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Problem-Oriented Project Learning as a First Year Experience: A Transformative Pedagogy for Entry Level PPL

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Abstract: This paper explores how Problem-oriented Project Learning (PPL) can be organized in a context that meets the pedagogical needs of first year students. Under the assumption that, while PPL provides a fruitful context for learning, it is also challenging for early stage learners, the article formulates the theoretical considerations underlying a strategy for entry-level PPL. On that foundation, this paper discusses a case study where a set of scaffolding structures has been put in place to support the transformative development of first year students acquiring the study habits of PPL. This paper finds that a highly structured approach to entry level PPL promotes the students' academic achievements as well as their sense of meaning in the PPL programme.

Keywords: problem-oriented project learning; problem based learning; project based learning; transformative learning; first year experience; experiential learning

1. Introduction

This article discusses the PPL (problem-oriented project learning) philosophy of education in the context of the challenging transition from secondary schooling to becoming a student at university level, focusing on the case study of the humanities bachelor programme at Roskilde University. While PPL is often thought of as a pedagogy to remedy such problems as students experiencing disengagement and loss of meaning in their learning environments, this paper argues that in order for such a remedy to succeed, it is necessary first to address how entry-level students may successfully complete the fast expansion of learning competences required by PPL. It is argued that a variety of scaffolding structures should be in place to support the transition, in order to actually support the students' experience of meaningfulness. This transition is conceived as a transformative process that not only introduces new habits of learning but also questions the validity of learning acquired in the past. While a highly structured study environment may, at first glance, seem foreign to the spirit of PPL, the case study suggests that the means employed appear to lead to the desired end of helping students develop needed competences for participating in and contributing to PPL work within their first year of study, after which they can gradually internalize the PPL principles.

The goal of the article is to explore and discuss how central PPL concepts need to be operationalized in the context of a first-year pedagogy. Specifically, the article discusses a case study in which a first-year strategy has been applied that organizes PPL in a system of scaffolding structures, enabling new students to gradually absorb the demanding study habits of PPL. While the article is primarily formed as a conceptual argument rather than a strictly empirical investigation, a set of results of teaching evaluations are presented to tentatively support the conclusion that a structured study environment is beneficial for PPL in a first-year context.

1.1. Problem-Oriented Project Learning as a Form Of, and Deviation From, PBL

Problem-oriented project learning is the short form of "problem-oriented, interdisciplinary and participant-directed, project work" which forms the heart of the educational approach known as the "Roskilde Model" [1]. The name suggests that both elements of *Problem* Based Learning (PBL) and *Project* Based Learning (which is, confusingly, also often abbreviated as PBL) are part of the PPL concept. The two concepts, which both exist in radically varying interpretations, deviate in terms of their pedagogical scope, aims and history. We shall briefly outline a distinction below.

Central to the family of educational philosophies conveyed by the term "problem-based pedagogies" is the complex and multifaceted field of Problem Based Learning. Several scholars refer to the so-called McMaster and Maastricht models of PBL as the main reference points (early forms of PBL were developed at medical programmes at McMaster University, Canada, and Maastricht University, the Netherlands, from the late 1960s and onwards), outlining an educational model focused on students solving complex, open-ended, ill-structured, real-world problems that do not have a simple or correct solution [1–4]. Important inspirations, some more directly linked than others, include John Dewey's concept of experiential learning, insisting on the need to ground education in the students' own life experiences and, consequently, the shift in focus from teacher direction to student direction, and on the American educationist Carl Rogers' theory of "self-directed learning", which, although departing from Dewey's, arrives at similar conclusions. As argued by some scholars, the notion of "self-direction" is the feature that is common to all forms of PBL [2,3]. In Denmark, concepts deriving from PBL were employed in two different ways at the universities of Roskilde and Aalborg, the former developing the Roskilde Model of PPL and the latter reorganizing its model into a new concept of PBL. The Roskilde Model of PPL is often understood in the light of the comparison to the Aalborg PBL model [2,5].

The concept of project-based learning is similarly complex. As argued by Andersen and Kjeldsen, the project-based pedagogies have historically evolved in three stages: an early version focused on technology and design for practical purposes, a reformulation of the concept in the context of early twentieth century reform pedagogy, and a development into the critical pedagogy of the 1970s [1] (p. 12f). Along the same lines, yet from a different historical perspective, de Graff and Kolmos distinguish between teacher-directed approaches that promote pre-specified learning outcomes, which they designate "task-orientation", applying the word "project-orientation" to approaches that are complex, interdisciplinary, team-oriented and less focused on product [6,7].

The concept of project work employed in PPL aims to meet Hanney and Savin-Baden's requirement of "an approach that opens up the possibility of a process-led activity where transcendence, intuition and creative play are celebrated—one in which new hypotheses are generated from learning and where innovation is possible." [7] (p. 9). The concept integrates core insights from pragmatism and critical theory, in that experiential learning (John Dewey) [8,9] is supplemented with a requirement of exemplarity (Oskar Negt) [10]. PPL supplements PBL's student-centered focus on inquiry with a more radical insistence that problems should not be given as assignments but rather arise directly from the students' own experience. While the concepts of inquiry and experience ultimately stem from the American pragmatist tradition, PPL also exhibits features of continental thinking in its reliance on the Humboldtian ideal of the unification of research and education, and on various positions in critical theory.

While sharing some basic pedagogical principles with PBL, PPL can be distinguished by a few critical differences. As opposed to a standard interpretation of PBL, PPL involves a more radical understanding of self-direction: firstly, in PPL, problems are formulated by the students themselves in order to secure a foundation in the students' own experience. Secondly, being essentially project work (in the conceptualisation of project work arrived at above), PPL work takes place over much longer periods of time than a typical PBL activity [1,2]. These differences disclose the crucial difference: that PPL is essentially modelled on an ideal of research—students are encouraged to produce new knowledge of relevance to more than just the current educational setting, exemplary of a more general

condition of reality than the project has specifically focused on. In this way, PPL fuses learning with the more general creation of knowledge in society.

1.2. PPL as a First Year Experience

Special conditions and needs arising from the first-year experience require a look at the basic tenets of PPL, and how these are operationalised at entry level. In order to do so, we first turn to the Roskilde Model of PPL. Problem-oriented project learning (PPL) is the cornerstone of the educational philosophy of the Roskilde Model, the pedagogical approach practiced at Roskilde University [11]. In a PPL setting, students work in groups with self-articulated problems. Project work is (1) problem-oriented, (2) interdisciplinary, (3) participant-directed and (4) exemplary [12].

