

## The perspective on congruence within a teaching-learning environment among 2nd and 3rd year Sports Science bachelor students

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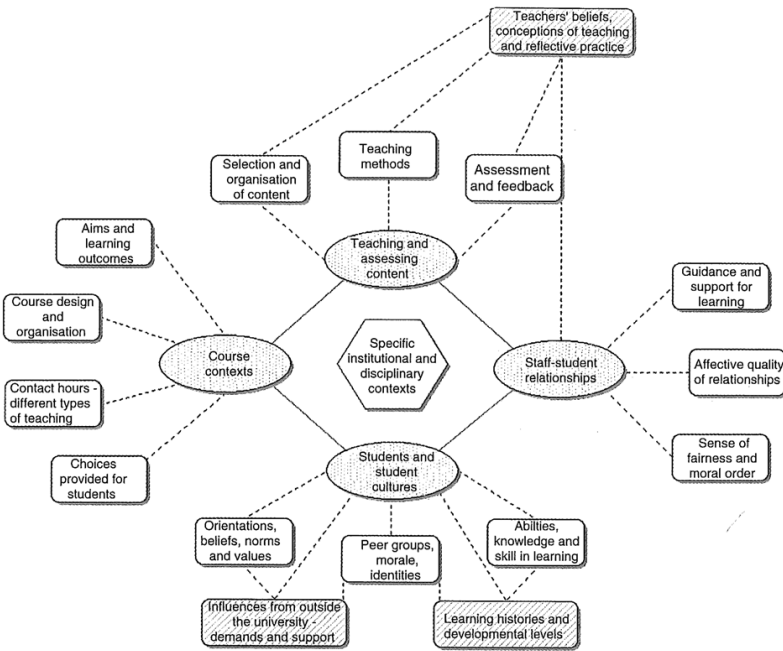
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### Introduction

A university course can be viewed upon as a “teaching-learning system” (Hounsell & Hounsell, 2007). That system functions optimally when intended learning outcomes (ILO’s) are of high-quality and matched in harmony with teaching styles and assessment, which was described as constructive alignment by Biggs (Biggs, 1996; Biggs & Tang, 2003). From a student perspective, a constructive alignment between learning outcomes, teaching and assessment styles is imperative in university courses, as inconsistencies may lead to student disappointment/frustration which in turn may lead to lack of motivation and learning outcomes that are diminished compared to those intended. From **Figure 1** it becomes evident that the “inner” teaching-learning environment is complex, and the term congruence builds on the constructive alignment theory, and has been adopted as a means of capturing interrelationships between high-quality learning outcomes and strategies deployed to pursue these outcomes, in a widened framework going beyond crude ILO’s and teaching-learning and assessment activities (Hounsell & Hounsell, 2007). Despite the complexity of the inner teaching-learning environment, all parts of the system should address the same agenda and be in support of connecting areas, hence be congruent.

An instructional approach proven successful in a university setting is the flipped classroom (Gilboy et al., 2015; Jinlei et al., 2012). In the traditional flipped classroom students prepare watching one or several topical out-of-class videos/slideshows and discuss the topic in class face-to-face

with the lecturer and fellow students. A high student preparation allows the teacher to engage with students in higher levels of Bloom’s taxonomy (Krathwohl, 2002) compared to the more traditional classroom introduction with reflection at home. Due to the covid-19 pandemic the flipped classroom will take yet another step into the virtual world as all teacher-student interactions will be online, hence there will be face-to-face meetings in the classroom. How this affects the student’s learning, their motivation, perspective and perception of the constructive alignment between ILO’s and the actual lecturing is yet unknown.



**Figure 1:** The ‘inner’ teaching-learning environment with focus on Teaching and assessing content and Course contexts (Modified from Hounsell and Hounsell, 2007).

