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Klarissa Lueg, Rainer Lueg

From Teacher-Centered Instruction to Peer Tutoring in the Heterogeneous International Classroom: A Danish Case of Instructional Change

This case study documents a seminar redesign from a teacher-centered instruction format to collaborative 'reciprocal peer tutoring' (RPT) at Aarhus University, Denmark. Departing from concepts by Bourdieu and Vertovec, we argue that teaching concepts should meet the needs of students within Higher Education (HE). Our student sample is diverse, international and multilinguistic, comprising different cultural expectations and knowledge standards. At the same time, the Danish HE tradition, with its low degree of formality and an affinity for collaborative learning, allows for non-traditional instruction styles to accommodate this heterogeneity. The object of our documentation is thus a seminar, before and after didactic restructuring, in a Danish setting.

We document both the in-classroom methods of instruction before and after the implementation of RPT and the methods and instruments used to monitor this change. To do so, we provide insight into student group reports, students' learning reports, a lesson timetable, seminar evaluations, focus group interviews, teacher-student communication and course descriptions.

Our study contributes on several levels: first, we provide course responsible lecturers with a detailed insight into how a seminar redesign to RPT may be achieved. Second, we provide a basis for introducing such change by documenting the positive assessment as an outcome of the monitoring. We thereby address diversity and in-classroom heterogeneity on a didactic level.

Keywords:
Reciprocal Peer Tutoring; Bourdieu; course design; Denmark; seminar redesign, instruction; case study, heterogeneity, diversity, internationalization, Higher Education management

List of abbreviations:

AAU	Aalborg University
AU	Aarhus University
CEO	Chief Executive Officer
DUT	Dansk Universitetspædagogisk Tidsskrift
EMI	English as medium of instruction
FoMAR	Foundations of Management Accounting Research
HE	Higher Education
RPT	Reciprocal peer tutoring

1 Introduction

1.1 Motivation of this paper

Non-traditional and learner-oriented didactic concepts in HE have been subjects of a number of publications, research projects and debates across disciplines (Braxton et al. 2000; Grammes 2009). As a practical contribution to this debate, this paper describes how to turn a teacher-led seminar into reciprocal peer tutoring (RPT). The expressed need for a new teaching-learning paradigm partly originated from educational expansion, which led to heterogeneity among students due to their social backgrounds and related learning preferences (Bank et al. 2011; Isserstedt et al. 2010; Lueg 2011; Trow 2000). The learner orientation emphasizes pedagogical and didactic concerns and has suggested a variety of new methods of instruction. Whereas the learner orientation originally focused on schools (Drinck 2011), it has also given thought-provoking impulses for learning effectiveness in HE. Contemporary student bodies are less pre-adapted to unidirectional teaching styles (Altbach et al. 2009). Group work approaches have proven to be fruitful in leveling the playing field for new student groups (Schoenecker et al. 1997).

A further need to reconsider traditional teaching concepts and policies is rooted in HE-internationalization (Britez et al. 2010; Lauring et al. 2010; Lueg et al. 2014; Petersen et al. 2012; Rami M. Ayoubi et al. 2007; Shaw et al. 2009; Tange 2010): exchange students, single subject students, or incoming full-program students are now represented in many classrooms. First, this implies that today's teaching concepts cannot address an idealized 'standard student' (for a discussion of 'normality' s. Bank et al. 2011) with one homogenous mother tongue and domestic language (Alexander 2008; Coleman 2006; Costa et al. 2012; Wächter et al. 2008). Second, HE

Klarissa Lueg is an Assistant Professor of Knowledge Communication. She is employed at the Department of Business Communication at Aarhus University, Denmark. *Jens Chr. Skous Vej 4, building 1483, room 546, 8000 Aarhus C*
http://pure.au.dk/portal/en/lueg@asb.dk
Email: lueg@bcom.au.dk
Rainer Lueg is an Associate Professor of Management Accounting and Control. He is employed at the Department of Economics and Business, Aarhus University, Denmark. *Fuglesangs Allé 4, building 2632, room 215, 8210 Aarhus V,*
Email: rlueg@econ.au.dk

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teachers face multiple—even opposing—cultural understandings of quality learning. Third, students differ in their acknowledgement of "knowledge" as well as in their traditions of forming and expressing opinions (Wadsholt 2013). Fourth, they might reflect the social (and gendered) selection mechanisms of their domestic cultures (Morris 2013).