These principles were incorporated into a 2012 reform of the bachelor programmes at Roskilde University [13], and hence they were promoted from the outset as formative aspects of the students' experience of transitioning to a university context. The central principles of problem-orientation, interdisciplinarity, participant-direction and exemplarity are the foundational principles supporting the programmes' project work.

One of the largest bachelor programmes practicing the Roskilde model is the humanities bachelor programme (HumBach) at Roskilde University. In the present article, HumBach will be the subject of a case study focusing on how the programme has formulated an educational strategy for supporting PPL as a first year experience. Furthermore, the case study discusses how a set of scaffolding structures designed to smoothen the first year transition appear to heighten students' experience of meaning when engaging in PPL work.

At the HumBach programme, all PPL activities are conceived in an interdisciplinary framework where students are required to do project work during the entry-level semesters covering four objects of studies, conceived as *dimensions* of studying the humanities: human knowledge and self-reflection (the dimension theory and philosophy), human expression and communication (the dimension text and sign), human psychology (the dimension subjectivity and learning), and human sociality in time and space (the dimension culture and history). Covering these dimensions through PPL work challenges preconceived ideas of curricular subjects and encourages the student to look at problems rather than curricular topics. Project work is done in groups that are formed around students' independently formulated interests in particular problems, and a supervisor from the academic staff is allocated to comment on working papers at meetings with the group, which is otherwise expected to independently carry out the project and hand in a final report. All project work in the first 18 months of study is carried out in study units accommodating approximately 100 students and a group of supervisors allocated from different academic areas of the humanities departments, one of whom is appointed coordinator, i.e., the supervisor charged with leading the pedagogical effort of the unit.

Adhering to the reform-oriented tradition of Roskilde University (dating back to the establishment of the university in 1972), the principles of PPL are strongly enforced in the first 18 months of study, meaning that students in their first year are expected to quickly mature in competencies such as academic self-reflection, social skills, project management, collaborative writing, academic forms of discussion and critique, and taking responsibility for one's own learning. However, as it will be argued in this paper, for many students, these expectations could be asking too much.

2. Theoretical Framework

2.1. Entry-Level PPL in Light of First Year Experience Research

The research field dealing with students' first-year experience is vast and diverse [14,15]. Following Harvey [14], a range of different themes can be identified in the field, including retention studies, studies of factors impacting performance and persistence, studies looking at first-year support practices, including induction processes, and studies focused on learning and teaching [14] (pp. II–IV). With a high frequency of studies focusing rather instrumentally on retention issues, it is further argued

that there is a tendency to discuss first-year problems in terms of social and academic integration [14], rather than looking more intently at the content of the curricula and teaching methods. However, what is particularly worth noting is that the overwhelming majority of studies of transition pedagogies deal with educational programmes that are organized with reference to a traditional curricular form of education. In the case of the Roskilde Model, which departs radically from traditional curricular traditions, a different approach is needed.

While taking measures against student attrition is inarguably an important aspect of transition efforts, in PPL's case, what is more important is taking a step back, in order to find ways to create contexts in which PPL becomes intuitively meaningful even to inexperienced students. While social integration as a precondition for academic integration [16,17] is generally an important domain to consider in any study of transition pedagogy, in the present case we will focus directly on the substance of the educational philosophy that students are required to assimilate. We take a look at the principles of PPL as pedagogical items and ask how they may be conveyed to accommodate entry-level students, that is, we focus the interest in the first year experience on the content of the pedagogical practice, rather than on the students' circumstantial experience.

2.2. Entry Level PPL As a Transformative Process

In this section, we discuss how a revised understanding of how PPL can function as framework for the transition from secondary to tertiary schooling requires a conception of the entry level as a transformative learning process: domains of background assumptions known as *meaning perspectives*, involving schemata that constitute mis-educative habits, need to be changed in that process [18]. A central point is that such study habits involve a change into genuinely communicative learning forms.

In the following, the question of how PPL concepts may be reconfigured to accommodate inexperienced students will be discussed in the context of the notion of transformative learning. Based on the assumption that students typically come from secondary schooling with a set of habits that may prove counter-productive to enacting the principles of PPL, it is argued that this process, rather than just being transitory, is indeed transformative.

At the heart of John Dewey's educational philosophy is the idea that, while education needs to be based on personal experience, an experience is only truly educational insofar it furthers the growth of knowledge and opens the path towards further experiences of quality. For Dewey, this means that a central skill in any educational practice is the ability to discriminate experiences that "live fruitfully and creatively in subsequent experiences" from those that do not [8] (p. 28). This brings the continuity of experiences to the front of the organisation of any educational practice.

Reconfiguring entry-level PPL as a transformative learning process, rather than merely a transitional one, reflects the idea that freshly enrolled students have acquired study habits that are, to some extent, mis-educative (in Dewey's sense of the word), i.e., habits that form experiential continua that do not further the growth of knowledge and prepare the ground for better learning experiences in a PPL context. These are classroom habits rooted in the traditional educational approach that tends to prevail in secondary schooling, (despite earnest efforts to the contrary): passivity, disengagement, and a focus on teaching context-free and disembodied knowledge, rather than on learning in an experiential context.

Therefore, a first-year experience that operationalizes PPL principles to inexperienced students, should critically address mis-educative habits that have been acquired in secondary schooling, and actively inspire habitual change.

In Jack Mezirow's conceptualization of transformative learning [18,19], this notion of habitual change is represented in the insight that habits are subject to change insofar as they are mediated by critical reflection, while, in general, we tend to block out experiences that are uncomfortable (i.e., incomprehensible or threatening to secure world views) whenever critical reflection cannot be mustered. *Critical* reflection is characterized by challenging *the validity of the assumptions behind previous learning*. In invoking Habermas' distinction between instrumental and communicative

learning [20], Mezirow points out that transformative learning is a form of interpretation, and hence inherently communicative.