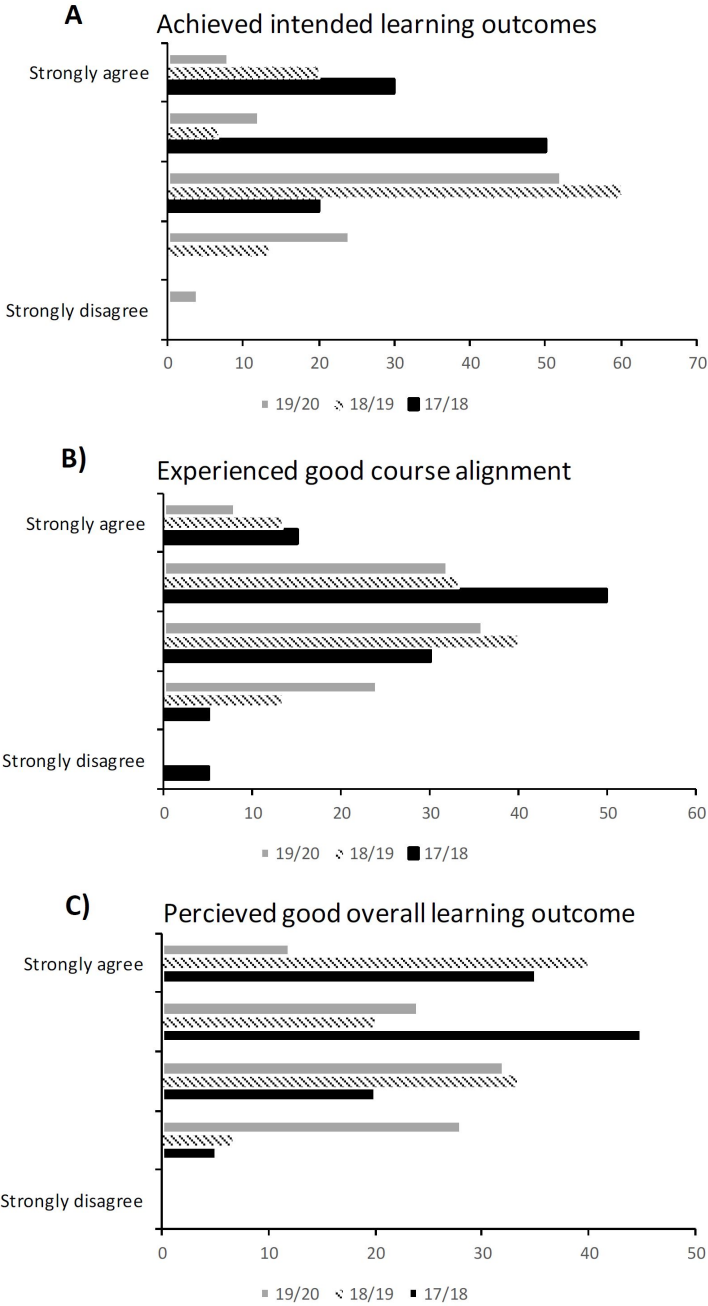
## Course setting

For this assignment, we have chosen to focus on the elective course “Planning of Sport and Exercise Training” (Træningsplanlægning) for 2<sup>nd</sup> and 3<sup>rd</sup> year bachelor students at the Department of Nutrition, Exercise and Sports Science (NEXS). The course was taught in block 4 (April to June 2020), and the structure of NEXS’ Sports Science bachelor program is that the students have mandatory teaching equivalent to 90 ECTS points for 6 blocks / 3 semesters, meaning that from block 3 in their 2<sup>nd</sup> year, students are free to choose elective courses. The course is popular, and usually enrolls 50-75 students (130 new bachelor students are enrolled each year).

From the course description, the students are able to assess ILO’s, means to obtain the described knowledge, skill and competency declarations and how these outcomes will be assessed. Based on respondents of course evaluations from 2017/2018 and 2018/2019, approximately half the students agreed to have achieved the competencies stated in the course description (**Figure 2A**), and experienced a good interrelationship between different elements of the course (**Figure 2B**).

Furthermore, in 2017/2018 and 2018/2019 60-80% of the students perceived having a good overall outcome i.e. it matched/fulfilled their expectations on beforehand (**Figure 2C**), suggesting a well-functioning and popular course. In the evaluations from 2019/2020, the students report a lesser agreement to all three questions.

The specific course description (<https://kurser.ku.dk/course/nidb11015u/2019-2020>) states, that the student will gain knowledge within analysis of a sports-discipline. Further, that the students will acquire skills and knowledge on valid testing and execution of relevant training programs. Lastly, the student gains the competencies to analyze the need for a specific type of training in a given sports-context, and to prioritize the usage of different training forms (aerobic, anaerobic, and strength training) over the course of a season with a specific sport-related performance outcome.