On several layers, students are thus unequally distant from the educational and didactic policies of HE institutions (Bourdieu et al. 1977). However, studies accounting for this heterogeneity in the field of HE didactics remain scarce, especially with regard to the mass degree programs of economics and business (Bank et al. 2011; Birke et al. 2011). New learning styles responding to sociocultural heterogeneity, such as problem-based learning (Allen et al. 2011; Singaram et al. 2011) appear to be most highly represented in medical education (Das Carlo et al. 2003) and engineering (Quinn et al. 2008). However, educational sciences and teacher-training seminars that integrate student research projects into seminar structures are also quite established (Fichten 2010; Roters et al. 2009; Schneider et al. 2004). Equally, such theory-practice-traditions may be found in social work studies (Müller 2009). Student training research projects are especially popular at German universities and are found across faculties, including the social sciences (Huber et al. 2009). This national tradition, which differs from the approach at Danish universities, may be explained by the claim that "research-oriented learning is part of academic studies" (Huber 2004: 31, translated from the original German, K.L./R.L) and more a leitmotiv of education than a question of didactics (Wildt 2002). Such research-integrating concepts are applicable for a case study approach to business and the social sciences as well (McMay et al. 2013). However, in such settings of business education, where a fundamental understanding of scientific theory is the learning outcome, the concept of RPT is most suitable. RPT is supervised and framed by the lecturer but leaves the choice of learning style to each small group of students. We argue that RPT is well suited to engaging a multi-diverse student body in a business and social science context. Documentation on its application and how it can be systematically implemented is scarce. Useful guidelines on how to implement research-oriented teaching exist (Arens et al. 2006; Bolland 2001) but do not focus on RPT. The aim of this article is thus both to document the successful remodeling of a large MSc seminar from teacher-centered instruction to RPT and to guide through the reproduction of such a change process. Our change implementation was constructed as a quasi-experiment over two years. We employed several teaching methods and instruments to monitor the didactic change process. We thereby provide a) a guideline for further implementation. Because a change process from traditional teaching to RPT is time-consuming and lecturers in Denmark and other countries are bound to a certain "teaching budget," we also wish to provide b) initial arguments for HE administrators, course responsibles, and lecturers to introduce and master RPT.

1.2 Choice of the Danish setting

We document the remodeling of the didactic structure of a seminar into the form of RPT in a Master's program in Management Accounting & Control at Aarhus University, Denmark. To our knowledge, the described seminar is the only one in this program offering a consequent RPT structure. The Danish context is an ideal setting for such didactic transformation, as social student diversity is high: HE degrees are widespread, and the government promotes further increases (Danish Ministry of Science, Technology and Innovation 2012). Consequently, the socio-cultural background of the student body at the eight Danish universities is quite diverse and will be even more so in the future. In addition, linguistic and cultural diversity at Danish universities is increasing, as their high international ranking positions attract international students (Williams et al. 2012). Correspondingly, Aarhus University lists the internationalization of education, the support of incoming and outgoing student mobility, and the internationalization of research as core activities in its "Internationalisation strategy" (AU 2012). Danish universities offer a total of 145 English-language Master's programs as well as 60 Bachelor's programs (The Danish Agency for Universities and Internationalisation 2012). This evolution is didactically accompanied by, e.g., educational programs for teaching staff with classes on "Teaching in English in the Multicultural Classroom" (CUL 2013b). In this way, the Danish University setting reflects the interwoven dimensions of linguistic, cultural and social heterogeneity. Learner-oriented didactics–especially in problem-based learning and project-group learning–have a strong tradition in Denmark (Fink 1999; Jenkins et al. 2003; Kolmos et al. 2004) and have developed into a "Danish model of project work" (Kolmos 1996). Pioneering work has been conducted by the University of Aalborg which has brought the Aalborg problem-based learning model to life (Kolmos et al. 2004) and declares it an integrative part of its educational policy (AAU 2011, 2013). A large body of literature is available on the benefits of several forms of both cooperative learning (Fibiger 2005; Herrmann 2013). Most relevant for the documentation is the clearly observable recent shift of research to the discussion of peer and project learning for a changing and rapidly increasingly multicultural (super-diverse) student body (Lauridsen et al. 2012; Lauridsen et al. 2013a). On the one hand, peer learning, flat hierarchies and "the axiomatic assumption of Danish cultural homogeneity" (Jenkins 2012, 100) are constants in the traditionally constructed Danishness. On the other hand, and seemingly paradoxically, a rapid internationalization and thereby the intake of more heterogeneous student groups and the tendency to offer full English as a medium of instruction programs may be regarded as being specifically "Danish" in the European

