basic knowledge since refreshing basic information helps connect it with new topics. The only concern was that one-two hours pre-recorded lectures may not be enough for covering the limited background of students. They suggested instead limiting access to the course.
- The students were asked an opinion about the exercises following the pre-recorded lectures. The students thought the exercises helped them better understand concepts. However, scheduling exercises in class after the pre-recorded lectures should be done only if these are mandatory. If they are addressed only to students that lack a specific background, the exercises should be optional and set in a Q/A session outside the normal schedule. Otherwise, the students that have not seen the video lectures cannot do the exercises.
- The students were asked questions about pre-recorded lectures in comparison with classical lectures. The students expressed contrasting opinions. One student would prefer mandatory pre-recorded lectures to be reduced. Another student thought that it is a useful tool only if all the students watch the videos. In addition, he thought that pre-recorded lectures might push the students not to show up in class. The last students thought that they are very time-consuming, but still preferable to the classical lectures because you can spend time on the topic on your own before asking questions during exercises.
- When asking if they can recommend some tools for improving the background of the students, the students proposed: i) to provide a link to online courses to prepare in advance; ii) to clarify the course prerequisites so the students know what they need to prepare before starting the course.
- Finally, the idea of a quiz as a tool for understanding students´ backgrounds was proposed. All the students replied that they would gladly reply to a quiz when they have a break between courses, i.e. 1 week and a half before the beginning of the course. This quiz could be used both for giving them an idea of their backgrounds, and to give it to teachers for adjusting lectures and forming groups. However, the quiz and the following preparation for the course should not be too time demanding because students want to rest during their break.

Discussion

Several points arouse from both the course evaluation and the interviews. It is important to discriminate the evaluation of video lectures as a teaching tool and as a tool for filling the gaps in the students' backgrounds.

Evaluation of the pre-recorded video lectures associated with exercises in class.

There was a consensus among students about the usefulness of pre-recorded lectures. Many students asked to record as many lectures as possible since it is very useful to be able to review the lectures for clarifying concepts. However, some of the students complained about the amount of work that the pre-recorded lectures required in addition to the scheduled time in class. The pre-recorded lectures followed by exercises in class belong to the so-called flipped classroom method, where the students spend time on their own for the lectures, but can benefit from the interaction with the teacher and the other students during the exercises in class.

Table 1: Restricted definition of the flipped classroom.

Style	Inside Class	Outside Class
Traditional	Lectures	Practice Exercises & Problem Solving
Flipped	Practice Exercises & Problem Solving	Video Lectures

Figure 2. Extract of a figure taken from (Bishop & Verleger, 2013) showing the definition of flipped classroom.

This method developed by Bishop and Verleger (Bishop & Verleger, 2013), is defined as "an educational technique that consists of two parts: interactive group learning activities inside the classroom, and direct computer-based individual instruction outside the classroom" and it is supposed to be the opposite of the classical lectures (Figure 2).

It has been reported that "the student perceptions of the flipped classroom are somewhat mixed, but are generally positive overall. [...] Anecdotal evidence suggests that student learning is improved for the flipped compared to the traditional classroom." (Bishop & Verleger, 2013) The video lectures allow more time for discussion and interaction with the students

and the learning outcome is likely to be higher than in classical lectures. However, moving all the traditional classrooms into flipped classrooms may lead to the risk that most of the students will not show up in class, reducing interactions. In addition, pre-recorded lectures require extra work from both the student's and the teacher's side. I think that a good compromise should be reached to address the needs of different students and the needs of the teacher. It could be useful to propose some of the pre-recorded lectures as mandatory and some as optional, so that the students are aware of which lectures they need to watch for being able of reaching the intended learning outcomes and performing exercises in class.

Evaluation of the pre-recorded lectures as a tool for filling the gaps in the students' background.