**Figure 2:** Results from student evaluation from the years 2017- 2018, 2018-2019 and 2019-2020, bachelor students attending the course “Planning of Sport and Exercise Training”.

For the students to obtain the knowledge, skills and competencies described, the course traditionally contains lectures (theoretical), practical sessions (hands-on testing) and instructor guided group work with presentations and assignments, including instructor- and peer-feedback. Due to covid-19, all lectures were conducted online via zoom and adhered to the flipped classroom-teaching model (Hew & Lo, 2018; Jinlei et al., 2012). In the course, there are two main teachers covering 90-95% of the course; the rest is covered by external lecturers (often national team coaches giving practical examples of how they apply the principles of training planning in their specific sport). From the start of the course (for some before) students choose a sports-discipline (in groups of 2-6 students), and work in-depth with this discipline throughout the course. Assessment was traditionally a 20 min case-presentation-discussion based on a 4-page synopsis, developed in groups throughout the course, but was this year changed to a 1.5 h individual written assignment, based on either a group or individual synopsis.

## Methods

Five students; four from their 2<sup>nd</sup> and one from his 3<sup>rd</sup> year, all studying the Sports Science Bachelors program at NEXS, UCPH voluntarily participated in both of the two online interviews via zoom. The interviews were semi-structured qualitative interviews following a pre-developed 'interview guide' in order to ensure that all main topics were covered. This approach allowed us to follow topical trajectories in the conversation that may stray from the interview guide (Cohen & Crabtree, 2006). The first interview was conducted the day after the first lecture of the course and the second prior the last lecture (21<sup>st</sup> of April and 3<sup>rd</sup> of June, 2020) and hence before the exam. The analysis of the respective course was based primarily on the student's perspective. Even though, other students may have responded differently to the questions the discussion will be based on responses from the five students who were interviewed.

## Aim

The aim of the present study was to assess the student's perspective and perception of the alignment of course contexts and their general perception of the teaching and learning environment within the course (see highlights in **Figure 1**). Secondly, we aimed to assess the student's perspective and perception on all lectures being online due to covid-19 on learning outcome and motivation and adhering to the flipped classroom model.

## Results and discussion

### Congruence of the bachelor program

The present course is placed in Blok 4, and students are expected to have acquired basic skills and competencies fulfilling the course requirements. The below questions were asked to assess how students perceived the placement of the course in relation to the overall bachelor program.

Q: “Do the students view the overall bachelor program as aligned, and do the students see the present course as a natural elongation on where to build former acquired knowledge?”

*“In order to take this course (and similar bachelor election courses, red.), one requires the build-up of a solid and basic physiological knowledge, in order to engage in more advanced (physiological, red.) discussions during classes.”*

Q<sub>follow</sub>: “Do you feel that the previous courses on the Bachelor program have prepared you for this course (Planning of Sport and Exercise Training, red.)?”

*“I think that the previous mandatory courses ”Physical training” and “Exercise physiology 1” gives a good foundation for this course, and has provided much needed basal knowledge. These acquired competencies can now be build-up upon in a specific direction of training planning. Further, that we have had statistics helps a lot when reading the background material (scientific papers, red.) for this course. Without the statistics course, I would be lost in the meaning of the different symbols and graphs . . . thus, it is really important and good that we have had statistics to provide a basic foundation (for interpretation of scientific papers, red.)”*

*“I agree. The courses in the Bachelor program have a good sense of order to them. . . Now I definitely start to feel, that without the knowledge acquired during those basic courses, it would be difficult to keep up with discussions (in the present course, red.) . . . (Without that basic knowledge, red.) it would be very difficult to read the things we are supposed to read. I can definitely see value to the things we were taught during the first 18 months (all of which is mandatory teaching, red.) of the study program, which has created a solid foundation to build on now.”*

These specific comments indicate acknowledgement of a red-thread in the Bachelor program and congruence on the dimension of overall course

alignment. The following comments further support the student's perception of congruence in the specific Bachelor program including perception on knowledge and competencies required when assessed during exams:

*"The thing that you can come across a question in an exam, where you really need to go to knowledge acquired in another course to be able to answer that question fully... An example is that basic theory acquired in "Exercise physiology 1 (mandatory 1<sup>st</sup> year course, red.)" was needed in order to make the required connection asked for in Physical training (mandatory 2<sup>nd</sup> year course, red.)"*

Q<sub>follow</sub>: "Is this a general notion; that you feel the need to use knowledge acquired during previous courses during exams?"

