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Main Article:

Researching With Undergraduate Students: Exploring the Learning Potentials of Undergraduate Students and Researchers Collaborating in Knowledge Production

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Abstract

The article presents a particular case of undergraduate students working on subprojects within the framework of their supervisors' (the authors') research project during Autumn Semester 2012 and Spring Semester 2013. The article's purpose is to show that an institutionalized focus on students as "research learners" rather than merely curriculum learners proves productive for both research and teaching. We describe the specific university learning context and the particular organization of undergraduate students' supervision and assistantships. The case builds on and further enhances a well-established and proven university model of participant-directed, problem-oriented project work. We explore students' and researchers' experiences of being part of the collaboration, focusing on learning potentials and dilemmas associated with the multiple roles of researchers and students that characterized this particular intertwined research and education arrangement. We show that the connection to the research project assisted students to orientate, learn, and contribute in relation to empirical and theoretical aspects of research and supported the development of broad perspectives and deep analysis.

Index Terms: research education; undergraduate research training; collaborative research experiences; reflective practice; research competence; education & research interest; ethical dilemmas

1. Introduction

The purpose of the present article is to indicate important potentials and dilemmas for education and research that arise in a particular case of researching with undergraduate students. Our case concerns students working on subprojects within the framework of one of our research projects during the Autumn Semester 2012 and Spring Semester 2013. Our research project adopts a collaborative design to study vulnerable young people's participation in secondary and further education, and the ways educational practices and contexts interplay with young people's everyday lives, identity processes, and experienced life possibilities (Aarkrog & Jørgensen, 2008; Jørgensen, 2013; Larsen & Villumsen, 2012; Wulf-Andersen, 2012).

Many facets of researching with students have been addressed in the international literature. Students' research training and learning have been the focus of much work about master's and doctoral education, including the use of specific action research frameworks to improve instruction and teaching (Rose, 2009). Investigations into undergraduate students as assistant researchers have been conducted as participatory intervention studies in elementary schools (Bragg, 2001; Raymond, 2001; Steinberg & Kincheloe, 1998), as endeavors to uncover or promote "the student voice" and school improvement (Bragg, 2007; Fielding, 2007; Thompson & Gunter, 2007), or as student action research programs providing disadvantaged young people with access to higher education (Atweh & Bland, 2008).

In all these cases, the question of undergraduates being involved in research is based on an educational approach. Along the same lines, an earlier special issue of the *Journal of Research Practice* focused on the ways students learned to conduct research through their involvement in research projects (Earley, 2007). Furthermore, educators have related the positive effects of undergraduate students "learning by doing" in "real research projects" (i.e., not merely attending lectures or similar teaching environments) to students' socialization into a professional community of researchers (Winn, 1995) as well as to students' experiences of personal and intellectual development (Hunter, Laursen, & Seymour, 2007). However, involving students in research can take place in different forms with different implications. In some cases, undergraduate researchers are working on senior researchers' projects in rather one-dimensional relations. In such cases, students

point to the importance of a sense of personal ownership of the research project in order to invest the time and energy needed (Searight, Ratwik, & Smith, 2010). In other cases, students are involved in senior researchers' projects as both research assistants and informants. These latter cases involve crucial methodological and ethical considerations concerning the dual role of the teacher as researcher and supervisor, and the student as data source and researcher (Ferguson, Yonge, & Myrick, 2004). Landrum and Nielsen (2002) point to the fact that there is limited research that has examined which experiences are beneficial to educators as well as undergraduates—and, we might add, which forms of involvement are beneficial to the research projects.

In this article, we describe the specific university learning context of our work and the associated principles of participant-directed, problem-oriented project work (Nielsen & Webb, 1999). This context involves a hybridization of teaching, researching, and experiential learning, which, in a European context, is quite radical (Olesen & Jensen, 1999, p. 9). We explain how we built on and further enhanced what is standard practice at this university by inviting undergraduate students to assist and learn within the framework of our research project. We explore students' and researchers' experiences of being part of the collaboration, focusing on learning potentials and dilemmas associated with the multiple roles of researcher and student that characterize this specific intertwined research and education arrangement.

