Article

Student Teacher Experiences of Learning and Pedagogical Involvement Using a Student-Centered Learning Approach

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Abstract: To optimize students' levels of skills, knowledge, and competence in higher education, teachers have been encouraged to work systematically to understand how their pedagogical approaches affect the students' learning process and learning outcomes. The purpose of this study was to examine the efficacy of a student-centered learning design (SCL) in the subject of PE. A total of 24 PETE students were given the responsibility to create the schedule for their own education in a subject for a semester. During the semester, the students wrote reflections note on three occasions related to their learning process and learning outcome. The thematical analysis of the reflection notes revealed two main findings concerning the learning process: an invitation to participate and develop professional ownership, and mixed reflections on the need for teacher scaffolding. Furthermore, the analyses revealed two main findings concerning the learning outcome: improved learning and meaningful learning. Our findings indicate that students' participation, motivation, enjoyment, and learning outcomes increased due to the use of SCL as a pedagogical strategy. These findings are supported by other investigations, identifying SCL as a preferred strategy according to students' learning process and learning outcomes. The main pedagogical implication of our findings is a recommendation to implement SCL as a pedagogical strategy for student learning in teacher education.

Keywords: student-centered learning; higher education; learning process; learning outcome; physical education; student participation

1. Introduction

High quality in education at universities has been highlighted as a priority in European countries in recent years [1,2]. In Norway, approximately 30% drop out from higher education [3]. To optimize students' levels of skills, knowledge, and competence in Norwegian higher education and prevent drop out, teachers have been encouraged to work systematically with both teaching and research to determine how their pedagogical approaches affect the student learning process and learning outcomes [2,4]. This study aims to elucidate how students in physical education teacher education (PETE) experience the learning process and their learning outcomes using student-centered learning (SCL) as a pedagogical approach within a PETE subject.

Research has shown that education organized as lectures in large groups presents a risk of being counterproductive because it increases the likelihood of passivity in students, and thus they may have difficulty maintaining sufficient concentration and engagement in the learning process [5,6]. Substantial research studies have, in the last few decades, further indicated the importance of pedagogical approaches in which students' perspectives and knowledge are more valued and incorporated [7–9]. These perspectives challenge traditional behavioristic educational approaches in teacher education, with the university teacher as the "sage on the stage" and the owner of knowledge—a knowledge which is supposed to be transferred to students [10–13]. Whiting [13] describes the alternative approach as a human-centered mindset in pedagogical theory, i.e., a mindset in which the

recognition of human diversity constitutes the fundamental basis. Whiting [13] further points out that by recognizing that "one size does not fit all" (or even most), students create multiple pathways for learning, which results in superior outcomes in the learning process. In the pedagogical literature, this approach to learning is described as SCL [8,9,14]. The term SCL has been described as an umbrella concept which encompasses several specific educative methodologies, such as active learning and cooperative learning [11]. In these methodologies, it is essential that students' interests and abilities are prioritized in a learning course of action. The aims of SCL are to facilitate and increase students' autonomy, agency, and learning outcomes [9,15]. Here, it is appropriate to refer to self-determination theory (SDT) [16], which identifies autonomy as one of the basic needs of all human beings and as crucial for optimal motivation, integration, and well-being at school. The teacher's main role within this strategy is to support learning and make it easier to achieve specified learning outcomes [11]. Furthermore, teachers must encourage and assist students in their learning processes, and not dominate the classroom by presenting themselves as the primary source of knowledge [17]. Indeed, Weimer [18] has asserted that optimizing the balance of power is a key aspect of SCL in higher education.

The didactical design of SCL is in accordance with the educational philosophy of John Dewey [19]. Dewey, at the beginning of the 20th century, identified the need to exchange the "old school" with a more progressive pedagogical practice [20]. According to Dewey's philosophy of education, the old school is characterized by the teacher being the most important stakeholder in the teaching and learning process, i.e., the one who possesses the requisite knowledge and does the speaking, while the pupils listen quietly. In progressive pedagogical practices, however, the roles should be more aligned, or even swapped [19,21]. Epistemologically, this concept of learning draws on a constructionist perspective of knowledge [19,22]. Designing SCL processes implies allowing students and teachers to work collectively in the construction of both required and desired knowledge and competence, related to their personal lives and the society in which they are a part [8,18].