*"I primarily think the overlap was between "Exercise Physiology 1" and "Physical Training". It seems as if some of the teachers thought they were clever by adding double (repeated, red.) curriculum, without really doing so. However, I feel fine about this because we've all had both courses. Although this was not a problem to me personally, I know of other students that thought things got tangled up and were unclear."*

It becomes evident that the students have high expectations regarding the exam building on knowledge acquired during previous courses. Since the students feel they have an adequate acquisition of theoretical knowledge for this specific course, it is not addressed as a problem though. A clear red-thread is of importance in study programs in general as well as in the context of a single course. Biggs' constructive alignment theory (Biggs, 1996; Biggs & Tang, 2003) focuses on alignment between ILO's, teaching methods and assessment in a narrow course frame, and is a good starting point for any specific University teaching environment. From a student perspective, a constructive alignment between learning outcomes, teaching and assessment is imperative for learning outcomes, as inconsistencies may lead to student disappointment/frustration which in turn may lead to lack of motivation and diminished learning outcomes. However, the contextual influences that affects upon the students' learning outcomes are not confined within the establishment of teaching-learning and assessment activities implied by Biggs' model (Biggs, 1996; Biggs & Tang, 2003), why congruence, in the setting of this paper, is thought of as a widened framework-strategy to capture the interrelationships between high-quality learning

outcomes and strategies deployed to pursue these outcomes (Hounsell & Hounsell, 2007).

### Course design and organization

In the following section we investigate the student's perception and expectations to the alignment of the specific course context, and their general perception of the teaching and learning environment within the course. Further, by data from the second interview, we evaluate if their expectations to the course were fulfilled, and if they experienced the proposed red-threat in the course, and an alignment of course content.

The students had rather clear expectations to the course in general, especially in relation to ILO's, which is summed up by this commentary from interview #1

*“(I expect, red.)... to gain knowledge on how to design and plan training for different types of athletes and within different sports. Obtain knowledge to engage in relevant discussions on specific terms such as periodization of training and tapering (classical terms within planning and execution of training programs, red.)... In the real world, it is of importance to engage in discussions about which type of planning to use, and it is of importance to have an overview of macro- and micro-cycles and in general just have a good (theoretical, red.) overview to base decisions on.”*

This can be read from the online course description, and the students may have gotten that information from that description. However, the first interview was conducted after the 1<sup>st</sup> online lecture, which most likely helped spur the student clarity on course context. Especially since the first lesson included a general course overview to emphasize to the students what to expect from the duration of the course. Nevertheless, acquired one way or the other, the clarity of ILO's and course structure (as well as final assessment) is important for student motivation, and supported by Biggs constructive alignment theory (Biggs, 1996; Biggs & Tang, 2003). In the context of Knud Illeris' didactical triangle of learning (Rienecker et al., 2015) *i.e.* the interplay between psycho-dynamic and cognitive processes and social interaction (Rienecker et al., 2015), student motivation is an important part of the psycho-dynamic processes that is based on the individual, and of great important for student learning. To stimulate the cognitive processes of the students, it is mandatory to create a frame for learning, and



in the context of this course, it is extremely important, as each course part builds directly on the previous part. A clear course framework and clarity on the expected outcomes may improve student motivation and help the students to create a frame for learning, leading to a higher degree of assimilation over accommodation (according to Piaget, Rienecker et al., 2015). In this way the students will be able to build a solid foundation for their coming courses.

In respect to the course learning outcomes from the student perspective, the following quotation highlights a student expectation on obtaining a toolbox that is useful after the course can be carried out in to the real world, and to future courses in the study program.

*"I very much agree that you get this toolbox that I can use both on myself and on others, which can lead to good discussions (with peers and trainers, red.), even when planning training."*

To expect a relevant output of a given course raises student motivation, which may positively affect student learning outcomes. This could also be facilitated by a high degree of course clarity and a red-thread throughout the course, which the students reflected upon during the second interview.

