Chapter 10
Students' Positioning in Transdisciplinary Project-Based Learning

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10.1 Introduction

This chapter identifies and characterizes students' strategies to cope with challenges and possibilities related to studying an interdisciplinary Master's program in Learning and Innovational Change (LIC) at Aalborg University (AAU). The positioning concept as understood by Davies and Harré (1990), is introduced (Sect. 10.3) and used to investigate how the students negotiate discursive positioning of self and others in the process of the project-based learning program (Sect. 10.4).

In a recent publication, ACE Denmark (2013) addressed challenges facing universities and schools that offer inter- and transdisciplinary study programmes.[1] This report suggests that the philosophy of science is a central tool to ensure successful interdisciplinary higher education. The study of this chapter demonstrates that the philosophy of science deserves special attention in transdisciplinary university programs. Differences regarding students' academic bachelor background versus professional background are discussed in the chapter.

The establishment and development of the LIC programme's student intake can be related to educational reforms that occurred during the period of the study. In 2000, the medium-long higher education programmes were anchored in special institutions via an educational reform (Thomsen et al. 2013). From 2008 onward, new professional bachelor programs were offered at so-called university colleges. The aim of this reform was to give as many young people as possible the opportunity

[1] ACE is the national accreditation institution that ensures the quality of all higher educational institutions in Denmark (ACE 2010).

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to obtain higher education. The government policies were implemented and the educational system was transformed in order to create greater flexibility. Medium-long term higher education programmes – e.g., bachelor degree holders from the fields of health and nutrition, primary school teachers, and pedagogues educated at university colleges – were given the opportunity to continue their education in selected master's programmes offered by universities, including the LIC programme.

The LIC educational program was established in 2009 at AAU's campus in Copenhagen. It copied the well-established master's programme, which had been offered at the Aalborg campus for 5 years. The programme in Copenhagen started out with six students. Over the following years, the number of students enrolled grew extensively as the yearly intake almost doubled.[2] In 2014 approximately 170 students were enrolled. However, the following year the master's programme was scaled down in accordance with a change in the government's educational policy now to restrict admission to higher education.

The data for this study were generated in 2013, during a period with very broad student admissions that included a group of students from very different educational backgrounds. Compared to academic bachelor programs, professional bachelor programs incorporate much more practice-oriented approaches, and include students from a variety of backgrounds. Thus, this study offers the opportunity to present a breadth of knowledge on inter- and transdisciplinary study strategies.

10.2 Learning and Innovative Change: Transdisciplinary and Problem-Based

The term 'interdisciplinary' refers to problem-solving activities that aim at integrating at least two different disciplinary perspectives in order to manage and solve a problem at hand. Interdisciplinary activities are distinguishable from transdisciplinary activities, which refer to knowledge production wherein stakeholders from different sectors collaborate in solving pressing problems, and which therefore surpass the dichotomy between knowledge production and practical problem-solving (Apostel et al. 1972; Klein 1990, p. 36; 2010; Apostel and Vanlandshoot 1994). With Gibbons et al. (1994) we adapt this distinction when they claim that contemporary knowledge production has become transdisciplinary.

According to AAU's PR brochure, which provides information for potential students about LIC, the program combines elements from education, pedagogy, cultural studies, and organisational studies. The Master's in Learning and Innovative Change is interdisciplinary because it combines disciplinary elements from these

[2] The authors of this chapter were involved in establishing the LIC programme during its start in Copenhagen in 2009. One of them was connected to the study programme as a teacher and researcher during the period of data generation. The other author had moved on to teach another study program in 2011. Today, the authors are not affiliated with the LIC programme.

different disciplines. The same flyer states that applicants from many different backgrounds may enrol, highlighting that applicants with a professional bachelor degree, such as teachers or practical pedagogues as well as those from the fields of nutrition and health are welcome to enrol.