The students in a classroom are a heterogeneous group with a very diverse set of knowledge, experience and repertoires. Often students' backgrounds are too different to be addressed within a short amount of time. Therefore, the use of pre-recorded video lectures could be a useful tool for filling the gaps of the students before the start of the course. However, several concerns could arise. Are the pre-recorded video lectures enough for bringing the students to the right level? Is it necessary to make pre-recorded lectures for selected students or they should be addressed to all the students? To address these issues I have taken into consideration the general evaluation of the course and, especially, the interviews with three students. The results showed that the video lectures on basic concepts were useful regardless of the background of the students because refreshing basic concepts allow the students to connect them to the new topics. On the other hand, it emerged that the pre-recorded lectures might be not enough if the students are too lacking. In that case, it is better to set some specific prerequisites for the course and either exclude students lacking those prerequisites or ask them to follow additional courses or study specific material before the beginning course. It is not advisable to overload the course with an excessive amount of pre-recorded video lectures. They should be limited to covering selected topics and should not be followed by exercises within the normally scheduled time, or the students who do not lack basic topics are forced to watch videos they do not need, to be able to participate in class. It should be stated clearly who are the student requiring the pre-recorded video lectures.

Implementation of the pre-recorded lectures and other possible tools for filling the gaps in the students' background.

Since the pre-recorded video lectures are only partially useful for filling the gaps in students' backgrounds, other tools should be implemented. The use of a questionnaire before the beginning of the course appears to be a good solution for allowing the students to be aware of their backgrounds. They could use one week before the course for answering a questionnaire that could address them to specific topics to study before the beginning of the class. This could be done in the form of reading, watching pre-recorded lectures, or brief online courses. Moreover, this questionnaire could be used by the teacher to form groups for both the exercises in class and the final group project. The students could be assembled in groups based on their complementary backgrounds. This approach finds its foundations in Vygotsky's scaffolding theory (Cole et al., 1978), which focuses on the students' ability to learn with the help of a more informed individual.

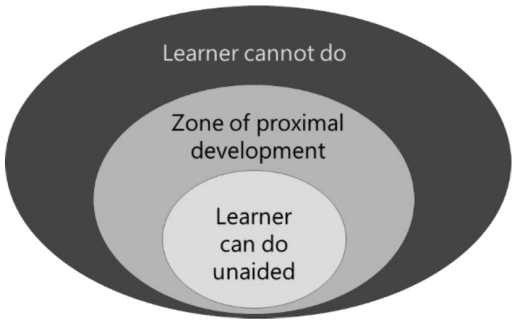


Figure 3. Illustration of the Zone of Proximal Development according to the theory of Vygotsky (Cole et al., 1978).

When used effectively, scaffolding can help a student learn contents he/she would not be able to process on his/her own. New knowledge should be built upon prior knowledge. The help of an external individual, such as the teacher or another more experienced student, can move the student from the zone of not learning to the Zone of Proximal Development. This has to be taken into account in interdisciplinary courses, where students can lack knowledge in a specific field but be experts in one another. The comple-

mentarity of the students´ knowledge can be used during class exercises, or during group projects, to bring the students to the same level and fill the gaps in their backgrounds.

Conclusion

The pre-recorded lectures have been explored as a tool for filling the gaps in the students´ different backgrounds in an interdisciplinary course. The results showed that even though the pre-recorded lectures are considered a useful tool by students and can help them in achieving the intended learning outcomes, they can be not enough for covering the needed background. More tools, such as the use of quizzes before the course, establishing clear prerequisites for a course, or following online courses, could be a solution to this problem. However, one of the aspects that should be used in interdisciplinary courses it is the implementation of exercises in groups and group projects in class in which students with different backgrounds can help each other build their knowledge.

References

Bishop, J., & Verleger, M. A. (2013). The flipped classroom: A survey of the research. *2013 ASEE Annual Conference & Exposition*, 23–1200.

Cole, M., John-Steiner, V., Scribner, S., & Souberman, E. (1978). Ls vygotsky: Mind in society: The development of higher psychological processes. *Edited Trans*.

Ulriksen, L. (2009). The implied student. *Studies in Higher Education*, *34*(5), 517–532.