Q: "Based on the first interview, you expressed a clear perception of what the course content was and where it was going to take you. Do you have that same sense of feeling now that you have taken the course?"

*"Yes I think so. I don't think there has been any doubt as to in which direction we were going, and what the end goal was. However, there has been some bumps along the road that has been difficult to overcome."*

*Q<sub>follow</sub>: "Like what?"*

*"For our group the biggest problem was definitely to make the year plan. We knew more or less what we were supposed to do, but it was difficult to do it, and we felt that we more often than not were guessing on solutions."*

*"It (the course setup, red.) has functioned very well, although we now are finishing the 2<sup>nd</sup> phase and putting everything that we learned together. The way the course has been structured has been good and tangible. It has been very clear, first we do this and then we progress to this, and in the end we put it together."*

Q<sub>follow</sub>: “How about the rest of you, do you agree that the course have lived up to your expectations?”

*“It fits very well with what I have gotten out of the course... I would though have liked to gain a little more knowledge on the aerobic part of the course, which I have not so much, as we have worked very specific on either or (an aerobic or anaerobic sport, red.). However, overall I have learned more or less what I expected, and now the relevant papers are available (on the aerobic part, red.) so I can just go back and study them.”*

Q<sub>follow</sub>: “What about the two main topics of the course (work demands and capacity analysis vs planning of training), was there a red-thread connecting them, or do you feel they were more two parallel topics?”

*“Yes. There has been a good and clear red-thread; as you first do the work- and capacity-analysis including testing before you do the training planning based on the outcomes of the former two. It has made good sense to me. It’s been very good.”*

These positive comments reflect very well the experience we as teachers had with the course over the years, and reflect the student evaluation from previous years (**Figure 2**). Nonetheless, one comment also highlight that although the overall course content is in alignment, and all students replied a clear red-thread throughout the course, one must not lose focus on the detail:

*“... the course in general worked well, especially the part where you get held up on what you do along the course (2x student presentations within the specific course topics, red.), and you get to do your own thoughts at the end. However, in relation to the description of specific assignments, my group had problems interpreting specific requirements and what we were expected to do. It was difficult for us to solve at least one specific assignment, albeit the structure around it was good, however I hope and believe that it will make perfect sense in the end when we have to formulate our final synopsis.”*

This is further backed by comments regarding a lack of higher applicability between sport specific practice and theory, which can lead to student frustration, especially because this was primarily related to the two guest lecturers during the course.

*“I can clearly see what he means (the external lecturer, red.) when he says that things should be done in rowing, but how do I translate it to 100m (the specific group discipline, red.)?”*

*“At times I have missed the link between theory and practice. General theory on how to do the planning of training, in combination with specific guest lecturers. I’ve missed the specific link to my sport. I would have liked the teachers to sum up on guest lecturers and general theory stating here are the important and missing links, that allows you (the students, red.) to do this in your sport. It could have helped us in our training planning making it more specific rather than guessing on how to do it.”*

This highlights a specific need from the teachers to use more time translating and guiding the students towards the bigger picture. It could be done by taking time to talk the students through the specificities from the lectures pending it on general theories. Admission of guest lecturers (most often highly qualified national team coaches, red.) in the course is not an option, which is also highlighted by the outcomes achieved from these guest-lecturer sessions

*“Guest lectures showed just how specialized each sport is. The theory is the foundation and is used to find practices that work.”*

Overall, students experienced a course with a clear red-thread (a high degree of constructive alignment), and had high expectations for the course outcomes. Further, students expected to use previous acquired knowledge for the exam (which was not assessed in this study, as the 2<sup>nd</sup> interview was conducted prior to the exam). In addition, students’ expected to develop a relevant toolbox that could be applied in their own sports / in the future working with athletes. This is expected to create a strong individual motivation. Another important dimension of congruence is the teaching-learning environment including specific teaching styles and organization in group discussions. The latter is of great importance in the specific course, as a great part of the course is based on group work, including feedback on assignments and student presentations. From a teacher’s perspective, the focus on group work, presentations and feedback sessions as well as on hands-on testing should motivate the students, and keep them on track in the progression of understanding their sport over time. The outcome is, that the students are able analyze the amount and type of physical training for each specific athlete to improve from their current state to the set goal. At

the exam, the students have to be able to present their acquired skills into writing (a 1.5 h written exam based on a 4-page synopsis). This form of examination has limitations, and does not allow the students to show their practical skills within the given sport. Although paramount in a real-life setting working with athletes, it is outside the scope of the course to give the students these skills. Mainly because it takes years to develop. However, the theoretical toolbox offered during this course should enable the ones working with a specific sport in practice to develop these skills, as they should better understand the whole of the sport from a physical perspective.