According to the 2012 curriculum, a number of relevant academic and professional bachelor degrees enable access to the LIC programme if the applicant has qualifications in at least two of the following above-mentioned four areas: education, pedagogy, cultural studies, and organisational studies. The curriculum from 2012 specifies that the following academic programmes fulfil the enrolment criteria: applied philosophy, psychology, communication and digital media, educational studies, pedagogy, and sociology. International business communication, language and international studies, and social science programmes might lead to enrolment if certain electives are taken and specific topics are addressed in projects. Hence, the LIC programme is transdisciplinary because it accepts academic and professional bachelor degree holders from various institutions.

The LIC programme is based on Aalborg University's principles for problem-based learning, which Harvard scholar Scott Barge (2010) identified as the principles of problem orientation, the integration of theory and practice, project organisation, and the use of team-based approaches, collaboration, and feedback.[3] These characteristics can also be used to describe the Master's in Learning and Innovative Change.

10.2.1 Problem Orientation

Student learning is oriented towards addressing problems, while successful learning is associated with identifying, formulating, and testing methods for instance problem-solving and managing problems. The problems addressed in projects can be societal problems or they can be problems that fill a knowledge gap.

A random selection of three first-semester projects at the LIC programme in the fall of 2013 are provided to give the reader an impression of the problems addressed in the project reports of that semester. Three different supervisors were assigned to the three selected project groups. The resulting problem formulations were translated from Danish into English and are reproduced below:

- What factors affect the possibilities for empowering of individuals suffering from stress in professional caring practices?
- How can Rambøll's talent development programme and the underpinning assumptions about learning and development be understood in light of John Dewey's philosophical pragmatism?

[3] A general introduction to problem based learning is also provided by Savery (2006).

- How is the role of the school leader changing due to the requirements established by the new school reform articulated and constructed by the Danish government, the Danish School Leader's Association, and the Danish Union of Teachers?

All three formulations analyse problems or events in different professional contexts, with the intention of generating better understanding. The first formulation also outlines possible options for individuals with stress, while the two other formulations do not propose solutions to practical problems. The problem formulations address one of the central themes emerging from our analysis: the tension between practical problems and the theoretical understanding thereof. To what extent can and should a theoretical understanding provide solutions to practical problems?

10.2.2 The Integration of Theory and Practice

In their project work, the students try to integrate theory and practice by analysing a relevant problem. Central theories that can be used in the project work are usually introduced and illustrated in conventional classes. Only a few theories were used in each project, and the students gained an in-depth knowledge of the theories that they linked to an academic or societal problem. The students in the LIC programme expressed two different understandings of the ways in which theory and practice could be linked. According to one position, theory is perceived as instrumental to solving practical problems (e.g., how can stress among school teachers be prevented in a specific context?). The second perception of the relationship between theory and practice views theory as a way to understand and reflect upon a given phenomenon without proposing solutions.

10.2.2.1 Project Organisation

Bachelor and master's programmes at Aalborg University are split into semesters (September to January and February to June). Each semester is organised so that it includes project work and conventional classes. The ratio between projects and lectures is approximately 50:50 in terms of student workload, but this can vary from programme to programme and semester to semester. The 2-year Master's in Learning and Innovative Change is split into four semesters as shown below (Fig. 10.1):

Each semester contains one or two modules that are evaluated independently. The first semester contains one 30 ECTS module, called Knowledge About Learning and Innovative Change. This module includes both project work (approximately 50%) and four lecture series on learning theories, curriculum design, organisational theories, and the method, evaluation, and philosophy of science. The module concludes with an oral exam based on the project report.