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HE landscape as well (for an overview of EMI programs and their relevance s. Lueg et al. 2014). Recent government attempts to emphasize project and group orientation at Danish universities (The Danish Agency for Universities and Internationalisation 2012) in order to attract incoming students serve as an example of educational nation branding, such as the website studyindenmark.dk (The Danish Agency for Universities and Internationalisation 2012). The website quotes students on what they perceive to be special about the Danish system. Most quotes selected from international students have a focus on the flat hierarchies, peer and group and project learning, and more network-oriented than teacher-oriented learning. Therefore, these characteristics belong to the self-perception of distinctive 'Danishness' in the HE landscape. 'National' lesson study in Denmark in general is strong. Several Danish language publications on education deal with the 'how' of applying specific didactics. Examples are the recent edition "Good teaching and supervison – how?" by Dansk Universitetspædagogisk Tidsskrift (DUT 2013) and documentations of educational experiments in Denmark (Dupont 2012). This focus is also emphasized by the mandatory pedagogical education for research staff with teaching obligations from the PhD level and up. Before applying for tenure, every junior staff member must complete an educational program for Assistant Professors (150 work hours) that combines professional on-the-job training with insights into recent theory (Krogh 2006). Furthermore, programs on university pedagogy are (some of them mandatory) offered to senior staff (CUL 2013a; AAU Learning Lab 2013). Classes such as the previously mentioned "Teaching English in the multicultural classroom" appear to meet the recent discussion on problems emerging from student-lecturer mismatches and different sociocultural expectations and backgrounds (Szukala 2012). However, we could not identify a documentation of the implementation of a new learning form in an already existing seminar. Therefore, our documentation closes a research gap and is largely directly relevant for HE lecturers by providing a model of changing traditional large classroom lectures to RPT. Meanwhile, we provide managerial arguments for this change such as a more efficient use of staff resources.

The remainder of this paper is organized as follows: Section 2 discusses the theoretical backgrounds of this study. Section 3 explains our methodology. Section 4 explicates the sites of change in our remodeling experiment, and section 5 documents the monitoring process in a step-by-step fashion. We close with a final discussion paying attention to the limitations of our experiment, its documentation and its applicability to different HE settings.

2 Theoretical background

In the following, we will briefly outline the theoretical motivation for the application of RPT before outlining the characteristics of RPT itself. Because the focus of this paper is on documenting the switch to RPT, we will abstain from elaborating on a theory-guided protocol of our quasi experiment. This treatment is intended to provide a first insight into overarching theoretical concepts that motivate changes in HE instruction as well as into the relevance and context of RPT.

2.1 Diversity

The theories we refer to are provided by Pierre Bourdieu's observations on social origin and HE (Bourdieu et al. 1977) as well as Steven Vertovec's concept of "super-diversity" (Vertovec 2007). The discussion of didactic challenges and changes partly stems from research on social inequality in HE due to different "doxical" correspondence between habitus and HE institutions (Bourdieu et al. 1977). However, although research on social inequality in access to HE is quite common (Boliver 2011; Hillmert et al. 2003; Reimer et al. 2011), attempts to convert research results and theoretical insights on capital asymmetries into concrete teaching practices remain scarce (for a discussion s. Lueg 2011). In short, Bourdieu's work demonstrates that HE institutions have a recruiting bias in favor of the established social strata and, for that matter, reproduce unequal social chances (Bourdieu et al. 1977, 200). In this way, he sheds light on the different cultural distances to educational institutions and resulting difficulties for heterogeneous student bodies to follow and comprehend teaching content (Bourdieu 1997, 47; Bourdieu et al. 1977; Bourdieu et al. 1994). Class-specific success and failure are predicated on Bourdieu's (1997, 46) general definitions of capital. Three types of capital—economic, cultural and social—constitute distinctions between students: economic capital comprises physical assets that may be converted into cash. Social capital includes the possession of a network or a social group membership. Cultural capital is classified into three forms. The embodied form is acquired within the family, covers competences and knowledge and is—given a doxical accordance—perceived and awarded as "legitimate competence" in HE (Bourdieu 1977, 49). Two more forms are objectified cultural capital (i.e., books, instruments), and the institutionalized form (i.e., documents or credentials from authorized institutions) (Bourdieu 1997, 47). The different endowment of different social strata with legitimate capital is reflected by the habitus, a "sense of one's place" (Bourdieu 1984, 471) that determines whether an agent feels comfortable with rules and practices within HE. Heterogeneity in habitus and the didactic failure to account for it may lead to drop-out and self-exclusion (Bourdieu et al. 1977, 42 and 154). These findings are supported by the insights of Raymond Boudon, who has equally criticized the French system of HE as stratified and "elitist" (Boudon 1977, 115) However, it is important to note that a simple quantitative increase of HE enrollments and graduations to 60% of each year, as the

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Danish government suggests and pursues in its recent HE strategy (Ministeriet for Forskning 2013), might not automatically lead to equality of chance. The aggregation paradox that Boudon uncovered in the early 70s (Boudon 1973) notes that the social expansion of HE may only lead to status devaluation of the previous distinctive HE certificates and programs. Given this paradox, which resembles Bourdieu's later description of distinction and field fights, we advocate that the mindful management of HE expansion at the micro-level of didactics might at least counteract further student segregation and stratification. Therefore, both a Bourdieusian and a Boudonian perspective motivates searching for teaching forms that correspond with agents from a variety of social milieus.