2. Problem-Oriented Project Work as a Framework for Learning

Our exploration of involving undergraduates in research springs from a well-established and proven model of taking *problem-oriented project work* as the core learning principle in university studies. Since the early 1970s, teaching and learning at Roskilde University, a Danish reform university (Olesen & Jensen, 1999), have been centered on project work. Central influences in the establishment of Roskilde University came from educational scholars such as John Dewey, who emphasized the importance of learners' experiences, and Oskar Negt, who introduced the concepts of *exemplary learning* and *sociological imagination* (Nielsen & Webb, 1999, p. 109). These foundational concepts form the basis of project work, which, according to Nielsen and Webb, involves interplay among students and teachers in a formal educational setting and is intended to support students to cope with the challenges of the world today.

At Roskilde University, one half of the curriculum involves project work. Each semester, students work on a project in parallel with lectures and reading groups. At the beginning of each semester, students form project groups and identify a "real-world," theoretical, or methodological problem that the group wants to investigate under the supervision of a teacher. Nielsen and Danielsen (2012) argue that the problem-oriented project learning approach substantiates "an active kind of learning that is participatory-directed in a dialogue between students and the teacher as a supervisor. The teacher's role is to give the students critical constructive feedback as well as facilitating them in their learning processes" (p. 258). Concepts, theories, and methods are encountered through an interdisciplinary approach with attention and efforts oriented towards exemplary problems (Nielsen & Webb, 1999, p. 110). In this understanding, project work is a way of

organizing learning processes that revolves around investigating and solving problems; the very processes of learning are thus considered integral to the products. Student reports should display the processes of learning while undertaking the task of investigating the problem at hand. A central aim of the university is to form a bridge between the skills needed in today's labor market and the skills needed to partake in research endeavors, partly based on a strong tradition of interdisciplinary research and studies, which constitutes a unique approach in Danish higher education. The ambition at Roskilde University continues to be the establishment of a learning environment where students have the opportunity to acquire and try out theoretical knowledge and academic skills in practice. This approach resembles the attention to concrete issues and real-world problems emphasized in other scholarship (Ulriksen, 1999, p. 138). The university strives to provide graduates with:

> the ability to perform independent analysis and problem-solving, training in cooperation involving complex issues, critical attitudes, political awareness and responsibility, professional commitment and overview, or, to put it briefly: a modern profile and the ability to continue to meet the current demands of academic endeavor. (Illeris, 1999, p. 27)

The understanding, now institutionalized at Roskilde University, is that supervisors are facilitators rather than authority figures holding the right answers, and students are active learners rather than audience members (Jenkins & Healy 2009, p. 1). This institutional understanding formed an important background perspective for our decision to invite undergraduates to assist in our research project by formulating their own subprojects and research questions within the scope of our research project. This understanding also influenced the ways we interacted with students in this intertwined research and education arrangement.

Relying heavily on the tradition of project work at Roskilde University, the involvement of students in our research project builds upon and further develops the concept and organization of project work. In this respect, our starting point differs from other learning-by-doing and project-based initiatives, which tend to be organized as optional activities for a very few particularly committed students and are seldom extended into, or supported by, compulsory activities (Winn, 1995). Student involvement in research might not be as easily integrated at universities with more lecture-based teaching (Winn, 1995, p. 206). The hybridization of teaching, researching, and experiential learning at Roskilde University suggests that learning processes move out of the classroom and into the field of research and its real-world problems. The students connected to the research project gained the opportunity to engage in, and learn from, research on these real-world problems and were urged to activate specific and concrete problem solving and research learning. The link between the students' subprojects and our project meant that a large group of students became *research learners* in the same field of research as their supervisors.