According to Trinidad [9], numerous didactical designs that relate to SCL have been practiced in different educational settings. To avoid misunderstandings about how the concept of SCL is applied and discussed in our study, we apply Lea et al.'s [8] (p. 321) general definition:

> SCL is about ways of thinking and learning that emphasize student responsibility and activity in learning, rather than what the teachers are doing. Essentially, SCL has student responsibility and activity at its heart, in contrast to a strong emphasis on teacher control and coverage of academic content in much of conventional, didactic teaching.

By applying Lea et al.'s definition, we put forward both the students' responsibility in the learning process as well as the possibilities for students to create their own pathways to the intended learning objectives as central qualities in SCL. Here, responsibility will deliberately increase student involvement in several phases of the educational process.

Previous Research on SCL

SCL designs have been explored in several major subject areas, such as English [21], physiology [23], mathematics, science, technology [7], and music [24]. The overall findings of this research indicate that SCL has the potential to increase both students' learning outcomes and satisfaction, as well as prevent drop out from universities. This potential seems to be related the students' experiences of involvement [8], autonomy, engagement [25], acceptance of freedom to make mistakes, and depth of learning [8,25]. These results are also consistent with those of an SCL research project in pedagogical education at a Norwegian university [12]. In this study, students reported that they experienced both higher learning and greater enjoyment when taking part in education that included a variation of methods. In addition, these students expressed that increased involvement in the planning process of the learning activities had likely improved their educational learning outcomes [12].

Furthermore, research from Theobald et al. [6] shows that SCL has high potential to narrow achievement gaps for underrepresented students.

However, the appropriateness and efficiency of SCL is debated among both teachers [26] and students [8]. Trinidad [9] argues that a challenge of SCL from the teachers' perspective is that preparation and execution of SCL is greatly time-intensive, and that it is difficult to "cover everything" in the course content. McCabe and O'Connor [25] also report that teachers have little or no formal training in SCL. The students in Lea et al. [8] asserted that SCL designs might produce division within classes between those who were able to rise to the challenge of a more student-centered approach and those who were not. Moreover, they emphasized the importance of bi-directional student–teacher feedback and guidance if SCL was to be productive for diverse groups of students.

Lee and Branch [27] revealed that students' attitude towards SCL was dependent on whether or not they felt comfortable with, and prepared for, the demands associated with SCL. This finding is in line with that of the extant literature, which reported that experiences of new and unfamiliar learning methods in higher education could improve some students' motivation [25]. However, other students found SCL designs to be stressful due to increased student autonomy and responsibility and the potential for unequal student effort and contribution to their shared learning processes [9]. In aggregate, these findings indicate that SCL might constitute a beneficial pedagogical approach to increase the quality of education, but that there are also some important concerns that must be addressed.

At a time when many young people experience high personal and external pressure to succeed in education [28–31], we consider increased attention to, and a critical exploration of, the pedagogical designs applied in higher education to be of major importance. We will argue that how teachers contribute to enhancing students' motivation and learning outcomes is a central question in the field of education.

Previous research highlights CSL designs as promising pedagogical approaches. Although this has been explored in several subject areas, to the best of the authors' knowledge, it has not yet been researched in PE. This study aims to elucidate how, for students in the third year of their PE teacher education, learning process and learning outcomes are affected when students are deeply involved in the planning of the schedule within SCL as a pedagogical strategy. Our two-fold research question regarding an SCL strategy is as follows: What are the students' experiences of the learning process related to conducting their own curriculum for a subject, and how do these students reflect on their learning outcomes?