Departing originally from a cultural perspective, Steven Vertovec uses the notion of "Super-diversity" (Vertovec 2007, 1024) to explain social complexity and to develop a multi-dimensional perspective to sociocultural diversity. His perspective may help not only to understand the diverse needs of agents from different social backgrounds but also to comprehend patterns of diversity with regards to "small and scattered, multiple-origin, transnationally connected, socio-economically differentiated and legally stratified immigrants" (Vertovec 2007, 1024) with "discrete gender and age profiles" (Vertovec 2007, 1025). This multi-level approach to diversity has been observed by Umut Erel in the case of three female immigrants with varying in-group statuses, different prerequisites of social and cultural capital (Erel 2010). Experiences of non-domestic agents or groups may, due to internal stratification and diversification, not be categorically considered homogeneous (Ferreira et al. 2012). Research into the cultural aspects of migration and stratification has noted that migration groups must not simply be subordinated under prevailing stratification models and that sociocultural and sociostructural dimensions must be analytically distinguished (for the German instead of the British society s. Geißler 1992; Geißler 2004: 288). Discussing the policy implications of this concept, Vertovec suggests—not drawing on HE situations or even didactics in particular—to enforce regular contact between different agents to foster mutual understanding. However, he notes that the simple concept of "contact" may "entrench group animosities, fears and competition." (Vertovec 2007, 1045). This phenomenon implies that in the field of HE instruction, simply assembling students for group work not only is too superficial but also may be counterproductive. In his concept and discussion, we find value for the development of a learner-oriented and diversity-sensitive classroom approach. Although we admit that complex concepts such as sociocultural heritage and super-diversity are difficult to account for in classroom situations, we see the concept of RPT as an appropriate didactic answer to the theories introduced (De Backer et al. 2012; Falchikov 2001; Fantuzzo et al. 1989; King 1997; Roscoe et al. 2008; Topping 2005). As noted earlier, instead we will not systematically apply categories from the guiding theories to test the appropriateness of RPT but instead focus on documenting how we implemented the change.

2.2 Reciprocal Peer Tutoring

RPT means collaborative, small-group learning in which students take turns in assuming the roles of tutors and tutees. In this way, they replace the teacher as the main source of information during the seminar (King 1997). Tutors use scaffolds (instructions and abstract templates) from the teacher to prepare their content before class (De Backer et al. 2012; Falchikov 2001; Roscoe et al. 2008; Topping 2005). After the students' tasks and the classes' goals have been explained, tutees discuss the presented content following a suggested question-and-answering process (King 1997). The teacher closely guides this process among tutors and tutees by providing guiding questions for the presentation and the discussion beforehand, which ensures that the most important aspects of the content are covered. Following Vertovec's and Bourdieu's logic, agents differ in their preferred learning styles, e.g., the degrees of verbalizing problems and explanations, practical trial and error applications, and learning times and surroundings (Riding et al. 1998; Sadler-Smith et al. 1999). Accounting for these student characteristics in traditional teaching situations would mean an impossible hurdle for the lecturer. Project and group orientation thereby triggers "we-hood" by "virtue of a shared task" (Eriksen 1995, 427) and not only by enforced contact as described by Vertovec (see earlier). It is thus carefully handing down learning-responsibility to the student body. This group cohesion (Eriksen 1995, 427) is one of the strong reasons for favoring group work over traditional unidirectional teaching whenever possible: Shared tasks and values will lead to a stronger feeling of responsibility to provide a contribution and live up to group expectations, which fosters higher learning performance (Johnson et al. 2007; Roseth et al. 2008; Schwartz 1995; Slavin 1983; Springer et al. 1999). The several diverse levels of prior knowledge may be addressed and aligned in peer discussion and may further contribute to the course contents (King 1997; Reder 1980; Riese et al. 2011). Problems with English as a medium of instruction (EMI) may be addressed by mutual interpretation help. RPT provides a broader variety of roles and thereby learning opportunities for the students: the tutees will develop their learning skills by asking questions and contrasting their own reading experiences (Anderson et al. 2001; Graesser et al. 1994; Ismail et al. 2005; Palinscar et al. 1984; Webb et al. 2003). In RPT, knowledge is not a stable construct. It is meant to be changed over the duration of the entire class through the reconsideration of previous concepts as new literature sources and tasks arise (Cohen et al. 1982; King 1998; Rohrbeck et al. 2003). RPT is thus especially recommended for larger classes, where groups

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have time for this socio-behavioral and cognitive development.