A Results of course evaluation

A1 Course evaluation

56 could answer this evaluation schema.
31 have answered this evaluation schema.
0 did not follow the course.
The answer percentage is 56.36%. : 31 / (56- 1)

1.1 My average weekly workload on this course was (incl. lessons, preparation, written work, etc.):

Less than 10 hours	1	3.2%
10-15 hours	4	12.9%
16-25 hours	15	48.4%
26-30 hours	7	22.6%
More than 30 hours	4	12.9%
Don't know	0	0.0%

2

2.1 Given my background, the academic level of the course is:

Far too low	0	0.0%
Too low	3	9.7%
Suitable	15	48.4%
Too high	8	25.8%
Far too high	5	16.1%

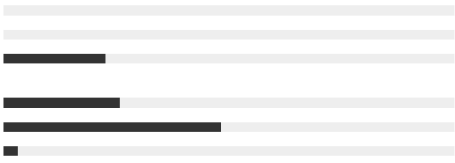
2.2 In my opinion, the workload on the course is:

Far too light	0	0.0%
Too light	0	0.0%
Suitable	7	23.3%
Too heavy	16	53.3%
Far too heavy	7	23.3%

3 Digital tools

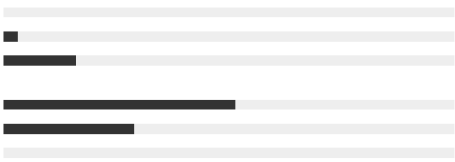
3.1 In my experience, the use of digital tools for teaching has provided good opportunities for interacting with my lecturer and fellow students.

Strongly disagree	0	0.0%
disagree	0	0.0%
Neither agree nor disagree	7	22.6%
Agree	8	25.8%
Strongly agree	15	48.4%
Do not know	1	3.2%



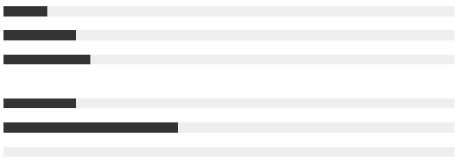
3.2 In my experience, the use of digital tools for teaching has been a support and has been beneficial to my academic gain

Strongly disagree	0	0.0%
disagree	1	3.2%
Neither agree nor disagree	5	16.1%
Agree	16	51.6%
Strongly agree	9	29.0%
Do not know	0	0.0%



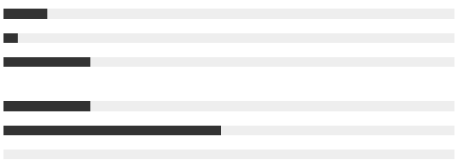
3.3 I prefer having some elements of my courses take place online.

Strongly disagree	3	9.7%
disagree	5	16.1%
Neither agree nor disagree	6	19.4%
Agree	5	16.1%
Strongly agree	12	38.7%
Do not know	0	0.0%



3.4 I have revisited recorded lectures and find that it is an advantage to my academic learning to engage in repeated viewing.

Strongly disagree	3	9.7%
disagree	1	3.2%
Neither agree nor disagree	6	19.4%
Agree	6	19.4%
Strongly agree	15	48.4%
Do not know	0	0.0%



3.5 Do you have any suggestions to how digital tools can be used to improve teaching? Please mention digital elements used in teaching, which you found beneficial and you would like to be used in the future, or mention elements you think should be discontinued.

- *Discussions in break out rooms did not always end up being fruitful. the idea is nice, but it was time consuming, and the follow ups were more beneficial.*
  We often did not have time for the whole planned lecture, and besides that, (perhaps a point

for the work load), there were multiple hours of additional online lectures added, which were beyond the schedule. Nice that you could revisit them and take it in your own pace, but I did not expect a whole extra week of lectures being squeezed in by adding them as recorded lectures.