2. Methods and Materials

2.1. Design

The purpose of this qualitative research project was to evaluate students' responses to a pedagogical intervention within a PE subject, applying a SCL design. According to the intervention design, students were given opportunities to influence content, working methods, and schedule structure. The aim of the pedagogical intervention was that the students should undergo a learning processes in accordance with their self-made curriculum. The intervention was carried out in a 15-credit course, which is an integrated part of a five-year PE teacher education (PETE) in a Norwegian university. The course was completed during one semester, with approximately 48 h of face-to-face interaction with the teacher. The same students also participated in another 15-credit course during the same semester. The subject title was "Skill and achievement development in sports". According to the curriculum, the learning outcome for the subject is that the students increase their ability to use research-based knowledge when teaching sports in high schools.

In addition, the students had to write an academic report, in which they chose a sport and a form of exercise that they should engage in for a period of six weeks. Their exercise plan had to be research-based, and they were told to test their skills/performance prior to and after the training intervention.

2.2. Participants

The participants in this study were 24 PETE students: 8 female students and 16 male students. The age of the participants was 21.2 ± 1.6 years. They were in the beginning of their fifth semester of their ten-semester educational program that culminated in a master's degree in physical education (PE). Previously, in their study, the students practiced teaching in high school and college settings for 10 weeks, and thus were familiar with planning and executing education content. They were also cognizant of how the national curriculum [32] forms a basis for pedagogical practices in school.

Before starting the project, the students were informed about the voluntary nature of their participation. They were informed that the consequences of not wanting to participate was that they did not have to participate in the two days of planning nor did they have to answer the reflection notes. However, they followed the ordinary teaching in the course. All students provided informed written consent to participate in the study. Approval to use the data and to conduct the study were given by the Norwegian Center for Research Data (Reference code 222161).

2.3. Procedures

The PETE students received an orientation on the intended intervention on the first day of the semester, including the subject's learning goals. At the same time, the students were presented with the schedule from the previous year's course in the same subject, as well as an overview of available resources, such as classrooms and sports halls, for the upcoming year. The students were given two ordinary school days (10 h in total) for planning and designing the subject for the upcoming semester, working in six groups of four students each. The students received no guidance from their teachers during these days. On the third day, all groups gathered together with the responsible teacher in the classroom, where each group presented its suggestion for a subject plan, and advocated for its choices concerning content and structure. When all groups had presented their plan, the teacher summarized the similarities of the plans, and made small changes in the final plan by incorporating parts of some of the groups' draft schedules into the final schedule.

Three times during the semester, the students were instructed to individually reflect upon three to five questions related to the learning process and learning outcomes established by their teacher. The students were encouraged to make deeper reflections, and write a number of sentences in the process of answering these questions. The data of this study consist of these written reflections from these three different times. The first reflections took place at the end of the first week in school, when the students had concluded the planning of the course. The students were given 20 min for answering the reflection notes on all 3 occasions. The first reflections contained these questions: Describe how your group has worked with creating a new schedule for the subject. What are your reflections related to the process of creating a new schedule this week? What has been most challenging, and what has worked well? What are your reflections about the learning effect of this work in relation to your teacher education and a future teaching job?

The second reflections occurred in the middle of the course (seven weeks after the start of the course), using the following questions: How do you think the planned schedule for the course has worked so far in terms of (A) your development of knowledge and understanding of skill and performance development in sport and (B) development of your competence to seek out and apply relevant research in training? Do you feel anything in the schedule should have been planned and executed differently? If so, explain what and why. If not, describe what you think worked particularly well. The third reflections occurred at the end of the course (week 14) using the following questions: How has your involvement in the planning and implementation of teaching in the course affected your learning and motivation? Do you think other student teachers should contribute more in planning and teaching in their courses? Explain why/why not. What would you highlight as the most important thing you have learned by participating in the planning and execution of this course? What disadvantages do you feel appear with such an implementation, where

students participate in the planning and teaching in a course? What are your reflections related to the autonomy of choosing sport in order to write an academical text?

The students' written reflections constituted this study's empirical material. To ensure anonymity, the participants were assigned pseudonyms in the presentation of the results.

2.4. Analysis

The analysis of the empirical material was conducted by applying thematic analysis [33,34]. By following the five steps of thematic analysis, we were able to identify emerging patterns of experiences and to reveal and present our findings according to the two-fold research question.