3 Methodology

3.1 Context of the given case study

The focus of this article is how our RPT implementation may serve as a modifiable blueprint for similar settings. Our research site is a seminar offered at the Department of Economics and Business at Aarhus University, Denmark. The seminar Business Models is taught in English and mandatory for all students enrolled in the Master of Science in Management Accounting & Control. The student group is balanced in terms of sex (43% females in 2011; 44% females in 2012) and age (26.0 years with 4.0-year standard deviation in 2011; 26.2 years with 3.8-year standard deviation in 2012). The student group is internationally diverse with an intake of exchange students, single-subject students or incoming full program students (17% were not Danish in 2011; 31% were not Danish in 2012). Documenting a seminar redesign from 2010/2011 to 2011/2012, we illustrate which concepts we implemented and how the change was perceived by students and faculty.

The seminar is an instructional extension and a knowledge application of the prerequisite course Foundations of Management Accounting Research (FoMAR), which focuses on the philosophy of science. The course description of FoMAR lists the main topics of the course as follows:

- Construction of valid arguments
- Science and scientific knowledge
- Three categories of managements accounting research: mainstream, interpretive, and critical (Ontology, epistemology, and methodology)
- Subjective versus objective approaches to social science
- Evaluation criteria when conducting research
- Planning of research activities and design

Together, the two courses are supposed to prepare the students for their MSc thesis. Specifically, they should gain the capability to apply theory of science and to motivate and reflect its relevance for a field project centered on the notion of business models. On the basis of FoMAR, students should demonstrate their ability to put their research skills to use. The assignment in Business Models consists of a self-conducted case study. The conceptual and theoretical parts of this case study are supposed to be inspired by the in-classroom group work. Finally, students must defend their findings in an oral exam with two examiners (one faculty member, one external practitioner).

3.2 Data collection and documentation

We collected the data between April 2011 and July 2012 for the two academic years of 2010/2011 (2011) and 2011/2012 (2012). We used the sources listed below. For legal reasons, privacy protection, and further research purposes, it is not possible to expose all documents. However, we provide excerpts or anonymous quotes whenever possible. In the following sections, we will refer to a number of documents we believe to be useful in reproducing the structural change. We refer to two course descriptions (the one for the initial course and the altered one in 2012) and elaborate on the changes made (4.4). We also provide insight into the course's status quo in 2011 by providing selected and anonymous excerpts from the final research reports (4.1). To document the concrete in-class method of instruction during the RPT process, we show the full text of the lecturer's written instructions to the students (4.3) and depict two posters resulting from the students' group work as showcases (Figure 1and Figure 2). To document the concept as realistically as possible, we also show a timetable of the first 135-minute class (Figure 3) For monitoring purposes, we select answers provided by two student focus groups. Focus Group 1 was surveyed with an online questionnaire (Table 1), and Focus Group 2 volunteered for face-to-face interviews (5.2). Furthermore, we present how students self-reported on their research progress by displaying an exemplary one-page project manager (Figure 4). Finally, we draw on standardized student seminar evaluations (Table 2) as well as the components we consider useful in the feedback by coworkers (5.4) and external censors (5.5).

4 Redesigning a seminar from teacher-centered instruction to Reciprocal Peer Tutoring

4.1 The traditional teaching: observations that led to change

Despite the introducing seminar FoMAR, some students revealed a lack of understanding of scientific notions such as 'model' or 'theory'. They also failed to put definitions and approaches into perspective. Instead, they tended to use—unknowingly—somewhat positivistic approaches and a superficial, practice-oriented rhetoric, which appeared to be deduced from text books or non-academic websites. On top, problems with academic English hindered comprehensibility:

> "This report unique and valuable in that it integrates the resource based view theory of the firm with the elements of a small consulting firm's business model, to analyze the importance of their linkage, in ensuring that small consulting firm's business models are not affected by changing market conditions."
>
> [student group report, 2011]

> "The type of research used in this project is an interpretive perspective, which assumes that facts need to be put into a social context (Ryan, Scapens, Theobold, 2002). This means that the human actions in [company, the authors] are very important as they influence changes in the social context."
>
> [student group report, 2011]

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In the final oral examinations, we detected broad knowledge asymmetries: some students were barely able to summarize their own report. Other course participants—mostly those who were observed to be active in class discussions—showed the ability to substantially exceed the level of analysis. The latter observation corroborated our assumption that students who are culturally pre-adapted to academic traditions and academic language also have an advantage in the exams (Baudelot 1994; Bourdieu et al. 1994). Such a variance of understanding could not be tolerated in a group that had the same education beforehand. We further observed that there was almost no exchange between international students and Danes, mainly due to restraint from the domestic students. When group work was occasionally assigned, Danish was chosen as the medium of communication, thereby excluding the internationals and hindering knowledge mediation. This classroom problem has gained much attention in academic staff discussions and has recently led to first publications and research projects on this particular topic (Lauridsen et al. 2013b). Given the high level of English proficiency in Denmark (Commission 2006) and the strongly enforced HE internationalization process (Carsten Nielsen 2011), the reluctance to mingle with internationals and to actually speak the language appears to represent a puzzle. The difficulty of initiating group work might be explained, again, by drawing on Jenkin's idea of the constructed homogeneity in being Danish (Jenkins 2012) and a strong perception of national belonging that draws a cultural line between course participants. This issue did not arise in the initial student evaluations of the 2011 seminar but was observed in the following year by students in Focus Group 2 (2012):