- *I think it is fine, although I attended on-site courses mostly.*
- *No suggestions*
- *all lectures should be recorded to allow students to go back and review*
- *I appreciate very much being able to review lectures that are recorded!!*
- *Recording most of the lectures additionally and not only for watching for a preparation of the course so one could follow up because sometimes the presentation themselves are not self explanatory*
- *De Pre-recorded lectures har været super gode - især til eksamens forberedelse.*
- *I liked the secretive quizzes during lectures, these can be applied in online lectures as well. Had it done in another lecture and it worked very well. I think all lectures should be recorded, then you can go back and listen if you missed something or fresh up on something.*
- *On one hand, I liked having recorded lectures available to me for review. This was helpful preparation before the exam. On the other hand, there was a lot of material that we were supposed to watch/read ourselves and then do interactive exercises in class. In theory interactive exercises are good, but the other students were never equally prepared so it wasn't so helpful. I would recommend putting 1 hour aside each week for some sort of quiz session where we review what we learned that week (like the quizzes we did in class). But I think 1 hour is plenty, and we can spend the rest of the time in classic lectures. It is a little annoying to spend hours at home watching videos and then the time in class is just spent waiting for others to answer questions and it isn't effective.*

A2 Course evaluation

56 could answer this evaluation schema.
26 have answered this evaluation schema.
0 did not follow the course.
The answer percentage is 47.27%. : 26 / (56- 1)

1.1 What was good about the course? Why?

Nice with recorded lectures.

- *Some lectures are recorded, so we can review them.*

- *I learned a lot from this course. I think is very important to get familiar with international food regulations. Even though it is a difficult course for me, since my background is not in food science, (and at this point (studying for the exam) is very overwhelming to study all the theories about bioactive components), it has been very interesting!*
  I also appreciate very much that Lars took the time to do a review lecture of all the contents of the course. That was very helpful and nice.

- *the structure of it was good, I like that we had recorded classes to watch at home when we have time and then in class we discussed about it. this gives us more time to go through the lectures and re-watch them if needed. I really liked this.*
  Also, I like the exercises we had during the class. I think they were very helpful.

- *The recorded lectures was a very usefull tool cause you have the chance to you can adjust the lecture in the time that fits you better in your daily scedule. Ferthermore, you have the opportunity to watch the whole lecture several times and to understand better parts you didnt get clear.*

- *It is good that some basic knowledge is given because we are all with different backgrounds.*

1.2 I would like to suggest the following improvements (NOTE: Comments regarding individual lecturers must be stated in the form for the specific lecturer.)

Recorded lectures:
The recorded lectures is very useful for reading up for the exam. I use them a lot, and it would be nice if there were for all the lectures.
Also some teachers do not hand out the slide before hand, and it can be defficult to remember all the good stuff that was said in class. It is just useful as you will forget some of it as it is very compact the course. Then it is so nice you can go back a see the explanation on complex mechanism and other stuff.

- *Hybrid teaching is a very good method, especially when people are sick and can't come to class, they still get the opportunity to have the class online. Besides, if the course is recorded, we can review it over again to fully understand the topic.*

- *Recorded lectures that are meant as a biochemistry brush up for those, who have limited background within that field, should be noted that they could be seen in the term break before course start, because the additional worload to the course was high, in my oppinion. My work-life balance was completely off in this semester, and it does not harmonise with student jobs and kids.*

B Interview form

1) Information Bachelor and Master: Background on chemistry (from 1 to 10): Background on metabolism (from 1 to 10: Background on nutrition (from 1 to 10):
2) Participation to project related activities Have you watched the recorded video lectures on chemistry and metabolism? Have you attended the relative exercise class on chemistry? Have you watched any other pre-recorded lectures? Have you attended the exercise class afterwards?
3) Outcome of the pre-recorded lectures Level on chemistry after the lecture (from 1 to 10): Level on metabolism after the lecture (from 1 to 10):
4) Opinion on pre-recorded lectures for basic topics What do you think about pre-recorded lectures as a tool for having the right background to follow a course?
5) Opinion on exercises after pre-recorded lectures What do you think about the exercise hour after the pre-recorded lectures?
6) Opinion on pre-recorded lectures vs lectures in class What do you think about pre-recorded lectures plus exercises in class as a general learning tool? Do you think that pre-recorded lectures plus lectures are a high or higher amount of work compared to the classical lectures in class? Do you prefer to cover all the topics in class rather than at home or the opposite?
7) Other tools Would you recommend any other way for having the right background to follow the course with no major issues?
8) Quiz as a tool What about having a quiz two or three weeks before the start of the classes to assess your level and then giving you an answer on whether you should prepare yourself on some topics?