In the following sections, we discuss the students' perspective and perception of the teaching-learning activities within the course, with specific emphasis on group work and on all lectures being online adhering to the flipped classroom, an instructional approach proven successful in a university setting (Hew & Lo, 2018).

### Group work

Group work is a mandatory part of this course, as all assignments and the synopsis is based on a group effort. Further, the groups created on the first day of lecturing, was also the groups used for discussions in online break-out rooms during lectures.

At first we asked the students to reflect on composition of groups:

Q: "How were the groups put together?"

*"Our group was put together on the basis on who we knew who from previous classes and of interest in the specific sport. Someone you knew, not necessarily someone you had worked with a lot before. It (the group, red.) was super productive and nice (to be in, red.)"*

Then we asked the students to reflect on how the group discussions worked (break-out rooms in Zoom) during online classes (the answers during the first interview are based on the 1<sup>st</sup> lecture, red.)?

*"I think it worked really well (also the technical part, red.). I think we were more effective than previously during on-site lectures, as there was less time spent on "hygge" within the group."*

With this, the student indicate online classes facilitate more effective cognitive process but at the expense of psycho-dynamic thrive. Further,

when asked what the expectations to the teacher's role in the discussion based work was during interview #1 the students' replied:

*"I expect them to be those wise sparring partners that facilitate discussions rather than provide an immediate answer. In that context, I think that if our group manage to setup up a good framework for how to work and discuss, we will go down a more reflected path ensuring that we gain more knowledge than usually. I imagine that we discuss in the group, then comes back to the lecturers for more discussion, before we are send back in the group to reflect upon the theme."*

*"I expect them (the teachers, red.) to show us what the important part of the curriculum is, what it is that we are expected to gain knowledge on and help us to put our reading into perspective. Furthermore, just being available when needed (in general and during lectures, red.). I also expect everything to be somewhat of a struggle, maybe not a struggle, but I expect this online teaching (use of Zoom, red.) to be new to the teachers as well, and that the course will be different from what they expect. Therefore, within my group we had strengthened our patience prior to the first lecture, and (we, red.) felt it was okay if the teaching was not flawless (also in relation to technical issues, red.)."*

The students have high expectations for the groups to work well, and expect the discussions to strengthen their learning outcomes. In addition, the relation to guiding in the curriculum, slides with speak were available prior to lectures, containing specific questions related to the papers and a prioritizing of papers for that specific lecture, which should help the students prepare and focus for the group discussions. In addition, the group work can also motivate the students' to prepare for class, which is an ever-returning issue during teaching, which is highlighted in this comment:

*"It (the learning outcome from the online group discussions, red.) is very dependent on whether people have read the papers/prepared in general. In my group we are three people, and yesterday one did not prepare which excluded that one person from engaging in in-depth discussions. Hopefully that can serve as a wake-up call for all of us, that without preparation the learning outcome in this setting is diminished significantly. . . Although sometimes with a busy schedule, it is nice just to show op to on-site classes on just sit back and listen."*

This comment highlights the fact that the student often like to prepare, but sometimes miss it due to personal reasons. Nonetheless, the group work and discussion based approach is perceived as a motivational factor for preparation, as they now not only answer to themselves but also to the other group members. The key point here being that the student acknowledge that the specific learning outcome decreases with lack of preparation.

For the second interview the students' were asked how they experienced the online teaching in general in relation to the high amount of group work.

*“It has worked very well. My group was quite quick to set aside a day for a specific period of time ... It has really been very nice. (getting it scheduled - easier to shut down as people usually work, which can make it hard to meet, red.). We met both physically and online. Online worked best as it was more productive (less fun, red.).”*

*“In our group, we have not adjusted what each individual wants, what one would like. It may also have reflected somewhat in the work. Someone has done a lot and someone has done less. ... The thing about finding a common position in relation to where the task should be cut from the start.”*

The statements above clearly indicate that based on the interviewed students, group work is a productive way to go, especially in relation to online teaching, which will be discussed in the following section, albeit group motivation should be set straight before engaging in in-depth group work. Other students may have less positive experience with group work.