> "Exchange students in the group are very positive. They force the rest of the group to speak English, which makes it easier to discuss English articles."
>
> "Also, it was good to meet exchange students because they generally approach discussions differently that Danes. Other courses account for these issues too little."

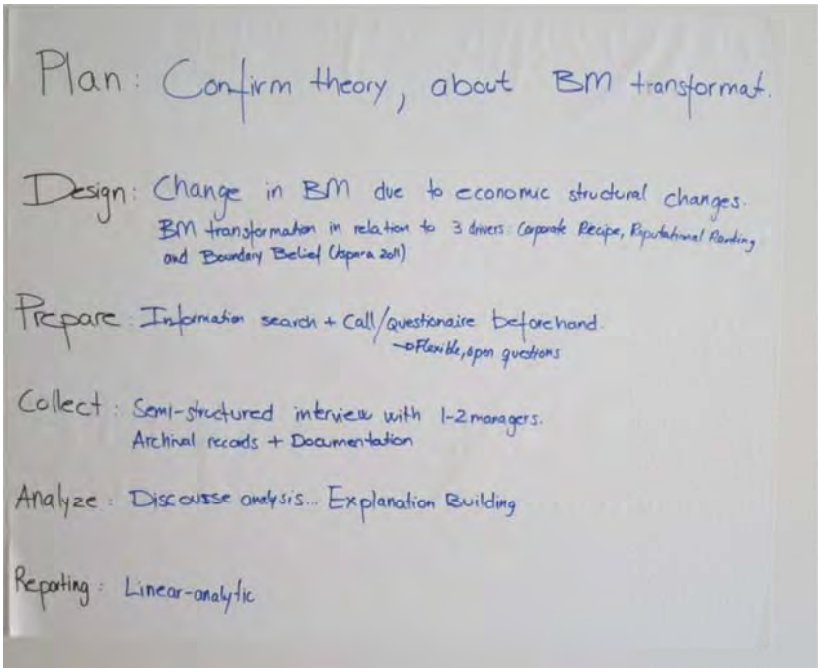
We addressed the two challenges of lack of scientific/academic standards and student fragmentation into either homogeneous groups or groups with language-fostered knowledge asymmetries by fundamentally redesigning the seminar (also see e.g., Flannery et al. 2010; Ross et al. 2011). We document the changes in the following.

4.2 Redesigning the learning form: group work and peer tutoring

We transformed four of the five teacher-led classes (135 minutes each) into RPT to expose students to a debating situation to foster discussion of social scientific approaches and theory schools, and to set incentives for the to prepare texts before class.

In every class, and throughout the seminar in total, every group was asked to work on the same articles. We assigned one member per group to one (set of) article(s); this 'expert' had a designated amount of time to tutor peers on the content of these articles. We provided every one of these expert tutors with a scaffold of guiding questions to be answered because guided RPT consistently shows learning outcomes to be superior to unguided RPT (Cho et al., 2011; Cohen, 1994; King, 1997; Slavin, 1986; Winters et al., 2011, p. 407; Yew et al., 2012). This treatment ensured fairly similar coverage of the topic among all groups. The lecturer gave only a short introduction and connected the class contents and references to the final report and oral exam. The lecturer visited the groups and intervened only to clarify questions posed to him and to ensure that the time schedule of each expert's discussion was adhered to. Students were required to synthesize their discussions and present a result-oriented learning report 25 minutes before the end of each class.

This class-specific learning report took the form of a large poster that had to be placed on the wall. One group member remained with the poster, whereas the others visited the other groups and discussed the differences of their results. In this way, we enabled communication, avoided fragmentation and ensured knowledge diffusion across groups. The requirements for the poster were to capture in a few points or representations what the students had done, and, second, to foster follow-up communication. Two exemplary posters (learning reports) are depicted in and figure 1 (below) and 2 (next page):