4TH SEMESTER	Master's Thesis (30 ECTS)	
3RD SEMESTER	Academic Internship (20 ECTS)	Portfolio (10 ECTS)
2ND SEMESTER	Learning in Multi-Cultural Contexts (10 ECTS)	Electives in Pedagogical Innovation or Organisational Learning (20 ECTS)
1ST SEMESTER	Knowledge about Learning and Innovative Change (30 ECTS)	

Fig. 10.1 Illustration of the structure of the Master's in Learning and Innovative Change

10.2.3 Team-Based Collaboration and Feedback Directed by Participants

Project work is conducted in teams, and individuals are only rarely permitted to work alone in so-called one-person groups. Teamwork is also used in conventional classes to complement lectures. Students themselves manage the project work: they form groups, choose the research question guiding their project work, formulate guidelines for such issues as internal group processes and knowledge sharing, and determine the rules concerning the collaboration with their supervisor. The students themselves distribute working tasks among the group members. They produce a collective learning output in the form of a project report and an oral project presentation. They defend the project as a group, but are evaluated individually based on how they answer questions posed during the group exam.

10.3 Research Design Based on Positioning Theory

In this study, we use positioning theory as our approach to understanding and studying the development of students' study strategies during transdisciplinary PBL work. We are interested in investigating the positions that are negotiated and constituted in the social practice among the students engaged in the PBL work from the LIC programme. Thus, using the positioning concept as our analytical point of departure, we have focused on the dynamic interactions between individuals.

Positioning theory was developed in the 1990s as an interactionist approach in which social structure is conceived as fluid patterns of positioning (Harré and Van Langenhove 1992, 1999; Van Langenhove 2010). The positioning concept was developed by Davies and Harré (1990), stating:

> […] who one is, is always an open question with a shifting answer depending upon the positions made available within one's own and other's discursive practices and within those practices, the stories through which we make sense of our own and others' lives. (Davies and Harré 1990, p. 46)

The concept seems to be broad enough to describe complexity, while also being precise enough to contribute to the articulation of meaningful fluctuating relations in social practices. In line with Davies and Harré (1990), we argue that a conversation unfolds through the joint action of all the participants as they make their own and each other's actions socially determinate.

A position is linked to the actions of a person in a certain position. An action is what the person is saying (can be heard saying) and doing (can be seen doing). Positions are socially and culturally anchored in temporal conventions and are distributed through current discourses about, for example, students' most effective ways of learning. The basis of positioning theory is the idea that the constant flow of everyday life – in which we all participate – is fragmented through discourses into distinct episodes that constitute social practice, in which we also all participate. Not only what we do but also what we *can* do are limited by the rights, duties, and obligations that we acquire or assume, or that are assigned to us in the concrete social contexts of everyday life (Harré and Van Langenhove 1999). Discursive processes are possible because we have specific skills and because rules allow us to explain our interactions. We know intuitively when it is appropriate to say what we say and we also have some insight into what will happen when we say what we say.

In this way, it is because we know the rules and expectations that meaningful communication is possible. These discursive skills are rooted in the common production of conversational episodes in everyday life (Harré and Secord 1972, p. 10). Yet, an episode is more than just visible behaviour; for everyone who participates, it includes thoughts, feelings, intentions, plans, and so on. As such, episodes are determined in the conversational process by their participants and, at the same time, they also shape what the participants do and say.

The aim of positioning theory is to understand the dynamics in social episodes. An investigation into these episodes demands an appropriate conceptual and methodological framework that allows the investigators to take into consideration the characteristics of interaction in conversations, as well as the more general aspects of the episodes constituted by these conversational exchanges. Positioning theory can be seen as such a conceptual and methodological framework, and it draws on the analogy that all social life is manifested in conversations.

Positioning and actions are both linked to a storyline that reflects past episodes. According to Davies and Harré, a way to grasp the concept of positioning is to think of someone listening to or reading a story (1990, p. 49). Storylines are understood to have a basis in various discourses, some of which their participants are in the process of living out (Harré and Moghaddam 2003, pp. 7–9). In this case, the storyline could be that of becoming and being an academic at a PBL university.

Positioning theory is summarized in the positioning triangle, which presents an image of dynamic stability between the actors' positions, the social force related to what the participants say and do, and the storylines that emerge from what the actors have said and done. Subject positions are seen as constantly being negotiated between the narrator and the listeners (Davies and Harré 1991). The positions reflect the degree to which the initiator of the conversational exchange is able to impose positions on others or the degree to which the assigned positions are rejected.