The object of transformation in transformative learning is the underlying meaning perspectives that have been naively taken for granted in previous learning. In the transition from traditional, secondary schooling to a first-year experience involving PPL, the transformative process should fuel the critical reflection on the validity of assumptions regarding previous learning conditions. One example could be challenging the cognitive schema for the relationship between teacher and pupil that maps out a monological transfer of knowledge from the former to the latter, substituting it with a schema of a dialogical, experience-based learning process. Another could be schemata related to behaviour in reading situations, where the assumption that you should be able to reproduce textual content is replaced by the ability to interact intersubjectively regarding the text in order to arrive at common knowledge in a group. As pointed out by Illeris [21], such radical changes in learning may eventually lead to identity changes that are equally revolutionary, sustaining the student's transformation of self-image from student to academic.

2.3. The Communicative Aspect of PPL: Intersubjectivity in Deliberative Education

When highlighting the concept of communicative learning in relation to PPL as a transformative practice, the question of how group work is communicatively processed takes centre stage. Mezirow's application of communicative learning [18–20] is instrumental in emphasizing the importance of intersubjectivity, and, as it will be argued below, it is theoretically applicable to PPL in that the intersubjective aspect is central to both Dewey's and Habermas' approaches to a philosophy of education.

For Dewey, education is closely connected to democracy, his concept of democracy being far broader than merely a form of government [9]. Rather, democracy is a form of sociality in which experiential inquiry and problem solving, creativity and civic processes are minimally inhibited. As these processes are central to successful education, a social group which is allowed such freedom is, at the same time, an ideal environment for learning. More specifically, a democratically constituted social group is characterised by two criteria: it is characterised by (1) its members having shared interests and being cognizant of that fact, and (2) the group being in free interaction with its environment [9] (p. 58). Dewey's concept of language, which is at the heart of his interest in communication, is clearly social. For Dewey, communication famously means "the making of something in common" [22], emphasizing how communication is a form of action, whereby something (objects, meanings, events) is actually brought about.

However, Dewey, writing years before Wittgenstein and the linguistic turn, arguably did not formulate a full-fledged theory of language, even if the building blocks are seemingly there [22,23]. Consequently, more thought should be given to the fact that PPL is carried out in social groups with language as its primary medium. The processes by which members formulate shared interests, relate to an external social environment, and challenge the validity underlying assumptions in prior learning, are inherently dialogical and conform closely to a deliberative ideal of democratic discourse. While academic discourse is not aimed at compromise, it aims at coming to a common understanding, i.e., it is arguably oriented towards the force of the better argument. This is where the pragmatist approach to education converges with critical theory in a potentially constructive discussion.

Antonio and Kellner [24] note that Dewey's thoughts diverge from Habermas on a range of issues, most prominently in an insistence that, as opposed to Dewey, Habermas has struggled to fully abandon the very "philosophy of consciousness" that he criticizes, in that kantian dualisms remain at the core of his concept of communication [24] (pp. 282, 288). What should not be overlooked, however, is the fact that in raising this critique, Habermas' linguistically inherent *constitutive* normativity is often mistaken for an external, idealistically motivated, *regulative* normativity. The ideal of consensus in the theory of communicative action, while being constitutive of language, is notably *counterfactual* in everyday life. The ideal is only active as a standard by which language users regulate interaction, and it

notably occupies the *intersubjective* middle ground in the object/subject dualism. This way, a pragmatic conception of communication–supplementing a pragmatist one–may be useful in understanding the importance of deliberative processes in educational group work.

Differences aside, it should be evident that Dewey and Habermas have a lot in common when it comes to a normative approach to democracy: while Dewey tends to take a utilitarian stance, pointing out that the reason for choosing the path of democracy is the conviction that the choice implies a higher quality of experience for the many rather than the few [8] (p. 34), Habermas seems to arrive at a similar conclusion, only by reference to a deontological normativity [25]. However, as argued above, when this normativity is interpreted to be of a constitutive rather than a regulative kind, the difference may prove insignificant. Indeed, it is not at all foreign for a habermasian view to agree with Dewey's view that "[i]s it not the reason for our preference [for democracy] that mutual consultation and convictions reached through persuasion, make possible a better quality of experience than can otherwise be provided on any wide scale" [8] (p. 34). In the context of the theory of communicative action, this view is not incompatible with the idea that a communicative space, from which all sources of systemic effects such as money and power were hypothetically removed, would ideally promote the generation of rational consensus.

An important point that seems to be derivable from both positions is that democracy relies on the establishment of environments in which free, rational argument is encouraged. PPL as a learning tradition has not merely developed from a monological into a dialogical practice, it is, from its very outset, an interactive, dialogical form of learning. Consequently, a strategy for helping students mature into being capable of doing PPL requires an active, critical view of the dialogical space in which it is supposed to materialise; the dialogical PPL space should actively support critical argument, persuasion, active listening, creativity and dialogical experimenting.

However, as Habermas also points out, a dialogical space is never free of power and noise—in other words, part of practicing PPL is introducing the communicative space as a normative room for deliberation, in which ideals for consensual deliberation are unavoidably countered by strategic action, which is, in turn, made the object of critical discourse. Group work is never a clean process of pure communicative action but rather a dialectic of communicative and strategic action. That insight is important as a presupposition for operational entry-level PPL.

2.4. Individual Accountability in Cooperative Learning

As argued above, entry-level PPL needs to have an explicit approach to the social, communicative conditions for deliberation. However, in parallel, it can be argued that there is a pressing need to also focus on the individual in the group.

In pedagogical approaches to group work, there has been a tendency to look at the group as the smallest pedagogical unit, as if there was nothing beneath the level of the group (At Roskilde University, this focus on the commonality of the group, largely ignoring the importance of the individual as a member of the group, may have been ideologically enhanced through the Marxist critiques of bourgeois ideology that pervaded academia at the time of the establishment of the university in 1972. In hindsight, that may prove to be one of the most counterproductive products of the reform ideology of the 1970s). However, when PPL is treated in light of insights regarding the conditions required for successful collaborative learning, it becomes evident that the role of the individual needs to be further illuminated.

As opposed to competitive or individualistic learning, cooperative learning in small groups ideally sustains the goals of PPL [26]. Cooperative learning is characterized by students working together to enhance their ability to learn individually. Theoretically, cooperative learning has been understood in terms of different perspectives [27]. The motivationalist perspective focuses on how the aims of the group work are motivated by a common goal, whereas the social cohesion perspective tends to focus on how the social cohesiveness of the group impacts achievements. Finally, two cognitively oriented perspectives weigh the developmental and elaboration aspects of cognition, respectively: developmental approaches are mainly aimed at groupwork involving children, focusing on how

interaction contributes to developing learning skills, while the elaboration perspective focuses on how an interactive elaboration or restructuring of material is essential to learning. These approaches should be seen as complementary rather than conflicting [27].