3. Organizing Undergraduates' Involvement in the Research Project

The research project was introduced to the students at the beginning of Autumn Semester 2012 and Spring Semester 2013, as part of the teachers' research portfolio, with an invitation for them to undertake their required project work within this particular research and educational framework. Figure 1 illustrates the organization and process of their project work.
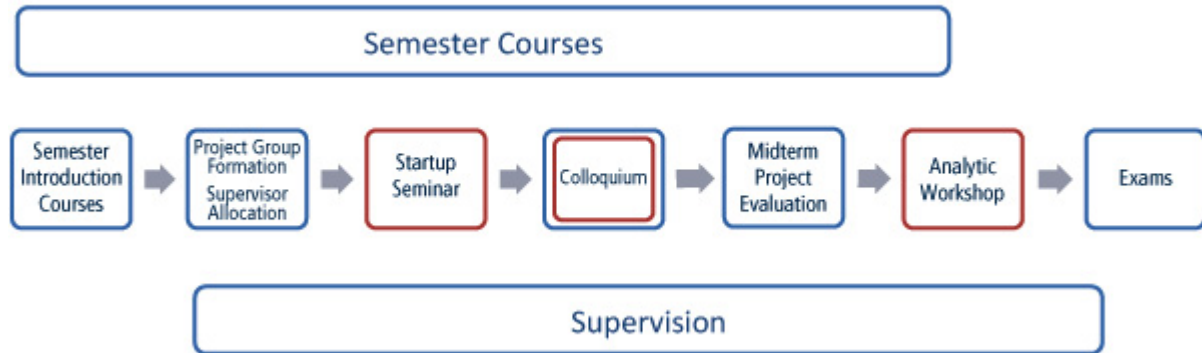

Figure 1. The organization and process of project work at Roskilde University.

Note. Blue shows the standard organization and process model for project work at Roskilde University, whereas red shows the extra components specific to the intertwined research and education arrangement with our research project.

Apart from the standard formal university organization of the project work at Roskilde University, we added a startup seminar to introduce the students to the field of research and an analytic workshop to perform collaborative analyses. In addition to these two sessions, we also organized a colloquium involving a series of student-guided seminars based on a specific theme, with the aim of supporting the students' project work. In this case, the colloquium was organized around the theme youth, education, and periphery.

The students were invited via email and through short presentations during plenary sessions in the educational settings where the researchers were located. In this article, we focus on the BA program in Social Sciences. The aims of the email and the presentations were to describe the scope and organization of the research project, the field of research and our research questions, and the methodological design of our research project, as well as to state that working within this project framework would provide the possibility of:

> working in association with a "real" research project and a group of researchers; drawing on the researchers' contacts in the field—enhancing the possibilities of actually establishing contacts and doing empirical work within a single semester; [accessing] financial support for traveling expenses; [and] participating in extracurricular seminars/workshops for all students and researchers involved. (Invitation, September 2012)

Participation in our research project came with the stipulation that the students would have one of the researchers involved as their supervisor, but apart from that, project groups would "work according to standard conditions" in existence for other project work at Roskilde University (as described above). We emphasized that students would have freedom within the scope of our research project to choose a specific problem and to formulate their own research question as well as apply different methods of their own choice just as they do in ordinary project work at the university.

We ended up with 11 groups (41 students) in Autumn Semester 2012 and 5 groups (18 students) in Spring Semester 2013 working within the framework of our research project. The students who joined our research project varied considerably in their academic qualifications, their experience with the researchers, and their chosen topics and approaches. Some did not know the researchers, others had had one of the researchers as their supervisor, and some students or groups in Spring Semester 2013 had already worked with us in the autumn. The groups' subprojects focused on a wide variety of problems and used various theoretical and methodological approaches. Some subprojects focused on gender issues, some on peer relations, yet others on young people's visions of the future. Some groups did participant observation, many did individual or group interviews, some did critical action research, and others selected policy documents as their primary material. This meant that some subprojects came close to our research project (Wulf-Andersen, Larsen, Mogensen, Thingstrup, Hjort-Madsen, & Nielsen, 2012), whereas others differed somewhat from our framework.

It is also important to mention that the students had varied experiences of doing fieldwork. Some students had taken methodology courses and had also done empirical work as part of previous project work. However, most students had very limited or no practical experience of empirical research. Early in the semester we therefore held a startup seminar (see Figure 1). One explicit aim was to present in more detail the research questions, methods, and central theoretical concepts from our research project, and to assist the groups in their methodological preparations for the coming fieldwork. Among other important issues raised in this session were the potential dilemmas associated with their dual roles as students and research assistants and the different expectations and demands that could arise from these two roles. The students were asked to reflect on their subprojects and explicitly discuss:

(a) how involvement in our research project related to their educational context
(particular semester focus and demands),
(b) how their subproject, on the other hand, related to our research project context (what part of the field was in focus, what empirical and analytical contribution were they interested in),
(c) how they planned their fieldwork, analytical work, and writing over the semester, and
(d) what different kinds of challenges and dilemmas they anticipated.