Positioning theory thus accentuates and brings the constitutive process of discursive practices to the fore. Hence, positioning theory is useful for our analysis of PBL students positioning themselves and others in interdisciplinary project work.

10.3.1 Empirical Material

This study is based on empirical data produced through a focus group interview with five students. The interview was conducted in 2013 with students in the Master's program in Learning and Innovative Change. The students participating in the focus group interview were invited on the basis of their capability as spokespeople for the semester's students. They were at the beginning of their studies, and at the time of the interview they had just handed in their first large project to conclude the first semester; thus, the process was fresh in their minds. Three PBL groups were represented in the focus group. The focus group interview lasted approximately 2 h. It was transcribed verbatim and analysed on the basis of the transcription, whereby it was read through and coded in its full length. During the interview, we facilitated a dialogue about the evaluation of the semester and asked open-ended questions, such as about learning outcomes and procedures involved in group work.

The focus group interview comprised a broad evaluation of the learning outcome of the programme's first semester. Hence, questions were asked in order to gain insights into the students' experiences and strategies connected to learning using the project-based approach, while we also asked several questions on the practice of *participation and learning in the group's project work*. These questions should be seen in connection with the fact that the first semester focuses on developing competences in collaboration as part of the students' introduction to working with PBL.

This study is part of a bigger longitudinal project consisting of five focus group interviews with LIC students over a period of 5 years. We conducted one focus group interview per year in 2010, 2011, 2012, 2013 and 2014. In this chapter we have thoroughly analyzed the focus group interview carried out in 2013, and identified positioning strategies expressed in the interview. We have made parallels to the remaining four interviews conducted in 2010, 2011, 2012 and 2014 at the end of the chapter.

10.3.2 Analytical Strategy

In order to process the empirical material, we constructed a list of themes and arranged these using visual displays in order to identify and differentiate patterns. Thus, it became possible to identify both different and identical themes throughout

the interview with a focus on the students' positioning in the PBL processes. The overview of themes formed the basis for the explanation, illustration, and exposing of nuances through quotations from the interviews that described the students' positioning in relation to the PBL work. During this process, we investigated the language used as expressed directly in the focus group interview. The statements were coded according to the following themes:

- informant experiences with PBL,
- informant experiences with philosophy of science, and
- informant attitudes toward the relationship between practical experiences and theoretical knowledge.

We have thus investigated how these issues are used by the informants to position themselves and others.

The themes chosen for this chapter are a result of the interaction between theoretical ideas and empirical data. In the following analysis, we begin by briefly introducing the focus group participants' academic backgrounds and their connections to their PBL project groups. Hereby, it is possible to discern study strategies connected to positioning dynamics as well as study backgrounds.

10.4 Results: Positioning in Transdisciplinary PBL Practice

In 2013, five students participated in the focus group interview: Frede, Kennet, Anni, Marianne, and Tina. Three of these students, Frede, Kennet, and Anni, worked together on their first and latest semester project, and their group also included three additional students who did not participate in the focus group. The two other students in the focus group, Marianne and Tina, finished their project work in different groups. Marianne left her group during the process and continued working alone, while Tina wrote her project with five other group members. Thus, three PBL groups out of 12 were represented in the focus group. Frede and Kennet both had academic bachelor degrees in social science from Roskilde University (RUC) and AAU, respectively. Anni holds a primary school teaching degree. Marianne holds a professional bachelor degree in practical pedagogical work, and Tina holds a professional bachelor degree in health and nutrition.

10.4.1 PBL Experiences and Positioning

At the beginning of the interview, Frede expressed strong opinions about the introductory programme to the project work at the AAU master's programme. He already had experience with project work from his bachelor studies at RUC, and he stated that this was extremely useful skills for him. It had taken him several years to collect

these skills. According to him, AAU's master's programme allotted merely 1 week to learn about project work before the students were required to work in groups of six and collectively produce a 120-page project report. Frede said that even with a university background, there could be great differences in existing knowledge of the project-oriented work format. According to both Frede and Kennet, it was a major challenge to their work and learning process that their fellow students did not share an understanding of what it means to do a PBL project.