According to the procedures of Braun and Clarke [33,34], all three authors started the analysis by reading and becoming familiar with the students' reflections individually (step 1) [33,34]. After this process, initial codes were generated by identifying interesting meaning excerpts from the empirical material (step 2). The meaning excerpts were considered to be important according to our research questions (i.e., student reflection: "We were given the opportunities to facilitate the teaching from which we learn best"). Within the coded data, all three researchers independently searched for patterns and broader sub-themes (step 3). For example, it was determined whether the above example from step 2 and the excerpt "We tried to include some group work into the lessons at school, so that we had some discussions in the lessons, and not just theory" should be categorized under the sub-theme "Working with the group's wishes and needs in the center". The sub-themes were further sorted into main themes. Finally, the main themes from each researcher were discussed, modified, and refined several times, until two main themes emerged according to the students' experiences of the learning process: an invitation to participate and develop professional ownership, and mixed reflections on the need for teacher scaffolding. Within this strategy, two other main themes emerged according to experiences of learning outcome: improved learning and meaningful learning.

According to qualitative research from Rennstam [35], these main themes were determined through an inductive, iterative, and interpretative process, with sorting, reduction, and concentration of the empirical material into findings that relate directly to our research questions. Throughout the analysis, the researchers were constantly aware of their own assumptions and prejudices. To protect against any misinterpretations, and to be open to what the data reflected, this was carefully addressed throughout the analytical process by all three authors. The participants have been given pseudonyms in the presentation of the analysis.

3. Results

The thematic analysis of the students' written reflections revealed two overarching themes according to their experiences of the learning process, and two overarching themes according to their learning outcomes.

3.1. Experiences Related to the Learning Process

The first part of this section presents the findings related to our research question about students' experiences of the learning process in relation to determining their own curriculum for a subject.

3.1.1. An Invitation to Participate and Develop Professional Ownership

The first finding was that the students appreciated the opportunity to create their own educational schedule for the coming subject. The three first days of the semester were reserved by the teacher for this academic-, pedagogic-, and structural-related work. Most of the students highlighted that their work creating the educational schedule for the upcoming semester led to interesting, productive, and cooperative discussions within the groups about how to integrate the several different academic topics and educational methods. Abraham explained his group process:

> We started with brainstorming, and then wrote down all suggestions and examples. When we felt we had many proposals and an overview of all the different ones, the next challenge was to select and situate these ideas so they came together in a comprehensive schedule.

Other students described their group work as a process in which all group members contributed inputs and suggestions, but also that all the collaborative groups gathered together and presented and discussed their drafts before they finally agreed on a common subject schedule. Predominantly, the students expressed that the intervention increased their experiences of autonomy, which they valued, because it provided them with the opportunity to create a schedule that was optimized for themselves. As stated by Anna: "What worked well was that we, as students, were allowed to decide what our day should look like. Considering how we learn best". Meaning excerpts from other students indicated that these decisions were related to experiences related to educational methods from which they learn best. Several students pointed to a combination of theoretical and practical education within the present SCL design. However, making education more practical was highlighted as significantly positive. Concerning the question of how they planned to improve their learning outcomes within theoretical education, Dorothy stated the following: "We tried to include some group work into the lessons at school, so that we had some discussions in the lessons, and not just theory".

An overall impression of the students' reflections on the process leading to the final subject schedule was that great attention was paid to the logistical challenges and educational methods, while less attention was given to the content of the learning outcomes in the main educational curriculum. Henry remarked: "It was challenging to set the timetable in the most reasonable way, so that the connection between theory and practical sessions was reasonable". Only a few students mentioned anything about the curriculum as a relevant part of the planning process.

However, some students reported low effort from other students in the group, and found this problematic, as Benny explains:

> I feel that there were some challenges, as not all students participated equally, and I was responsible for a large part of the work, and was rarely heard when a YouTube video, for example, was more exciting than the group work.

Some students also found it problematic that some students did not take responsibility for their own learning. This was exemplified by Cathy: "If the students are lazy, they can make the educational plan with as little education as possible, starting late at school every day, and slack off throughout the semester".