A mainly motivationalist account of cooperative learning points out that five central elements need to be established and present in a cooperative learning setting in order for the group to succeed [26]. Firstly, a sense of *positive interdependence* should be established and maintained so that members of the group recognize that the success of the group is in the interest of all its members. Secondly, *individual accountability* is essential for the function of the group, indicating that practices need to be in place to secure that each group member recognizes his or her individual responsibility for the common work. Thirdly, the group process needs to involve *face-to-face promotional interaction,* ensuring that members are actively working together to promote and support each others' learning. Fourthly, *social skills*, including communicative skills and conflict resolution skills, are necessary for cooperation. Fifthly, *group processing* occurs when the group becomes self-reflexive, critically evaluating their goal achievement and working relationships.

The second criterion in the list above can be singled out specifically for the case in point—conceiving an entry-level pedagogy for PPL. Whereas the PPL tradition of the Roskilde model contains well-tested procedures for establishing positive interdependence, face-to-face promotional interaction, social skills and group processing, the concept of individual accountability has often been under-exposed, probably because it can be easily confused with elements of competitive or individualistic group dynamics (the distinction mentioned above [26]). However, individual accountability should emphatically not be thought of in terms of individualizing group work or promoting strategies for competitive behaviour. Rather, it should be understood as a remedy to insert practices and structures into cooperative group work that will support the individual's sense of being responsible for the whole, while at the same time being recognized for his or her commitment to the group.

2.5. Replacing the Laissez-Faire Supervisor with the Proactive Interlocutor

While the issue of learning is central to the development of a successful educational programme, the place of the teacher is undoubtedly no less important. Even disregarding the domain of competences, addressing the issue of teaching higher education covers a range of complex roles [28,29]. Historically, the Roskilde Model has been ambiguous with regard to the role of the teacher [2], and it can be argued that the inspiration from Dewey has been countered by a contrasting view in alignment with Dewey's early associate William Kilpatrick [2] (p. 7ff) who viewed the teacher role with considerable distrust, suggesting that the teacher should be relegated to a consultant role [1] (p. 13), [2]. As will become evident, the entry-level pedagogy discussed in this article reintroduces a teacher role more in line with Dewey's ideal.

In practicing the Roskilde Model, Roskilde University identified itself as a reform university from the outset. At the core of this institutional identity lies a commitment to being experimental [30] (p. 165). As Larsen [30] notes, the experimental approach to pedagogical and academical development has been hampered by a political climate that has historically been instrumental in turning the university's experimental attitude into a defensive position aimed at political survival, gradually transforming an initial open-mindedness into a highly controlled opposition to change. In addition, the Marxist origins of the university may also have contributed to promoting exactly the type of laissez-faire pedagogy that Dewey points out as a likely outcome of an unreflective "progressive" education reform [8]. In a Deweyan approach, reformatory pedagogies require an increased, not decreased, presence of the educator in the learning process. Servant points out that, while the above-mentioned work by William Kilpatrick was probably not widely acknowledged in the climate of the critical pedagogy of the 1970s, the radical orientation towards student autonomy in Kilpatrick's thought may have been an indirect influence [2] (p. 208 ff).

To some extent, the central principle of PPL being participant-directed has, on occasion, been interpreted as an acceptance of the project's supervisor being absent. Yet, the idea that participant

direction needs to involve an academically seasoned supervisor has been observed before [30] (p. 169). Students cannot be left to themselves from the outset, and expected to evolve into self-reflective, research oriented PPL students without the proactive intervention of the academic staff. In effect, a PPL programme at entry level has to organize a framework for progression for the students: progression needs to occur at an individual (learning) level, and it has to be reflected in the overall structure of the programme.

On a more abstract level, these ideas are formulated by Feldt and Petersen [31] in the form of a *humanities imagination*, complementing Mills' sociological imagination with a humanistic counterpart. Feldt and Petersen argue that inquiry-based learning from a humanities perspective requires a method of heuristics where problems are developed by students exploring and reading material from domains or periods other than the ones from which the problems seem to originate. The heuristics approach ideally promotes the students' ability to reflect on the exemplary qualities of the problems, thus moving the process towards still more relevant and interesting questions. In the optics proposed by Feldt and Petersen, this heuristics needs to be supported by a teacher role, which is characteristically engaged in the problem orientation process by posing questions to students that may lead them on in the process. This pointedly transforms the role of a disengaged and reactive supervisor into the role of a proactive *interlocutor*. In keeping with the argument made by Larsen [30], the PPL principle of *participant direction* involves more than the student group—it also includes the interlocutor.

2.6. Elements of an Entry-Level Pedagogy for PPL, in Short

Thus far, this article has argued that an entry-level pedagogy for PPL needs to incorporate a set of diverse assumptions:

1. It needs to promote gradual habitual change, raising students' awareness of their past and present habitual habits. This process needs to be communicative;
2. It needs to support intersubjectivity and deliberation in groups—actively sustaining and promoting deliberative spaces, while at the same time acknowledging that there needs to be awareness of the pitfalls of communication. Students should actively train discourse (in Habermas' sense of the word—that is, questioning validity claims that are otherwise naively presupposed in communication);
3. It needs to raise awareness in both students and faculty staff that the dynamics of learning in a group presupposes that individual members are held accountable for the common process and are recognized for their achievements;
4. It needs to reconceptualize the principle of participant-direction, so that the proactive interlocutor role is integrated. Methods of heuristics are central to this role.

These basic assumptions can be seen to be at the heart of a case study where the introduction of a first-year strategy at the HumBach programme at Roskilde University led to carrying out an experiment where the main assumptions were tested.

3. Materials and Methods

3.1. The HumBach First-Year Strategy

As a pedagogical setting, PPL holds a considerable potential for learning, yet in recent years a set of common challenges has emerged at HumBach.

In recurring evaluations of project processes, in socalled "exit surveys" (monitoring drop-out students' reasons for leaving the programme), and in surveys of the study environment at the programme, a pattern has emerged indicating that a substantial group of students finds it hard to break the academic code, with some students specifically pointing to PPL as an overly challenging context for studying.