In the period following the startup seminar, the students worked on refining their research questions, methodology, and theoretical approach, before going into the field and conducting their empirical work. Late in the semester when students had completed most

of their empirical work, we scheduled the analytic workshop (see Figure 1). All project groups were asked to present one or more "empirical images" (photographs, unfolding of exemplary situations, etc.) from their fieldwork. The idea was to create a common ground for collective reflections and analysis.

Our research framework provided an additional organizational structure for the project work. As supervisors, we monitored, supported, and challenged the project work of each group (see Figure 1).

4. Student Experience of Being Involved in Our Research Project

The students' perspectives on what it meant to them to be involved in research were a central concern to us. From our position as researchers and supervisors, we monitored this factor and discussed it with the students throughout both semesters. At the end of the presentation seminars, we also explicitly asked students to reflect on the question: "What does it mean to be a student within the research project framework? In what ways is this different from your previous project work? How does this framework support, distort, challenge, or put pressure on the project work?" Students interviewed each other on the basis of these questions and recorded the interviews and discussions on film.

For the earlier special issue of the JRP, Earley (2007) invited students to respond to similar questions regarding their engagement in research: "What has it been like conducting research? What have you learned?" (p. 2). Based on the responses, Earley identified four central themes: *cultural*, *social*, *process-oriented*, and *identity-related*. These themes, according to Earley (p. 3), overlap in many ways, thus emphasizing both the complexity of the research process and the importance of the social, cultural, and individual identities of the different people engaged in this process. According to Nielsen and Webb (1999, p. 115), this should be seen in light of John Dewey's central idea that learning always occurs through the active work that students are doing and it also coheres with Jean Lave's (Lave & Wenger, 1991) idea that learning is always taking place, and that the salient question therefore is: What is being learned?

Our students' responses were often elaborate, expressing overlapping and complex themes, in many ways similar to the ones identified by Earley. The students often implicitly revealed their experiences with the general model for education and learning at Roskilde University, and they commented about the differences in our project groups. For instance, many comments related to their appreciation for the practical, first-hand experience of doing research; much like the *process-oriented* theme identified by Earley (2007, p. 3). Practical experience with research methods and the production and analysis of empirical material are already mandatory elements of project work in the educational programs at Roskilde. Students thus commented on participation in our research project based on the premise that they would be doing empirical and project-based work either way, implicitly pointing to what they considered to be challenging when working with ordinary projects at Roskilde University. Most students confirmed our presumption from the invitation that they found it difficult to establish relevant contacts in time to finish fieldwork, analysis, and writing of the report within a single semester, but also

commented that our research project constituted an important means of *accessing the field*. Many students expressed this metaphorically as a matter of more easily getting past gatekeepers in the empirical field, by way of their association with us and our contacts in the field. But some students also indicated accessing a new field of literature and engaging in the usual project work was easier, since our research project offered a pre-existing delimitation of the field. Students felt better supported in accessing the field, through the continuous contact with not only their own supervisor, but also the larger group of researchers associated with our research project. This contrasted with the standard one group to one supervisor relationship.

Another significant response related to the opportunity to work on a real research project as opposed to what one student called "the usual 'as-if' projects that will just gather dust on the library shelf." To know that "this will be used for something," and to be involved and acknowledged as active contributors in the different phases and processes of research, was highly motivating for students. One student said, "I get the feeling that I'm being taken more seriously, the thing that somebody actually believes that I can produce something that can be of value—even if I am still in training." Consequently, many students also found themselves to be "more ambitious," "more committed," and also "more obliged" to produce "good work." Most students felt that they had a secure platform for being more ambitious because supervisors were "close behind us." Some students, however, felt that working on a real research project simultaneously put pressure on them to perform according to "real research standards" and sometimes worried about their ability to live up to these standards. Many of the students put in more work hours than expected, which made us discuss among ourselves and with project groups how to better organize and define the scope of the project work, balancing the commitment between ambition and realism (Winn, 1995, p. 205). Based on the experiences of the students, it seems reasonable to postulate that their involvement in research strengthens their possibilities for learning as well as their commitment to learning.