3.1.2. Mixed Reflections on the Need for Teacher Scaffolding

The analysis revealed mixed reflections on the need for pedagogical support in the SCL intervention. At the start of the SCL intervention, the students were presented with last year's schedule for this subject. The students expressed ambivalence to receiving this schedule before they had created their own schedule, based on how this affected their work creating a new plan.

Fiona was relatively skeptical of this strategy, stating the following: "We should not be served a readymade plan. Many people took shortcuts by almost copying it and just made some adjustments".

Other students emphasized the benefits of having access to last year's schedule, because it simplified what they described as challenging work. They explained this by pointing to their relatively limited knowledge of such planning work that would have made it difficult to create a new schedule without a reference. As said by Gina: "What worked well was that we had a timetable template, that we could take inspiration from".

The findings showed that the students had diverse reflections related to when, and how much, support they needed and wanted to have from the teacher in the different pedagogical settings. However, most of the students appreciated that they could plan their own teaching and take greater responsibility for their own learning. In the students'

self-made schedule, the students were supposed to give lessons to each other about skill development in sports and make choices of which sport the lessons should be related to. Most of the students appreciated this task, as Regina expressed:

> It was very nice to be able to immerse yourself in a sport you are interested in. It largely contributes to motivation to find research and do the task properly. It is also very relevant after finishing my studies because I want to work with my chosen sport later in life.

Another core part of the 15-credit subject in previous years was to write an academic text about a self-driven research-based exercise intervention, consisting of a pre- and post-test of a chosen parameter related to their preferred sport. The participating students in this SCL intervention decided to include this work in their schedule without making any changes from previous years. The students' responses about the learning outcome and motivation related to this practical work and paper were very positive. This was exemplified by Pat:

> I experienced this as positive and enhanced my motivation. I got to learn more about a sport I am interested in and would like to learn more about. Because of this, it became easier for me to sit down and work on the academic text because I myself felt that what I was learning about was useful and interesting.

The reflections showed, however, that some students experienced both positive and negative aspects of the high level of autonomy. Specifically, some of the students argued that their limited experience of creating a course schedule could lead to a plan of poor academic quality. Alternatively, they suggested that the scheduled time for student-initiated work on the subjects' schedule should have instead been prioritized for lectures related to improving skills in accordance with the curriculum's learning outcomes.

Others pointed out that the level of autonomy should be adjusted according to the student's capability, as suggested by Kathrine:

> I think it's good with autonomy to a certain extent. I also think that the subject manager should have the majority of control over how the semester will look, considering that he or she has more experience, but input and communication from the students is good.

Another reported concern from some students concerned the high level of autonomy throughout the course, which seemed to lead to lower levels of responsibility and work effort on the schedule. This was especially the case if the colloquial group consisted of too many people, as Nina stated: "We worked in a group of five. When working in this big group, it seems sometimes to be difficult for everyone to be involved and give contributing input".

3.2. Experiences Related to Learning Outcomes

The second part of this section presents findings related to students' reflections about their learning outcomes.

3.2.1. Improved Learning

In general, most of the students stated that their work to create a plan for the semester led to a good learning outcome both by being a part of a group process and obtaining useful pedagogical knowledge. After completing the semester and the education that they had planned themselves, the students expressed that the schedule had given them a positive learning outcome related to the description in the curriculum. The students reported that their knowledge of both the ability to plan and execute development of skills in sport, and the use of knowledge from scientific research in their teaching of youth sports in high school, had improved. When the students were asked about the most significant learning outcome from this project, in addition to improved knowledge in relation to the curriculum, the students especially identified the logistical part of creating a schedule and their improved pedagogical experience with planning and executing teaching themselves. Many of the students also stated that the use of different teaching methods worked well.

They highlighted that the combination of lectures and practical lessons with individual and collaborate work was a good strategy for learning. Furthermore, some students highlighted the importance of a variety of methods as an efficacious strategy to reach all students. This was expressed by Nathan:

> For me, what has been most important during the planning and implementation of the subject is that we have had a theoretical session on the various topics in order to then make it practical. I have then gained a better understanding of the various topics, and learned different methods that can be implemented into a practical session.