Symptoms of this problem include an array of closely interrelated problems. It should be emphasized that these problems do not pertain to a majority of the students, who appear to be perfectly able to take on the challenges. However, a substantial minority does exhibit the behaviour mentioned below.

- Attrition

While attrition may sometimes be positive (e.g., when students reflectively realise that their interests are taking them in new directions), attrition may also point to inherent defects in the study programme. HumBach does not have a high attrition rate compared to other humanities intakes in Denmark (in fact, it is generally the lowest in that comparison), but survey exits have indicated that a substantial number of drop-outs mention frustration with PPL processes as a contributing factor in their decision to drop out;

- Underachievement in project work

As mentioned, PPL activities make up 50% of the programmes' scheduled workload; however, it has become increasingly clear that students generally spend less than 50% of their time on project work, focusing instead on the more traditional approach to learning that they encounter in the programmes' course work, which takes up the other 50%. Attempts to raise study intensity by trying to motivate students, e.g., by pointing out the obvious advantage of being allowed to work with a problem arising from your own experience, have been seen to be mostly futile in many cases;

- Lack of motivation and commitment

Supervisors and coordinators, as well as students themselves, have reported on lacklustre group meetings and superficial project reports that focus on meeting formal requirements rather than embracing the following of interests, experiment and inquiry, and condensing findings in exemplary knowledge. A typical cause of demotivation is some dysfunction in group dynamics, i.e., progress is stalling because of differences between members' ambitions, failure to adequately distribute and share the workload, communicative problems including giving and taking academic critique, and/or interpersonal conflict;

- Stress

PPL activities should be expected to provide meaning to the learning processes, since it is an inherent condition that project work is active and focused on problems emerging from individual experience. It often works that way, but there are also frequent examples to the contrary. In such cases, students seem to lose meaning in complex group processes that are perceived as stressful and confusing. This picture is frequently evident when surveying the experiences of students that have chosen to drop out.

Under the assumption that the above-mentioned symptoms are connected to transition-related dynamics, in 2014 the board of studies at HumBach launched a strategy specifically dealing with the first year of study and the transition challenges experienced by students. Since then the strategy has been continually refined and expanded, while also providing a framework for experiments with alternative ways of approaching PPL. The strategy encompasses a range of quite diverse ambitions, including activities related to the study environment, such as promoting a socially and academically integrated learning environment, sustaining inclusion and embracing diversity by focusing on the well-being of students, and sustaining ownership and belonging through structured activity and engagement. In the context of the current article, however, we shall focus less on the study environment and more on those aspects of the first-year strategy that are specifically oriented towards the conditions necessary to acquire PPL abilities.

The first-year strategy is designed to actively support the transformative process during the first 12–18 months of study. When the new students are enrolled, they should encounter a structural and pedagogical context that is not entirely unfamiliar to them. In abandoning the unrealistic expectation that students will be able to take in new forms of studying from day one, the strategy is designed to support a gradual transformation by installing scaffolding structures that support the transformation—structures that are notably removed later on as students are ready to take on and

enact their newly acquired roles. The idea is that gradually replacing familiar learning environments (the scaffolding structures) with environments that are true to the principles of PPL will facilitate the students' reflection on the need to replace mis-educative habits with educative ones. Without this gradual reorganization of learning environments, many students may not be able to enter this path of reflection.

Focal points in the strategy involve:

- Proactive project supervision

While many academic supervisors have been naturally proactive in meeting with new students, they have typically done so by individual choice. However, at the core of the institution's humboldtian ideal lies a kind of Socratic self-understanding—the supervisor is a researcher who may be approached by students with sets of relevant, academic questions, to which the supervisor will react by offering academic critique and pointing to ways to make the project progress academically. However, entry-level students more often than not struggle to take on PPL work without active support, and the strategy consequently prescribes that the passive role of the supervisor needs to be formally transformed to accommodate the actual needs of first year students. Proactive supervision cannot be compulsory, but needs to be an integrated part of the programme's learning environment. This involves a gradual, slow cultural change in (parts of) the academic staff's approach to PPL pedagogy;

- Actively supporting study intensity

Various initiatives have been introduced under this heading, one example being an online "week-by-week schedule", suggesting to students what types of activities they would be expected to undertake in any given week of the semester, and currently ongoing experiments with prolonged and more academically focused project formation processes. Most prominent, however, was the 2016 experimental student house where concrete scaffolding structures were put in place, forming the project work on a social study platform. The specifics and results of the experiment are detailed under Section 4 in the current article;

- Teaching PPL

While project learning has traditionally been taught as "learning by doing", the first-year strategy acknowledges that this approach is often insufficient. While the learning-by-doing approach is indispensable, many students fail to recognize and reflect on this fact, and, in accordance with the strategy, a course in Project management and study competency that directly follows and supports the first semester's project work has been designed, implemented and actively developed over several years;

- Active attendance and participation as pass criteria at course work supporting PPL

Whereas requirements for attendance and participation seem foreign to the spirit and tradition of PPL (since, by definition, PPL needs to be driven by personal experience and interest), it turns out that the introduction of these criteria as scaffolding devices enhances the study environment, and, hence, the level of activity, considerably. Before these scaffolding devices were in place, a majority of students simply failed to show up, effectively removing motivation for the minority who did.

3.2. *Introducing Scaffolding Structures for PPL: A Comparative Case Study*

In 2016, the board of studies at HumBach launched an experiment in which one of five student units (known as "tracks", each comprising approximately 100 students and a group of faculty staff, one of whom acts as a coordinator of the entire track) did project work in a more controlled and structured environment with closer and more pro-active supervision than usual, as well as a set of "ground rules" for the conduct of PPL studies.

The experiment can be seen to more or less directly address the focal points mentioned under Section 2.6. Transforming educative habits requires gradual change in the learning environment, abandoning the tradition of essentially subjecting entry level students to a catastrophic loss of all known conditions for learning. Hence, the first-year project work has to be more structured so as to resemble to some extent the experience students arrive with from secondary schooling. Promoting

communicative rationality involves being explicit about how central phases of PPL, such as the problem formulation phase, are dialogically arrived at through discourse, both oral and written. It also involves an active interlocutor that takes part in the conversation and demonstrates how the dialogical process works. Promoting individual accountability requires that specific norms are put in place that secure the position of the individual in the group. Finally, the experimental setup clarifies that the supervisor takes on a proactive role as a participant in PPL.