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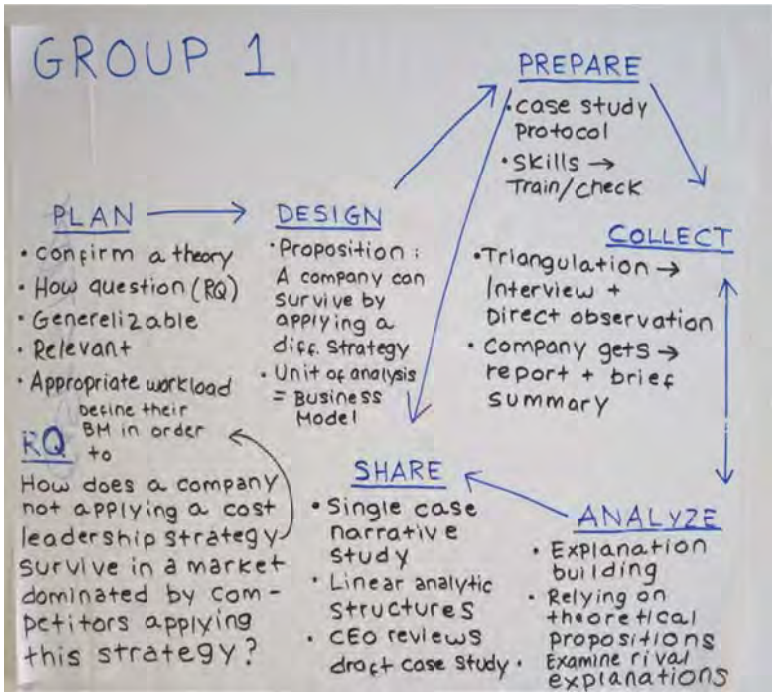

The two displayed learning reports stem from a class that conveyed how to design an academic case study in six steps according to Yin (2009). Both of the displayed learning reports demonstrate that the student groups achieved an understanding of how they intend to design their case studies with their partner companies. The reports also reached a level of abstraction from the Yin book that allowed them to pose their own research questions. In this way, both groups of students are also able to verbalize that their case studies are not critical or exploratory but illustrative and confirmatory. In addition, they are able to differentiate between rather similar concepts, i.e., strategy and business models. Therefore, both learning reports would reflect a more than satisfactory achievement for a 135-minute class. However, we are able to observe how the second group (Figure 2) has advanced far beyond this, through intensive group discussions of the RPT: the arrows indicate that the group began to build a time schedule of how and when the case studies needed to be conducted. In addition, they discussed how they wish to cooperate with each other ("Appropriate workload") and with their partner company ("Company gets -> report + brief summary"; "CEO reviews draft + case study") as well as the division of labor, and skills to acquire, e.g., for the interviews ("Skills -> Train/check"). Departing from the experience with the previous seminar, we conclude that these outcomes exceed the outcomes of the teacher-centered classes.

4.3 An example lesson

As an example of the first class, we provided each group member with different articles that contained different—and partly opposing—conceptualizations of 'business models' (for the task description, see lecturer's mail to students below). The objective was to make them work their way towards definitions instead of simply giving them a textbook. Furthermore, students should learn to systematically challenge 'facts' in peer discussions and to find inter-subjective negotiated solutions. Students were required to take turns being tutors on some articles while being tutored by their peers on other articles. The students were informed about the instruction details in good time before the seminar and once again only a few days before with this message (excerpt):

"Due to my experience from 1 year ago, I will do very little 'ex-cathedra teaching' that you are probably quite accustomed to. Instead, we will do 'reciprocal peer tutoring'. For this, you have already been assigned to a group (1-16), in which you will be the "expert" on a certain topic (A-D). As an expert, you are expected to have read the articles and book chapters that I have assigned to you via [University's online tool, the authors]. During class, your group will discuss a topic from the perspectives A-D, and every member of the group has to contribute their knowledge and is thereby responsible for about 20 minutes of the content of the lecture. I want to help you to use your time as effectively as possible. Ideally, your output of every lecture should be the basis for a chapter in your final report."

[lecturer's mail to students, 2012]

The first class's task was to determine the most suitable definition of a business model for their specific case. First, this task demanded a substantial amount of reflection because the conflicting conceptualizations could only be satisfactorily resolved by analyzing the definitions' ontologies (Ozdemir 2013). Second, we intentionally chose a business model definition stemming from the academic press (e.g., *Journal of Management*) vs. the popular business press (e.g., *Harvard Business Review*) or one that was written from the perspective of business administration vs. engineering. In this way, and by providing conflicting definitions, we deliberately created disagreement in the approaches to the case studies. As described by Sharon and Erickson (2010), conflicting definitions and potential ways to managed the given case lead the students to engage in discussion and to refer to previous class contents, resulting in a more coherent theoretical understanding.