The analyses revealed that the students' reflections of positive progress in learning were mainly ascribed to the schedule, which they themselves had contributed to preparing. The schedule combined lectures and practical activities related to the lectures and cooperative work, as well as time for professional discussions both in lectures and in cooperative settings with few students, all of which were identified as learning-promoting characteristics of the schedule. As stated by Molly:

> I think the variation between theoretical and physical sessions works very well. This is because we both learned the theory behind it, as well as getting better insight into how it works in practical activity and how it can be implemented. The fact that we also have several tasks that we have to solve ourselves means that we have to actively work on the topic and use the theory we learn and apply it in a good way.

The analyses of the students' reflections showed that some students' reported that some of the student-led practical education lessons were of insufficient quality. A possible strategy for improvement of the academic content was advanced by Mandy:

> Perhaps set slightly higher requirements in the student-led lessons, by evaluating the lessons as approved/not approved. This will make people take these lessons quite seriously and help us learn even better.

Some of the students also responded that they did not feel that they had sufficient influence on the final plan, since it was developed by 24 students with different perspectives and needs. In addition, some of the students did not perceive their plan to be substantially different from other plans in other subjects compared to earlier courses in their master study in PE.

3.2.2. Meaningful Learning

The analyses of the students' reflections revealed that the SCL strategy seemed to promote their motivation for learning, and make the subject more meaningful according to their future profession. Many of the students reported increased motivation for the subject due to their active involvement in the initial planning of the subject. A reflection from Oliver expresses this sentiment: "My motivation for this subject has improved, as I have had the opportunity to provide input for planning the teaching".

Several of the students further stated that taking part in the entire pedagogical process with planning and implementation of the learning content was highly relevant for PETE students. This was especially the case for their experiences of improved knowledge that resulted from making their own schedules for teaching. As stated by Jenny:

> This is very relevant in relation to future teaching jobs. It is good to have been through this process, so that it can be easier next time. In addition, you must be aware that there is a lot of work and a lot that needs to fall into place to create a good plan. To create such a plan takes time and must be worked on in a structured manner.

Peter particularly appreciated the possibilities for extended learning in working together in colloquium groups:

I experienced the work of creating a timetable as sensible and instructive. It worked well to sit in groups to discuss. In this way, you get important input from each other which can be experienced as instructive.

Furthermore, students remarked that, by taking part in the planning, it made the education (and learning) more predictable, since they had taken two days to plan the project. Moreover, the fact that the students' wishes related to when education started and ended at different times of the day were taken into account in the schedule was reported to positively influence their attitude towards this 15-credit subject.

4. Discussion

4.1. An Invitation to Participate and Develop Professional Ownership

The first finding of the present study was that the majority of the students pointed out that the high levels of autonomy and responsibility in planning and conducting the course were an appreciated invitation for the students to participate and interact in the learning process. The students described collective brainstorming, discussions, and reflections as methods for performing the task they were given. This finding is supported in the literature [8,9,36], showing that education with an SCL design has the potential to make students more involved and engaged in their education. The positive finding related to increased autonomy is also supported by self-determination theory (SDT) [16]. Deci and Ryan [16] identify three basic needs in all humans, of which autonomy is one of these basic needs. According to this theory, autonomy is essential for optimal motivation, integration, and well-being, which, in turn, lead to intrinsic motivation. As the participants in this study were third-year students who were familiar with each other, experiences of stress when talking before others [27] did not seem to be problematic. Furthermore, the education was partially organized in smaller groups, which could also have assisted to keep students more comfortable within dynamic discussions. Several studies have accordingly proven that being put under unnecessary stress, without any scaffolding, can be counterproductive for learning [37–39]. Finally, smaller groups can make it easier for more people to get involved and take part in real decisions.