The design of the experiment was based on a concept developed by Professor Jacob Egholm Feldt, Centre for PPL research, Roskilde University, drawing heavily on insights from experiential and inquiry-based learning. The concept involved a range of specific dogma that were used as scaffolding structures to acquire useful educative habits in PPL:

- All PPL activities are carried out on a common, social platform

At track A, a common digital platform presented the students with an interactive interface where they could work on documents together and store files in a common archive. Use of the platform was mandatory, and the academic staff member appointed to supervise the project was a member of the virtual group. The platform chosen was the e-portfolio system *Mahara*;

- All students are required to regularly submit written papers that reflect on the progress of the project

Students were required to upload "reflection papers" on a weekly basis, in which they reflected on the progress of the project work, their own current work and the relationship of the project work with a concurrent course on PPL work. Papers were individual contributions to the total PPL archive being formed on the platform;

- The supervisor is regularly present and visible on the platform and is proactively following the progress of group and of individual members

As mentioned, each group has an associated supervisor picked from the faculty staff of the track. In the experimental track, the supervisor was invited to join the group on the platform, and it was agreed that the role should be proactive. The supervisor would regularly check on the group's progress and intervene whenever a group, or an individual member of the group, seemed to become inactive. The track coordinator was present on all group platforms on the track (a total of 17–18 groups), and would thus be able to monitor PPL work on the entire track;

- The platform is conceived as a dynamic archive for the ongoing project work, so that the final report can be compiled from work that has already been done over the course of the semester

Groups were encouraged to devise a file system on the platform, consisting of such categories as individual reflection papers, common working papers, literature reviews, documents related to project seminars, and documents intended for the final project report. There would also be a folder where the group's prepared papers for meetings with the supervisor would be posted in advance of meetings.

The experiment constitutes this article's empirical aspect, the results of which are discussed in Section 4. Methodologically, the case study is comparative. When compared to a control group (consisting of the four tracks that had not employed the new approach), subsequent evaluations of the experimental track showed an improvement in such areas as the perceived amount of time students spent on project work and their sense of satisfaction with their intellectual accomplishment.

The experimental unit is known as "Track A", and the control group consists of tracks B through E. In tracks B through E, none of the mentioned structural scaffolds were put in place, while the experiment went on in Track A. All students at the five tracks were first year students enrolled in the summer of 2016, with the experiment running in their first semester in the fall of 2016. The newly enrolled students were administratively distributed into five tracks, A through E. In other words, the distribution was random, the only exception being that students with identical first names are manually spread out over all five tracks to minimise the practical hassle of confusing same name students in the project formation process.

The data consist of the evaluation report on a quantitative survey among all first-year students in the five tracks. The evaluation was based on a survey consisting of 17 questions covering such areas as

the respondents' experience of competency building, their perception of the programme's relevance to their academic development and the labour market, their experience with the group collaboration and of working with and receiving feedback from the supervisor, their personal effort and workload, their experiences of the project exam, and their perception of their academic progress. The survey template was made available to all students in tracks A through E by way of a personalized email from the administrative staff at the programme. The email contains a link to the online survey. An overview of the survey questions, a full list of the results in a comparison between Track A and the control group, and an χ^2 test for statistical significance, is available online at the journal website (see under "Supplementary Material"). Not all of the survey's categories are equally relevant to the PPL aspects of the experiment, yet, regardless of this (and with due reservations regarding instances where results are methodologically questionable), Track A seems to consistently supercede the other tracks. In the following, four specific results are selected to cover this general impression.

On a final, methodological note, it should be pointed out that the goal of the student evaluations underlying the material presented here was initially tied to the institution's quality assurance practices, and was not, at their conception, meant to prove a point beyond that purpose. In other words, the juxtaposition of Track A's evaluation with those of the other four tracks was not originally part of a research design, but has been compiled as such afterwards. Hence, there are some methodological reservations: the case study consists of relatively few students and the respondent sample in Track A ranges between 38 and 46 students, a fact that makes testing for psychometric properties problematic. However, we note that, while not all results rise to the level of statistical significance, others do just that, and together the results point to a noteworthy pattern of stronger performance in Track A. Far from being a full-scale empirical undertaking, this study is predominantly a conceptual exploration of the knowledge base for the first-year strategy. Hence, the results of comparing the experimental track with the control group are not meant to carry the full weight of the article's argument. The case study supplements the more theoretically based argument of the paper, hopefully inspiring educators and researchers to do more work along that outlined here.

4. Results

In the following, we specifically look at results that highlight the respondents' replies with regard to their experience of study intensity and contact with their supervisor, as well as their experiences of the functionality of the group as a context for academic growth.

All students were initially informed that they should expect up to 10 meetings with their supervisor during the semester, on the condition that the group was able to meet the requirements of handing in well-prepared agendas and working papers for the meeting in due time. In Figure 1, a majority of the respondents in Track A report to have had at least the full 10 meetings, a result which departs conspicuously from the results of the control group, where nearly half the respondents report to have had only 4–6 meetings. The result seems to indicate that the tight connection between project group and the supervisor on the platform promotes the activity between students and supervisor.

Due to the low number of respondents, the results in Figure 2 are not reliable by a strict methodological standard, and hence they should be interpreted tentatively. The responses regarding hours spent per week do, however, support the more reliable findings in Figure 1, and hence, the result is included here.

It should also be noted that students are not formally required to keep track of their weekly effort and workload, creating some further methodological reservations with regard to the question represented in Figure 2. Clearly, respondents are asked to retrospectively give an estimation of an average workload over a period which is notoriously uneven in terms of weekly effort required. As an example, the last 14 days up to handing in the final project are known to be very intensive, whereas earlier phases of the PPL process are often conceived as much less strenuous. Therefore, the reporting here can hardly be taken as an exact account of students' PPL workload. However, since this reservation is equally valid for all respondent groups, including those in the control group, what we can

see is that there is a difference in respondents' perception of their own effort, regardless of actual time spent. In Track A, respondents perceive to have worked more than respondents in the control group.