Another line of response, similar to Earley's *social* theme (p. 3), focused on the collective dimensions of being part of our research project. Students stated that the collective organization provided important peer and supervisor support. In addition to students being part of a project group, each group was connected to other groups as well as to a group of researchers, all working with shared interests and somewhat similar subprojects within a collective body of work. Each subproject was thus not only discussed within the group or between the group and its supervisor, but was also presented to "several other conversational partners" in workshops. The relation to other groups and researchers reportedly assisted students in developing their abilities to connect project work, extracurricular seminars, and ordinary curricular activities. The collective forum made it easier for students to become aware of the ways different choices of theoretical concepts and research methods were of significance for the knowledge produced, and thus helped students to comprehend questions of epistemology, scientific theory, and the politics of science, which some students otherwise considered abstract and hard to understand. Furthermore, the variety in the material, focal points, and positions represented in the

workshops led to collective reflection that added new perspectives and challenged all participants to reflect more deeply about their own empirical material. One student said:

> Sometimes questions have been raised, I guess, that are rather more difficult than usual, and in this way I think it all becomes more nuanced. We have discussed through some really difficult things—discussions have been kicked up a level relating to many things you would have taken for granted.

Students emphasized the importance of the researchers' "letting them in" to the engine room of research and feeling welcomed, acknowledged, and confident about being there. Trusting them with our field relationships was one dimension of being "let in." Another appreciated dimension was the opportunity for students to listen in on and contribute to the researchers' work in progress, and also to witness the collegial relations and discussions among researchers, whom they otherwise tend to meet one at a time. This reciprocal and dialogical space contrasts with the more familiar situation, where students and researchers meet in short-term encounters "as strangers, without knowledge of each other's research agendas, interests and orientations" (Mullen, 2000, p. 9). In the context of the continuous meetings and activities in our research project, researchers and students became intelligible as having certain interests and positions in the field—all of which could and should be critically analyzed. Several students thus came to reflect on their own (future) researcher positions and identities, which again parallels Earley's (2007, p. 4) findings. One student said: "It's been good to feel that here is a supervisor with a passion, that there's someone setting a direction. Then it's for me to decide whether I too want to go that way or if I'll move in different directions."

To summarize, the involvement in our research project added to the ordinary project work a more tangible sense of direction, making it easier for students to orientate and contribute in relation to empirical and theoretical aspects of research. Also, our research project added a broader forum of discussion partners and thus supported the development of broader perspectives and deeper analysis.

5. Ambiguous Roles of Researchers and Undergraduate Students

During the two semesters, the undergraduates and the researchers experienced dilemmas concerning the students' engagement in our research project. We will particularly point out dilemmas associated with the multiple and intertwined roles of researchers and students, which are crucial to reflect on in the context of research with undergraduates.

One primary concern has been the way in which the ambiguous roles of researcher-supervisor and assistant-undergraduate have influenced the ways students balanced their own interests with what they considered to be our interests or the interests of our research project. An example of this surfaced in relation to fieldwork. As researchers, we had some concerns about the ways students' presence might influence relations to people in the field, with whom we also work. As researchers, but certainly also as teachers and supervisors of research, we needed to ensure that students engaging in research fieldwork were adequately prepared for the tasks at hand, that they held the relevant knowledge and

methodological understandings and techniques needed (Earley, 2007, p. 4), and that the organization of student participation was carefully defined throughout the process (Winn, 1995, p. 212). This presupposes students' ability to act and improvise in fieldwork, which involves situations arising and developing when the supervisor is not present. One group, for instance, was rather insecure when confronted by a project participant about their use of quotes from an interview with her. After an email dialogue with the supervisor and a telephone conversation with the participant, it turned out that there was no real conflict arising. What should be noted here, however, is that the group in this situation faltered doubly: at the complexities of fieldwork and the immediacy of having to act and answer the participant, as well as the complexities of being part of a larger research context. A paragraph from an email from the group to the supervisor illustrates how students were feeling highly responsible for our research project, and therefore reliant on the supervisors' immediate support and opinion:

> We were really quite perplexed in this situation. But as you say, this is an experience as well, and actually it made us discuss exactly how one should relate to the ways our project will potentially be used—in this respect, this was not a waste of effort . . . we were also unsure if this could cause problems for the research project as a whole. It was great that you answered so quickly, so we could feel on firm ground.

While possibly producing additional insecurity for the students, the intertwined education and research arrangement also sparked reflections on the complexity of context, and thus produced experiential learning not easily accomplished in the classroom (Earley, 2002, p. 1).