As their involvement and engagements were related to creating a "best practice" for their learning processes in the academic subject within PETE, they had to make several academic and pedagogical deliberations and decisions. Specifically, they had to delve into the relationship between their own personal preferences of strategies for learning and the academic content of the subject. These cooperative discussions might have had the potential to elevate their awareness of what to learn, how to learn, and even what importance the academic content may have in a PE context. According to Higgins et al. [40], who found that people are more confident in pursuing a task when they experience it to have personal significance, the development of a greater awareness of the "whats", "hows", and "whys" may thus be considered one of the most prominent outcomes from applying SCL in education. This may especially be the case from a long-term perspective regarding what Dewey [19] claimed to be the goal of learning: "more learning".

However, the students' reflections' revealed some challenges related to unevenly distributed work efforts within the groups. This finding seems closely related to the demonstrated phenomenon of social loafing [41]. Karau and Williams [41] define social loafing as the reduction in motivation and effort when individuals work collectively compared with that when they work individually. This result may also be viewed as a consequence of the natural distribution of interests within a student group [25]. However, it might also constitute a reminder of the importance of combining the groups in the most effective way, so that everyone optimizes his or her participation and involvement.

4.2. Mixed Reflections on the Need for Teacher Scaffolding

The second finding concerned experiences among the students about how education with an SCL design entailed increased student responsibility and autonomy, and reduced teacher involvement and management.

A vital aspect to consider in preparation for the education of students is how the dynamic relation between the teacher and the students should manifest. In theories of education, the teacher–student relation is basically considered to be asymmetric, with the teacher as the knowledgeable and responsible manager [22,42]. In this exploration of education with an SCL design, the students found themselves in an educational situation in which their learning was more dependent on their own responsible and predominantly autonomous preparation and execution of the subject. In the initial planning phase, the only pedagogical support was the formal learning outcome for the subject, the subject's schedule from the previous year, and some information on available classrooms and sports halls. The limited pedagogical resources available for the students in this initial phase were based on the teachers' assessments of the students' accumulated competence as third-year students in a PETE master's program, comprising practicing as teachers in high school and college settings for several weeks and studying educational theory and practice. Some students reported that they were given too much autonomy and insufficient support. These students felt that they had been put in an unfamiliar situation, where they perceived their competence to be too low to master the expected demands related to creating a new schedule for the subject with sufficient academic quality. Some students also stated that the strategy of knowing the previous year's schedule could lead the students to make only small changes to it. In contrast, other students found the increased possibilities and autonomy to be inspiring. These results are in accordance with previous investigations of SCL in other subjects [7,21,23,24,43]. Our findings also support Bremner [44] and Weimer [18], who identify a shared balance of power by both the teacher and the students as a key aspect of SCL in higher education.

Pertinent literature has further suggested that the most precarious period in a group work is the initial phase of a subject, and that it is essential that teachers manage to identify potential concerns and ambiguities in that initial phase [45]. The results of this study confirm this assertion of the importance for the teacher to be available for the students even if they are supposed to be working independently. This also verifies the importance, as a teacher, of being capable to be flexible and alternate between different educational approaches, to meet the needs of a heterogenic group of students [5,27].

4.3. Improved Learning

The third finding was related to the students' experiences of improved learning. Previous research has demonstrated that the use of SCL methods in teaching offers certain advantages compared to lectures, such as greater participation, better enjoyment, and students experiences of improved learning [9,15]. Indeed, the students in our study emphasized several positive outcomes of the project related to increased involvement in interesting pedagogical discussions, coping with more power in planning education, and deeper involvement in the content of the subject. In the students' experiences of improved learning, according to the intended learning outcome specified in the subject's curriculum, the process of creating their own schedule was especially highlighted. The students reported that their knowledge and ability to plan and execute lessons for development of skills in sport had enhanced, and that their knowledge about how to use scientific research in their teaching of youth sports in high school had improved. Indeed, our findings are somewhat in line with the results of other studies that evaluated student learning in higher education [7,21,23,24].

As highlighted by several researchers, the debate about the efficacy of SCL vs. lectures should be more nuanced [44,46]. This view is aligned with the reflections of the students, who preferred a multi-didactical approach to learning. Dependent on the content of education, the students altered between lectures, practical lessons, and group collaboration in this project. This finding indicates that the students find traditional lectures effective, but that they preferred a variety of methods in order to achieve high learning outcomes. However, several investigations have shown that lectures can make students passive listeners [6,47]. To prevent this negative result in their education, a student, Jane, proposed

a solution: "We choose to put some cooperative work into the schedule to break up the lectures, to ensure we could keep up concentration throughout the day".