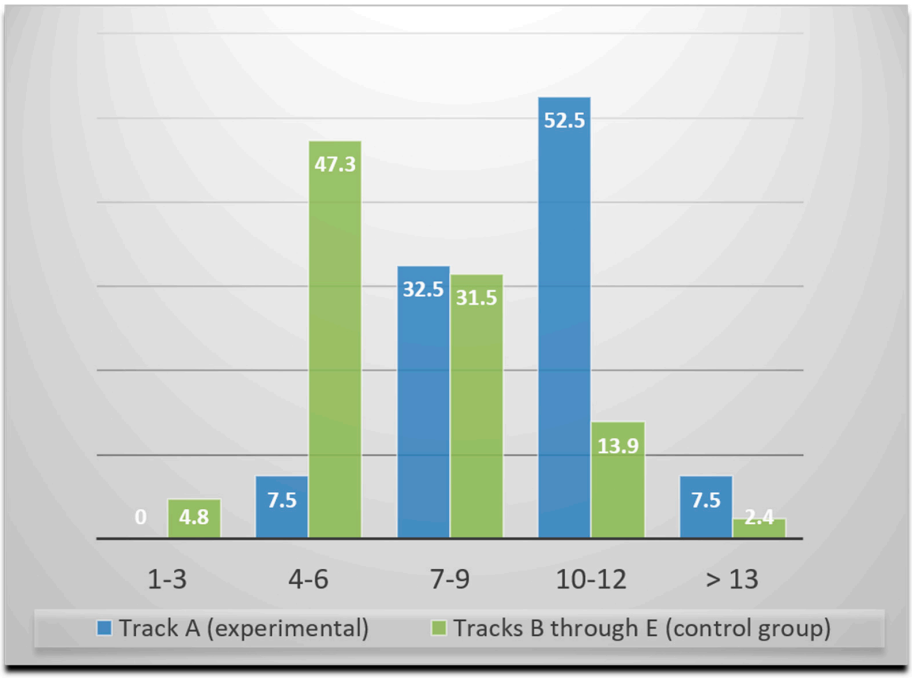

Figure 1. How many meetings have you had with your supervisor? n = 40 (track A)/n = 165 (control grp), p-value = <0.1%.

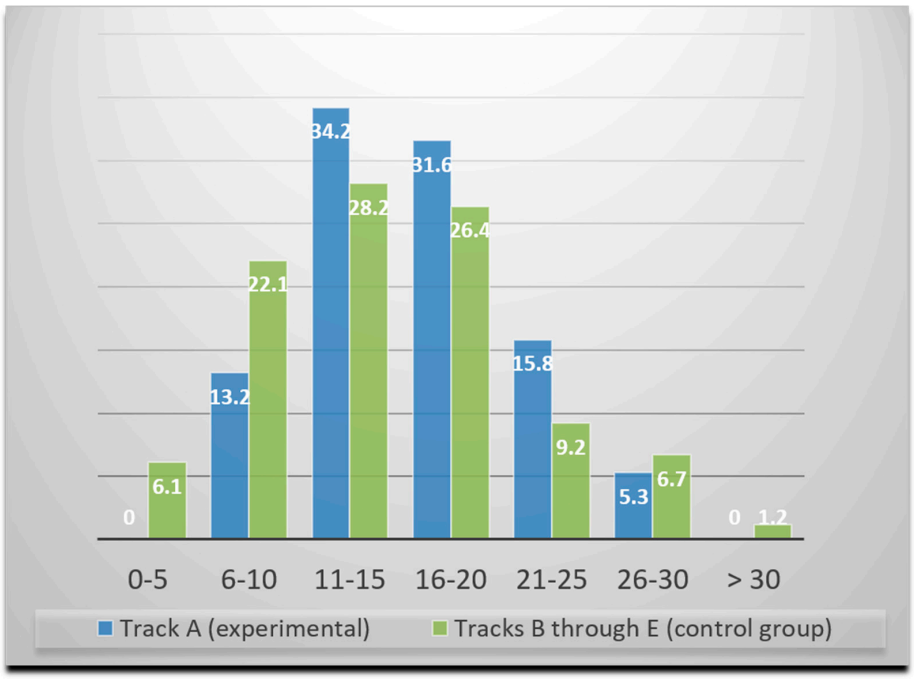

Figure 2. How many hours per week have you spent on project work? (on average), n = 38 (track A)/n = 163 (control grp), p-value = 32.5%.

As mentioned initially, PPL activities at Roskilde University comprise 50% of the full student workload, and hence study intensity regarding project work should ideally take up, on average, half a

working week. As a rule of thumb, the HumBach study board considers the category 11–15 h to be the lowest acceptable level of PPL study intensity. As Figure 2 seems to suggest, 28% fall below that threshold in the control group, whereas only 13% does so in Track A; given this, we can put some trust in the result. With due methodical reservations in mind, Figures 1 and 2 together contribute to the formation of a more general pattern: the scaffolding structures seem to have a positive effect on the students' perception of their actively working on their projects.

Adding to the impression that students generally experience more contact with the supervisor in Track A than they do in the control group, Figure 3 shows a significant variation between Track A and the control group. In light of the changes put in place in Track A, the result can be taken as indicative that the scaffolding structures generate the experience of receiving more useful feedback. Receiving constructive feedback from academic staff is vital to a conception of PPL where the supervisor is reinstated as an active interlocutor, as has been discussed in Section 2 of this paper. Without specifically addressing the question of individual accountability, the result goes hand in hand with the dogma in Track A that working papers should identify individual students as authors. On a speculative note, it is possible that the heightened experience in Track A of receiving useful feedback on drafts might be a consequence of the practice of individualizing feedback.