> I was annoyed and felt that I was (being) slowed down, not allowed to gain any new insights on the master's level; it was a bit like being back in undergrad again. All the same mistakes. (Kennet)
>
> I felt exactly the same way. I felt it was the same again, i.e., like the first semester at RUC […] One thing is the study plan, but another thing is the people who are in the classroom, you know. Many of them were just from Suhrs school of home economics, and that sets an agenda.[4] If I hadn't been at that phase of my life where I had to complete my studies, I would have dropped out. […] That's for sure. I also wondered why there were so many students with a Suhr background. Also, it [professional bachelor background] affects the study environment and things like that. (Frede)

The two students who had completed university-level bachelor degrees expressed an explicitly negative distinction between university bachelor graduates and professional bachelor graduates. They positioned themselves as possessing the appropriate academic qualifications to do the PBL work and characterised their fellow students, professional bachelor graduates, with the degrading idea that they were *just from Suhr's* and many of them *with that background*, implying that they did not meet the same academic standards as themselves.

It turns out that Frede and Kennet, due to their experience with project work, came to play a dominant role in planning and managing their project group's work, according to themselves and the other group members (Anni). Their group members had many different ideas and perceptions of how a project is defined. According to Frede, there is no easy way to learn PBL and group work. Therefore, having experience with both group work and project design is crucial, and he expressed that it must have been very difficult for those who lacked that experience, implying that he knew what was needed:

> If I didn't, […] I mean it would have been really frustrating—if I had never completed a project of more than 120 pages before. I thought all along, "Oh yes, that's okay." It would have been very frustrating if I hadn't had this background […] It must have been a challenge not to have had it […] (Frede)

The third group member, Anni, confirmed that she really learned a lot from the two who had experience with project work:

> Yes, of course I really learned a—a lot, it made it all much easier for us that they said: 'I have done this kind of project before, and we used to do it like this, so we can just design it like this and put in these new headings', and that made everything much easier. (Anni)

[4] Suhrs' school of home economics was a university college in Copenhagen that offered professional bachelor degrees in nutrition and public health. Suhrs' school of home economics is today a part of the Metropolitan University College.

Thus, Anni supports the similar positioning of the others. Her learning strategy seems to be to accept both her own and the position of the other's by mirroring and imitating their way of conducting the project work.

Frede told us how he had previously had the opportunity to be more creative with his project work; but this, he continued, was only possible if the group had some experience with the writing and understanding of each part of the project. Therefore, in this project, it was necessary to use a schematic setup because the group was comprised of people from many different backgrounds as well as gaps in knowledge and experience regarding project work.

Another student (Marianne) dropped out of her group work during the project process. According to her, the group had not responded well to her asking so many questions. From the beginning, however, Marianne had high expectations for the group work. She described her ideal expectations of PBL collaboration that had been left unfulfilled:

> I was looking forward to the group work, where asking questions and challenging each other can create productive dynamics. To me, the group process is a question of using the differences in a group positively; it is also crucial that the power to make decisions is nested in the group and not in an individual or a certain group member who takes the leadership and tells us which way to go. To me, it is important that we share responsibility. We make stops and find a common direction. And it wasn't like that […]. So, for the first time in my life, I worked alone, and that was really a major learning process. (Marianne)

The major learning process Marianne referred to is learning by doing on your own. She pointed out that this was a very hard way to conduct a project and she experienced it as a frustrating learning process. According to her, the great learning potential, which is an important part of group dynamics, gets lost when things go wrong in a group, because possibilities for feedback becomes restricted.