According to the SCL design in our study, which involved several different didactical approaches, a significant issue is the order in which the different didactical approaches should appear. Many students stressed the importance of first having a lecture in a subject, and then having a practical exercise related to the main aspects in the lecture. With such a strategy, we argue that the students can take advantage of both social constructivism and behaviorism to create the best learning outcome. In the planning process, the students pointed to the importance of having a lecture by a lecturer to ensure high quality, and also suggested that the students could have responsibility for some of the practical lessons. In this way, the preferred strategy comprised a hybrid between traditional lectures and elements from SCL. This approach is closely related to the strategy described as "teachers becoming a hybrid practitioner" [44].

4.4. Meaningful Learning

The fourth and final finding was related to meaningful learning, in which the students reported that the work with the project provided experiences that were relevant for their upcoming teaching career. The students stated that being placed in a situation in which they first had to make a schedule and then implement it in cooperation with their lecturer gave them valuable experiences related to their PETE. They also reported that a structured work process was required to create a new schedule with a good result. In the students' opinion, the task of creating a schedule for the semester was demanding, but this work process with reflections and experiences would make it easier to create a schedule next time. Our findings are consistent with Dewey's theory of teaching, in which proximity to real life is important to establish in schools and higher education [19]. He claimed that, by providing students with relevant experiences, their reflections of these experiences would improve their learning outcomes [19].

The students' experience of the SCL approach as meaningful in the learning process should be strongly emphasized. We assert that, if teachers at universities create meaningful learning, students would probably be more satisfied with their lives. Research related to adolescents' mental health identifies the existence of high external pressure towards learning and success, both at school and in everyday life [28–31]. This highlights the need for teachers to have a critical view of their own teaching and how their students respond to their teaching. This argument is prominent in the Norwegian government document related to quality in higher education, which calls for more research on how education affects students' learning outcomes and motivation [1].

4.5. Strength and Limitations of the Study

The strengths of this study include the fact that it is longitudinal. The data collection took place at three times during the semester; the first week in school, after seven weeks, and at the end of the course (week fourteen). The study is also based on a well-proven theoretical and pedagogical approach (SCL) which has been validated in other investigations. Furthermore, the study takes the voices and the competences of students into account by evaluating the learning process and learning outcomes. The results are also in accordance with previous literature, which increases the study's reliability. There are, however, several limitations of the study. Since the study does not include a control group with a more "traditional" approach, we do not know how a more traditional approach would have influenced the students' experiences of the learning process and learning outcomes. In addition, research has also shown that differences can exist between reflections of the learning outcomes and the actual learning outcomes [48]. Finally, the qualitative data are based on the students' written reflections and not on in-depth qualitative data (as individual or focus groups interviews), which would have been preferable.

5. Conclusions

This study analyzes students' reflections related to a SCL pedagogical approach, in which students were given the responsibility to create the schedule for their own education in a subject. Our findings indicate that students' participation, motivation, enjoyment, and experiences of learning increased due to the use of SCL as a pedagogical strategy. The analyses revealed two main themes according to the students' experiences of the learning process: an invitation to participate and develop professional ownership, and mixed reflections on the need for teacher scaffolding. Furthermore, two other main themes emerged according to the students' experiences of learning outcomes: improved learning and meaningful learning. Indeed, these findings are supported by other investigations, suggesting SCL as a preferred strategy according to students' learning process and learning. The main pedagogical implication of our findings is a clear recommendation to implement SCL as a pedagogical strategy for student learning in teacher education. However, we also find it important for the teacher to make continuous assessments of the need for teacher scaffolding according to the students' competences, and the nature of the learning content. Future research should examine SCL as a pedagogical strategy within an experimental research design, comparing the same group of students learning with different pedagogical approaches. Furthermore, future studies related to the strategy of SCL should also include measurements of learning outcome.

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