Though students in general regarded the experiential learning as meaningful, several also stated quite clearly that it is necessary for students to know in detail what is expected of them as students and research assistants respectively, and conversely what they can expect from their supervisor as researcher and from the researcher as supervisor. Transparency and reflections concerning roles and mutual expectations are necessary to develop a general feeling of trust between researchers and undergraduates. This trust is in turn central for collective ethical and methodological reflections about the interests and relations shaping the production of knowledge; these reflections are crucial to this kind of participatory research. But the students' attempts to balance their own interests and those of the researchers also appeared in relation to issues of project focus. In spite of our continued attempts as researchers to announce and support students' freedom of choice with regard to focus, methods, and theory, the undergraduates found this difficult to carry into practice. One student explicitly said, "It's actually hard to stick to your own focus." Sometimes, what researchers experienced as discussing different equally legitimate analytical strategies were by some students interpreted as putting forward theories "which they say we should use." Although some students felt we were clear and intelligible sparring partners, others felt that we set up limitations to certain approaches to the research field. There is a fine balance between the two that is not easily found. On the one hand, students can feel unmoored if the researchers' positions seem too intangible. On the other hand, if students feel subordinate to the researchers' project, or feel like mere

"means to an end" in it, this would constitute a problem from a participatory research perspective as well as from an educational point of view.

The dilemmas of the double agency of researcher-supervisor and the tension between the collaborative, inclusive design on the one hand and institutional power relations on the other increased towards the end of each semester, when positions shifted relating to exams and assessment. In the workshops and through the semester, a space was created where the classroom was merged with a "discovery-orientated research workshop" built on participatory learning and research processes (Mullen, 2000, p. 19). One of our main concerns regarding the use of students as research assistants has been the shift from this collective space to the asymmetric nature of power in the fiduciary supervisor-student relationship. The differences between students and supervisors are articulated through the semester in terms of knowledge, skills, and attitudes, but take on a different character when supervisors have to evaluate and examine the students' work at the end of the semester. Despite our systematic efforts to de-center, uncover, and collectively reflect on these underlying power issues, it is impossible to make power disappear due to the institutional context of formal education, where "power is mediated by the element of trust that is intrinsic to the relationship and moral commitment of teachers to function in the best interests of their students" (Ferguson et al., 2004, p. 4). This fact unquestionably shapes the relationship between students and researchers as one of trust and power. When participating in research as assistants, students are thus at risk of feeling captive to the status difference in relation to their supervisors. One project group had this comment:

> On the one hand, the student-supervisor relationship is based on trust during the supervision period. The students are honest about challenges and problems in their research and seek sparring. On the other hand, the relationship is marked by power relations in the exam situation, where the examiner is supposed to assess the product of the students. This is a challenge to the students (as well as to the supervisor/examiner), and this challenge is not limited to this specific research project, but is a general condition for the project collaboration at Roskilde University.

This makes it very important, and difficult, to clarify the criteria for assessment in this form of education (Winn, 1995, p. 206). Therefore we argue that it is crucial to provide the time, space, and framework for explicitly and collectively addressing how students' work relates on the one hand to a research project and, on the other hand, to the students' educational context. In other words, how well does the students' participation in research integrate with standard educational practice at the university, and what different kinds of challenges and dilemmas could result from this integration (or lack thereof). For a group of students who were not present at the introductory workshop, and thus missed the initial reflections on these issues it meant that "only late in the process did we understand the double interests you (the researchers) have had. We were just a little confused sometimes as to what you wanted to 'use us for.'" Furthermore, it is important to raise these questions at different stages of the process—at the onset, while working, after exams, in connection with concluding the larger project, and so on—as there will be different issues

arising at different points of the process and consequently different answers to the question of "what it means to be involved in the research project."