In Tina's group, meta-reflection was used as a tool to ensure joint decision-making. After each meeting, half an hour was set aside to discuss the process and ensure that the decisions made had joint support. For this group, meta-reflection became very productive from the point of view of learning. It created confidence in the group, as everybody felt that they were being listened to and that they had an opportunity to discuss frustrations and disagreements. Marianne stated that in her group, it was the individual's responsibility to bring up challenges when things did not function properly; however, this did not always happen.

Both Marianne and Tina seem to have chosen strategies that were different from Anni's. Marianne chose the challenging learning strategy of working alone, thus rejecting the collaborative PBL way she was expected to follow. From this position, she kept working in order to fulfil her study requirements but she definitely felt let down by the lack of support from her PBL study programme. In contrast, Tina and her group members succeeded in creating and formulating their own tools to complete the PBL group project.

In this focus group, it seems that from the outset the two university bachelor graduates strongly positioned themselves and were positioned by their group member (Anni) in a way that was asymmetrical to that of the professional bachelor graduates. This position was guided by their PBL experiences gained from their former

education. Their positioning seems to have had a defining impact on the rest of the focus group members, who all related to this received view – which the academic bachelor graduates represent – recognising that PBL primarily deals with producing a project report that fulfils academic requirements rather than establishing well-functioning working groups.

10.4.2 Attitudes to Practical Problems and Theoretical Knowledge

In the focus group discussion, a theme emerged concerning the different approaches of the students and their reasons for joining the LIC programme. This discussion concerned the use, value, and applicability of academic analysis in practice.

The group members Frede, Kennet, and Anni were aligned in their viewpoints. They believed that the students from the professional bachelor degree programmes were often driven by the desire to improve specific practices which, in their experience, does not work. In other words, they were motivated by a drive to solve problems. In contrast, they describe their own motivation and the experience gained from their academic bachelor degrees as spurring their work within a disciplinary field. More succinctly, Frede formulated this as the distinction between an issue-focused approach to studies versus a discipline-focused approach. Anni's description is a caricature of the issue-focused approach, partly formulated in a distorted tone of voice:

> Yes, if you think you have a discipline, you can—it's hard to explain—but then it's connected to this broad disciplinary understanding, you work within a discipline and not 'I shall go out to save the world and solve problems in a nursing home' or something like that [to improve something]. (Anni)

Marianne, a student with a professional bachelor's degree, actually had a desire to improve conditions in nursing homes when she joined the LIC programme. She explained that this was the case and that she continued to want a toolbox to solve problems. She also agreed, however, that she was now aware of a broader academic and theoretical interdisciplinary background, which gave her the opportunity to analyse what was at stake from a more nuanced perspective. She described the approach that she had started with as being 'maybe naïve and crusader-like'. Thus, she recognised and accepted the position; however, she also signalled that she had advanced and gained academic qualifications. Although she partly distanced herself from the issue-focused position she had when she started, she also challenged the position of the university bachelor graduate by calling for a more open view, e.g., on the part of her fellow students and the study programme:

> It seems that some groups of fellow students interpret what others say, and suddenly either you are issue-focused or discipline-focused! I'd hate to stand here after graduation and hear someone say, 'Marianne, she is just issue-focused, problem solving with a naïve approach to analysing and saving the world', because I feel that would be wrong. You are limited or

> inhibited in this way. I think there should be dialectical dynamics in the study of learning and change processes—that is, in what you investigate in practice and what you create at a university. (Marianne)

Marianne opposed the either/or positioning described here, and thus she raised the question of whether there is room for a reflective and nuanced concept of the issue-specific approach within the academic disciplinary study of the processes of learning and change. At first, she resisted the position of the professional bachelor graduate that was offered. Frede explained that to him it was okay that the issue-specific approach was part of the project work, but he also wanted to state that this was not to say that he 'aimed randomly at different practical goals'. He argued that the academic dimension of project work was connected to the demand that students should be able to argue for what they do. The practical dimension of the academic work must thus also be linked to a scientifically and theoretically justified position.