## **Flipped classroom**

The following section is based on student's expectations and reflections upon virtual flipped class room, *i.e.* where all preparation as well as teacher-student interaction is online through a virtual platform (Zoom). The following questions were asked:

Q: “How do you expect your learning outcome to be influenced by all lectures being virtual/online?”

*“I think it's really good, especially that you can read before the lecture and really get into things, and then you can go into depth during the lecture. So basically, you might get a little more out of it in the long run. You have a better foundation when you show*

*up and discuss it further. Usually when you just show up and have not read so much, you first have to set all the basics before you can start discussing. So there is a much better basis for the discussion”*

This was further supported by

*“That way (by the flipped classroom model, red.) you will also get some help to target the reading. . . . I have often experienced that I have spent a very long time reading, and yet not succeed in agreeing with what was relevant. The slides are just really good and visibly shows in advance what is to know and I can plan my preparation from what I don’t and do understand”*

Q<sub>follow</sub>: “So you view/listen to the slideshow first and then read the curriculum afterwards as a follow-up?”

*“Yes, and even though it may result in a higher level of preparation, it is acceptable as it supports the learning outcome of the present course.”*

After attending the first lecture as adhering to the flipped classroom approach, the students were very positive towards the structure. They acknowledged that preparation was likely to be a bit more time consuming but better and resulting in them better participating in discussions during the lecture. This was supported by the following comments:

*”If you read the curriculum and if all (students, red.) are prepared, the flipped classroom has a huge potential because we get more reflection, also from the lecturers”*

*“... But yesterday, when both Mogens and Thomas (the two teachers, red.) were there, it was insanely cool. If there was the slight uncertainty, then you just said ‘do you agree, Mogens?’ That ping pong between the teachers show that everything is not hell-bent (which was motivating to the students’, as it underscores that there are more roads leading to Rome, red).”*

This describes, that the students see flipped classroom as having the potential of facilitating an environment where they are able to engage in discussions with peers and teachers and hence develop procedural knowledge and perhaps even metacognitive knowledge (Krathwohl, 2002). Engaging in discussions with peers facilitate learning and even more when teachers critically discuss openly during class, as this creates an environment where a high degree of reflection is encouraged. Since the product of the present

course is for the students to create an assignment by combining their knowledge to an original product, the flipped classroom could be ideal as the students during rounds of discussion analyze and evaluate within the given topic. But, as also highlighted by the students;

*“If you read and come prepared, this form of teaching can result in a huge advantage because we reflect more, and even our teachers do. . . .I would expect that, reaching a level where the curriculum is being read thoroughly, there will be a high level of reflection creating a better possibility for engaging in discussions with peers and the teachers”*

The success of the flipped classroom is very much dependent on the students actually preparing for class and with that it is difficult if not almost impossible to participate if not prepared.

*“We are three in my group, and one hadn’t read yesterday, and then it isn’t really possible to participate (in the group work, red.). Hopefully it will be a wakeup call that you actually need to prepare to get something out of the lecture”*

In relation to their exam, the students said:

*“Receiving power point slides ease preparing for the exam, or in case where you are not able to attend the whole class.”*

*“When I prep for exam, I find it difficult to judge what is important. . . it makes really good sense to review the videos/slideshows.”*

*“What is it my teacher thinks is important here? It is a nice tool for targeting reading.”*

Thereby the flipped classroom may in addition of facilitating higher learning during the lectures enhance preparation for exam. There is though a flipside to the current course being completed as 100% virtual; the students are not able to attend to any practical lectures otherwise planned to support the theoretical lectures.