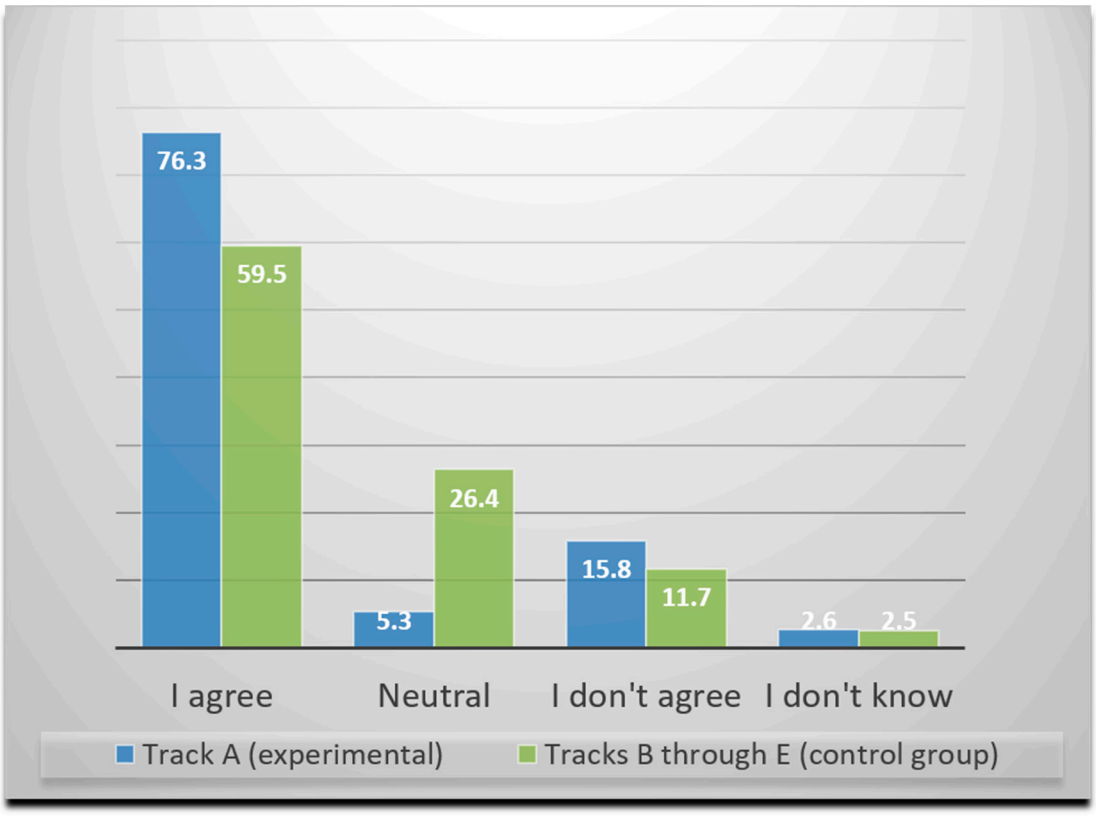

Figure 3. "We received constructive feedback on our text drafts, which was useful to improve the text", n = 38 (track A)/n = 163 (control grp), p-value = 3.2%.

While the purpose of the scaffolding structures is predominantly an attempt to activate and invigorate students academically, the relationship between the functioning of the group as a learning context and the academic yield of the process is closely integrated. Hence, it should come as no surprise that the perception of group cooperation is more fulfilling in Track A, given that the scaffolding structures work to professionalize the relationship in the group and to stress that group work, while being a social, intersubjective form of communicative activity, is not a private, but rather a public, form of activity, like all other educational activities. Hence, the experiment's dogma for the group work may be seen as making a safer and clearer environment for cooperation. Figure 4 seems to confirm this.

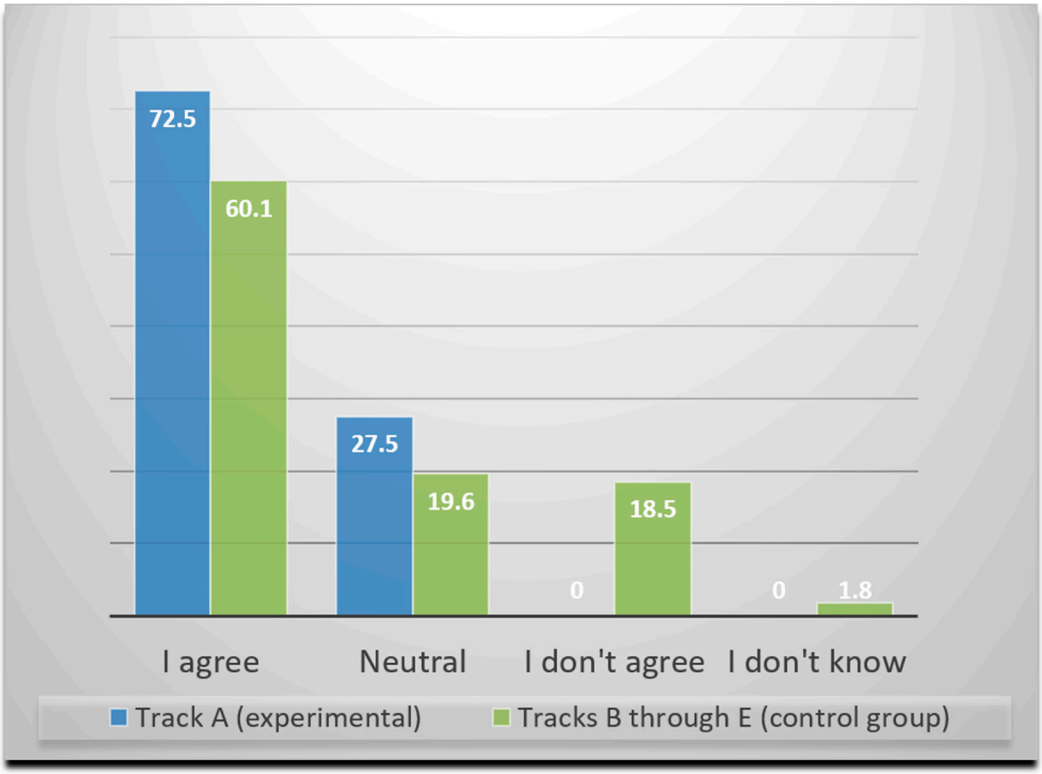

Figure 4. "I feel that the group was a positive frame for my learning process". n = 40 (track A)/n = 168 (control grp), p-value = 1.6%.

5. Discussion

The experiment indicates that a more structured study environment for PPL generates a sense of achievement, study intensity and cooperation that surpasses an approach with less structure. The results seem to confirm the assumptions of the HumBach first-year strategy, as well as the knowledge base underlying it; a focus on the transformation of study habits, on the individual accountability of group members, on the gradual progression from supervisor-direction to student autonomy, and on group intersubjectivity, seems to strengthen the base for developing entry-level PPL.

Together with experiences connected to the first-year strategy and the theoretical framework presented in this article, the results of the case study point towards enacting an entry-level pedagogy for PPL that focuses specifically on structural support for entry-level students. This article suggests that this pedagogy should apply structures that gradually scaffold students' awareness of their habitual change patterns, promote communicative and deliberative awareness, secure individual accountability and define the supervisor role as a proactive interlocutor in PPL processes.

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