> So, it's just as important to say that that's what I mean when I talk about practice, that is, that it may well be included, but in an academic form. (Frede)

Tina added to the description of the academic position, stating that to her, the starting point for academic work is curiosity regarding an academic field, and that theory is used to illuminate the questions asked. In spite of her background coming from a professional bachelor programme, she identified with a classic academic understanding. She stressed that there are not necessarily correct or incorrect answers, but that it is possible to shed light on your questions from different theoretical angles.

Tina, a professional bachelor degree holder, said that an academic investigation could just as well start out as a question raised during practice. According to Tina, academic analysis can inspire and be eye-opening or illuminating without necessarily recommending a specific practice. With this understanding, Tina distanced herself from the either/or positioning of the issue-specific or discipline-focused approach.

Marianne's goal was also to understand practice much better, and she required theoretical approaches as a result. By employing a theoretical perspective, Marianne believed that she could gain new insights into practice. However, she did not believe that this would make any difference unless such insights could be brought back to the field of practice. Marianne's approach could be phrased as 'why do it if it is not used in practice?'. As she stated:

> It makes me a bit sad if it means that there is a divide, so that it can only be one way or the other way; it has to be a combination. (Marianne)

Academia and having a bachelor's degree from a university are associated with understanding social practice and theoretical knowledge. This position is connected with working within an established academic discipline. The position of the professional bachelor graduates, however, was seen as being connected to taking action and 'saving the world'. The position of the university bachelor graduates was seen as superior to the position of the professional bachelor graduates, that is, the academic approach can stand alone, whereas the position of 'saving the world' and

solving practical problems cannot. It must either be complemented by an academic approach or not be present at all.

10.4.3 The Philosophy of Science: A Positioning Device

An especially important element in the disciplinary positions among the students was expressed in the continuing dialogue, whereby participants provided more detail regarding their experiences of the division between professional bachelor graduates and academic bachelor graduates. They generally agreed that the distinctive divide is related to differences in the knowledge and skills they possess regarding the philosophy of science. This distinction pervades the broad differences in their understandings of what it means to conduct a project. Knowledge and skills in the philosophy of science were seen and accepted by all focus group students as *the* primary skill necessary in order to become an academic. Anni explained that during her teacher training she was not in any way introduced to the philosophy of science. She knew a little because she had previously, very briefly, studied theology. In addition, Tina related that when she began her education in health and nutrition, the programme had not been approved as a professional bachelor degree. When it was finally approved, a course related to the philosophy of science was added. Tina described her recognition of the difference between the professional approach and the academic university approach as being anchored in a philosophy of science background to guide project activities:

> It becomes very clear to me what the difference was because the course we received was precisely philosophy of science, and I came to understand that this was the difference that lies in being profession-oriented and having the opportunity to understand things differently. We learned it at the very end, and it made a huge difference in relation to the work we had done earlier in our bachelor project, because we suddenly had to use it. […] But yes […] That's maybe where the difference lies. (Tina)

From the group work with the two students with academic bachelor degrees, Anni reported that it was those who had the best arguments who won the acceptance of the group. Celerity and good arguments were the deciding competences based on experience with project work (PBL) and the philosophy of science. As such, students from academic bachelor programmes made more decisions and, thus, led the progress of the project work. As Anni stated:

> It was they who were allowed to decide. […] We really didn't discuss which scientific theoretical view we should use because the two very quickly could say 'that fits really well'. And it did, too, and I don't regret it, but it was just quickly those who had the best arguments and were fastest. And I think it's often that way. (Anni)

Marianne also recounted how there was no expectation that students integrate philosophy of science when writing a paper at a university college. In this regard, she experienced a great gap in her own knowledge and thereby signalled that she also accepted this part of the positioning, which was offered from this point of view:

> I wish I had the background you guys have; then, I would have had skills [*in philosophy of science*], because it also means that you begin to talk a different language. As I see it, the philosophy of science actually becomes a language at the university. (Marianne)

Tina agreed and thereby confirmed that she saw the inadequacies regarding the philosophy of science as a great burden for fellow students with this background. In short, the two professional bachelor graduates felt that they were not academic enough.