6. Collaborating on Knowledge Production

Another challenge in this kind of research collaboration is the issue of data production and analysis. Dealing with the issue of secondary analysis, Gillies and Edwards (2005) wrote:

> The significance placed on context in facilitating qualitative understandings is often conveyed through reference to the intimate bond that the researcher inevitably develops with the data, particularly when they have designed the framework, immersed themselves in the field and drawn on personal grounded insights to make interpretations. (p. 1)

How do we then go about incorporating data and analyses produced by others—be they undergraduate students or other assistants—in our research analyses? How do we gain knowledge and in-depth understanding through their work? First, we have the students' written reports, including appendices with transcribed interviews, field notes, and so forth as a data set. Second, we closely and continually witness, listen to, and are in dialogue with the groups through the different phases of their subprojects, from research proposals to written reports. Hereby, we gain insight into the processes producing the particular data and analyses from each group. Third, we are all present in the collective analysis workshops, with the opportunity to ask questions, elaborate, situate, and reflect on our different contributions. Students have full intellectual property rights to their subproject reports. We credit students' contributions and authorship by referring to their reports in our publications whenever we build on their data or analyses. We share the understanding:

> that research is not something employed by solitary negotiators operating on their own. Educational researchers use language developed by others, live in specific contexts with particular ways of being and ways of thinking about thinking, have access to some knowledges and not others, and live and operate in a circumstance shaped by particular dominant ideological perspectives. (Kincheloe & Tobin, 2006, p. 7)

This theoretical conceptualization highlights the significance of multiple perspectives. It provides a focus on all participants in a research project, including researchers as well as students performing research, as situated subjects, with certain positions, norms, and agendas, and thus with "their own complicities in the social arena" under study (Neidel & Wulf-Andersen, 2013, p. 161). This points to the analysis of, and reflection on, complicities as an important and integral part of research practice and of learning processes. We argue that when issues of context and the consequences of different research designs and researcher or learner positions can be thoroughly addressed and reflected on, secondary analysis of data produced by undergraduates "has the potential to

generate crucial new perspectives to feed into wider sociological and theoretical debates" (Gillies & Edwards 2005, p. 12).

The implications of students' participation for our particular research project have been an enlarged capacity to produce more empirical data with a wider scope than we could have done ourselves within the time and budget limits of our research project. In addition, students' participation in the analysis has contributed new questions and perspectives for us to develop further.

7. Learning Research and Dealing With Dilemmas

It is an important aspect of university-based education to teach students to conduct research. Students need to acquire the ability and competencies to critically and creatively investigate problems in order to gain future employment as professionals. In this article, we have contributed an example of how university education and research can be organized in ways that facilitate processes where students can engage in and learn research by doing it. In the presented case, students became *research learners* through the investigation of specific, complex, unpredictable, and contextualized real-world problems. The undergraduate students' learning through researching both strengthens and is strengthened by the particular university educational context at Roskilde University.

We have shown that the students who were part of our research project gained research experience and competencies even before master's or doctoral study. This promoted active learning processes not easily accomplished in traditional classroom teaching. We have argued that this way of working holds the potential of adding observations and generating important new perspectives to our research project as well as to education, when students are "let in" and acknowledged as legitimate contributors.

A crucial conclusion of the article is that the ambiguous roles of the researcher-supervisor and assistant-undergraduate can produce dilemmas and challenges related to divergent interests in learning and researching. Ambiguity as an underlying factor is not easy to handle in intertwined supervision and research processes, as the researcher-supervisor must devote full attention to the students' learning processes and at the same time must ensure satisfactory relationships with field informants and research funders (or commissioning bodies), and ensure the quality of the research outcomes produced.

A potential threat to the collaboration between researchers and students may arise if the ambiguous relationship is not dealt with in an ethically and pedagogically sound manner. At the same time, confronting and dealing with the ambiguities and dilemmas of research can enhance learning potentials for students. Experiencing the demanding and ever-changing relations in the concrete practices of research propel learning processes, including how to analyze and deal with the dilemmas of researchers', assistants', and other participants' multiple roles and divergent interests.

The research project organization changes the formal teacher-student relationship into an experimental hybrid that promotes cooperation between researchers and research

assistants. This dissolves traditional boundaries between teaching and research, and transforms the working relation between teachers and students into a community of research, thus stressing the need for researchers to systematically reflect upon the ways this could also have negative effects on research and learning.

Therefore, researchers, supervisors, and universities wishing to work in this way in future projects need to organize learning environments as distinct spaces for critical reflection in order to frame these ambiguous roles. Learning environments must support explicit and collective discussion of the particular ways in which students' research participation and ordinary educational practice might influence each other in the given university context. Such discussion ought to consider the specific experience of students learning by doing research, researchers teaching by doing research, and the consequences for both teaching and research.

Acknowledgments

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