*“Receiving power point slides ease preparing for the exam, or in case where you are not able to attend the whole class. It creates the possibility of being more prepared. You get more time to get the hang of things, but unfortunately we missed out on some of the practical parts (due to covid-19, red.).”*



Flipped classroom entails a blend of different teaching styles where students constantly are challenged in their cognitive processes creating disturbances (a disequilibrium according to Piaget's knowledge-formation, Rie-necker et al., 2015) facilitating a deep-learning approach. Research based learning, as practiced in the present course, is a type of learning that falls within problem- and inquiry-based learning approaches (Healey & Roberts, 2004). Even these processes have the possibility of facilitating deeper learning (Elton, 2001) and higher motivation leading to a higher learning outcome (Jenkins et al., 2003), the aspect of completing the course virtually creates a double edged sword.

*"Motivationally it can be difficult, just sitting at home, because I love being at the University... now you're just home, thinking "I have plenty of time, so I'll just do it later", and then all of a sudden, there's just no time. Then you have spent all day on nothing. So I totally agree that it offers some opportunities (online lecturing, red.), but it also creates some limitations in terms of being motivated"*

Other students found the higher degree of self-management aspect creating possibilities.

*"I have taken more actively part in this course than in others... it has been nice to plan my own time to a higher extent than regular..."*  
*"Nice to be able to decide for myself when to study."*

These closing remarks highlights that with a proper preparation flipped classroom may increase the learning outcome among students but in order to reach all students the value of physical attendance at the teaching facility must not be neglected.

## Conclusion

In conclusion, student's expectations and perception on the present course as a natural elongation of their Bachelor program were fulfilled. Further, they felt the acquired competencies from previous courses sufficient to obtain course related knowledge and skills to further develop their competencies necessary for successful completion of the present course, *i.e.* an alignment within the educational organization.

Within the course the students found the individual parts complementary and supportive to one another and expected to be able to acquire a practically and applicable toolbox. Introduction of the flipped classroom approach was well received by the students as they could see a potential for improved learning outcomes and a more reflective path during lectures. In addition, the provision of slides with speak (mimicking the teachers view on the specific topic) was discussed as very helpful for each lecture, but also for the exam preparation (which was yet to come following the 2<sup>nd</sup> interview).

Finally, the success, *i.e.* learning outcomes, of all lectures being online is highly dependent of the individual student's preparation and ability to uphold their inner motivation although not being physically confronted on-site at the University. The lesser social interaction during on-line teaching may influence the students requesting a higher inner motivation that with on-site lectures. Using the on-line available pre-class slides students found themselves able to engage in discussions creating opportunity for deeper learning. In addition, the in-depth discussions could serve as a wake-up call for the student's as they clearly see *"that without preparation the learning outcome in this setting is diminished significantly."*

## Perspectives

The two rounds of group interviews reveal an overall good alignment between the students' expectations to the course and what they actually observed completing the course. Nonetheless, in the light of the coming courses being completed on a virtual or partly virtual basis, there are some things to take into consideration.

A contract between students with focus on if not unifying, then at least clarifying expectations to preparation to and engagement in group work will create a more homogeneous environment where all can take active part in all processes. Such a contract may also include a decision of working structure and thereby assist the student in prioritizing the necessary time for preparation. Further, within the constructive alignment, assignments should be clear to the students. Finally, with the huge overlap between practice and theory in the present course, more effort could be put into "student translation", especially when introducing external lecturers. These should be motivating as they give the students a glimpse of how Olympic athletes work and prepare. Because each sport is different, it is of utmost importance, that

the students grasp the theoretical toolbox provided to them, as it is crucial to them when translating theory into practice across different sports.

Based on the written student evaluations, received after the completion of the present manuscript, only 25% felt the on-line teaching was comparable to traditional lecturing in preparing them for exam. In light of the expected future use of on-line teaching, either the lecturing or the exam should be modified to create a higher alignment between the two.

## **Pedagogical reflection process**

Originally we planned to evaluate student generated take home messages during a University course. Training planning builds on its own blocks; if the students lack understanding of the primary topics, they are unable to succeed in upcoming topics (tower structure). Thus, there may be a risk of misalignments between intended and actual learning outcomes.

We planned for the assignment to include an investigation of an assessment tool. To do this we were to develop an evaluation tool assessing if students grasp the intended learning outcomes of each lecture.

Since all lecturing was converted to on-line, as a consequence of covid-19, we discussed an amendment of the project to focus on the use of the Flipped-classroom approach, as a new teaching method. Since none of our departmental supervisors were available, we had this discussion with our pedagogical supervisor.

The amendment resulted in the project being as presented.

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