> […] because it is also too bad for Kennet and Frede that they had to spend so much time to going back to a different level. (Tina)

With these remarks, Marianne and Tina confirmed the asymmetrical positions between the two types of bachelor degree graduates. They both regretted their inadequacies and felt pity for the academic bachelor degree graduates due to their own insufficient competences in the philosophy of science, and they fully accepted the asymmetric positioning.

10.5 Conclusion: Student Positioning and Project-Based Learning

This study has identified a storyline found in the analysis of a focus group interview where the academic bachelor graduates were positioned and positioned themselves as being able to meet the perceived academic standards of the Master's in Learning and Innovative Change. The academic bachelor graduates perceived their position as being superior to the positions of the professional bachelor graduates. The academic position was perceived to be superior in three aspects:

- The academic bachelor graduates had experience with PBL.
- They had greater qualifications within philosophy of science.
- They had theoretical and academic knowledge and did not naïvely intend to 'save the world'.

From this position, the academic bachelor graduates took on a leadership role during the project work. Thereby, they assumed a dominant position and set the agenda for the project work.

It thus became an important study strategy for the professional bachelor graduates to position themselves in relation to the received view of the academic bachelor graduates. Regarding the three professional bachelor graduates, it became clear that they were positioned as *a burden* by the two academic bachelor graduates, Kennet and Frede; they accepted this by expressing a desire that they had had the same background as the academic bachelor graduates. This applied more to Anni and Marianne, as Tina added that their insufficient abilities affected Kennet and Frede.

The professional bachelor graduates generally spoke of themselves, and were also referred to, as lacking important PBL qualifications.

At the same time, the three professional bachelor graduates positioned themselves in divergent positions in relation to the received view. As a member of the group that included Kennet and Frede, Anni adopted a fully accepting, aligning, and assimilating strategy in the group. Tina partly accepted the received view, but also co-constructed academic virtues from her own independent position. We term this a strategy of paralogy. We adapt the term of 'paralogy' from Lyotard (1984). It means going against or redefining an established way of reasoning. As a third strategy, Marianne rejected the received view as she felt unfairly limited due to a non-recognised and disrespectful view of the knowledge of practice that professional bachelor graduates can add to PBL work.

The academic bachelor graduates seemed to have an advantage over the professional bachelor graduates at the Master's in Learning and Innovative Change. This was due to their experiences with PBL projects and especially their skills in the philosophy of science.

We would like to put the storyline, which so forcefully manifested itself in the analysis of the focus group interview, into perspective by questioning some of its underlying assumptions. The PBL perceptions of the academic bachelor graduates was quite instrumental and focused primarily on producing an academic report. This is a narrow understanding of PBL that conflicts with the AAU's PBL model, which emphasises inclusive and symmetrical group dynamics. The perception of the philosophy of science on behalf of the graduates from academic bachelor programmes seemed to be associated with scaffolding different theoretical and academic perspectives and positions, facilitating interdisciplinary work, and understanding conflicts between different paradigms. Maybe this understanding of the philosophy of science cannot stand alone in a transdisciplinary study program. An alternative perspective on the philosophy of science departs from conflicts between academia and other professional practices – between the conflicting desires of trying to understand and transforming social realities.

As mentioned previously in the chapter an additional four focus interviews were carried out. In this paper we have not analyzed these interviews in depth. A read through of the transcribed interviews show that they also thematize the backgrounds of the students (academic versus professional bachelor degree), and that the interviewed students refer to both PBL, philosophy of science and the relationship between practical experiences and theoretical backgrounds in their positioning strategies. How they encompass these elements in positioning strategies are very different and context dependent, and that will be the topic of a later publication. In other words, additional research is needed before it can be determined to which extend the strategies portrayed in this chapter are specific to the particular interviewees or whether they also are expressed by other students at the LIC program or at other interdisciplinary study programs.

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