"In our first session, we will try to synthesize what a 'business model' is. The outcome of this class will be that you have a preliminary definition for your case study that builds on the opinion-leading literature in this field. After a short introduction from me, you will split up into your groups. Then, you will take turns, and every expert discusses for 20 minutes with the others

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how her/his articles define business models. You will have to synthesize these findings and come up with your theory-based, preliminary definition of a business model. You have to be able to transfer this theoretical knowledge by defining what the business model of [company, the authors] is (in one sentence). You will then put your findings on a poster and discuss them 1:1 with members of other groups. Then the lecture is closed."

[lecturer's mail to students, 2012]

Figure 3 (see table below) gives an overview of the time schedule of this first 135-minute class.

In the aftermath of these sessions, one student from Focus Group 1 notes, "My discussion skills have been strengthened a bit" (Mine evne at diskutere er blevet forstærket en smule, translated by the authors). We succeeded in engaging all students also through establishing EMI, as responsibilities were evenly distributed and mutual discussion and understanding were crucial for knowledge development. Therefore, passive free riding or language-related power games were limited. This treatment is beneficial not only for the international students but also for the improvement of general English capabilities, the use of academic English and the application of English terminology specific to business studies. One of the Danish respondents in Focus Group 1 notes that "you will improve your English when participating in the class". Further comments show that both profound discussants and students who like to reassure themselves and would perhaps hesitate to engage in a discussion with a teacher stand to benefit from this situation:

"I think my discussion skills improved somewhat, as I am usually very stubborn, when I have an opinion."

"A face-to-face conversation with other colleagues gives the opportunity to ask more informal questions and dig deeper into certain issues. Gained new perspectives."

"In normal classes it is primarily the teacher how [sic] does the talking - but in this way you activate the students! That is great."

"Usually there is virtually no space for discussion when teacher-led style is applied. Very much enjoyed it, as it was one of my expectations of studying at a business school."

4.4 Redesigning the course description

When the course Business Models was restructured from rather traditional classroom teaching to RPT, the course description had to be changed for both accreditation and student information purposes. We compare both documents in full in Appendix 2 and discuss their main differences in the following.

The main change—captured by the course descriptions (cf. Appendix 2)—was first to shift the focus from what the lecturer *taught* in the traditional class to the skills the students were intended to acquire (*learn*) during RPT. The new course description reflects this by addressing the students' qualifications rather than describing concepts and organizations in the field. In addition, our "*main* topics" covered are now substantially shorter, whereas the description of our "*qualifications and competences*" have significantly increased. Additionally, the new course description promises several qualifications that are based not on explicit knowledge but on incorporated skills, such as *project management* or better self-management ("*independently identify*"). Examples of this shift are in bold (Appendix 2). Second, by shifting the focus from formulations about definition-oriented learning to positioning the class as to its importance for the scientific and academic writing development process ("business models" were now referred to as a "*leitmotif*"), the course made way for a more discursive didactic format. It was stressed that the "*course is a practical application of the pre-requisite*

Time	Topic
16:15 - 16:25	Introduction
16:25 - 16:35	Go to your group tables Introduce yourself to the other group members Elect a group leader if not yet done
16:35 - 16:55	**Expert A explains** the articles assigned to her/him to the other group members along the two proposed questions **(the others take notes):** - How do the authors define "business models"? Which concepts from business or economics do they resemble? Discuss especially the difference to a strategy! - What does the concept of these specific authors not include? How does it differ from the definitions of the other articles?
16:55 - 17:15	Expert B
17:15 - 17:25	Break
17:25 - 17:45	Expert C
17:45 - 18:05	Expert D
18:05 - 18:20	Break
18:20 - 18:40	Based on the notes you just took, come up with the preliminary **definition** of a business model that could be used in a report. The definition should be formulated as if you wrote an academic paper and should have less than **300 words** including citations (Author, Date). **Write it on your poster.**
18:40 - 18:45	Given your definition,explain the business model of ***[comapny name]*** in one sentence. **Write it on your poster.**
18:45 - 19:00	Put your poster on the wall and leave one group memeber there. Go to the other groups' posters and discuss how their definitions differ from yours.
19:00	End

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course FoMAR *(or any other course on research methods)."* One of the main topics of the class is described as "*The role of theory for understanding business models: moving from 'describing' to 'reflecting'*" (course description 2012, see Appendix 2). A direct comparison of the dominant wording of the two course descriptions reveals the multi-structural and relational progress after the implemented change. The original version of the course description contained mainly static verbs such as *provide, following, describe, understand, be clear, obtain or outline* in relation to the concepts. In contrast, the new course description demands *extended abstraction* from students, i.e., to transfer incorporated skills and knowledge to new, unfamiliar situations. Newly added active words include *reflect, extend, synthesize, hypothesize* or *critically reflect on the ontological and epistemological assumptions of the concepts*.

Third, the constructive alignment between learning with RPT and the exam has been strengthened. The old course description focused very much on the actions of "*organizations*" in the field as well as "*tools*" to analyze Business Models. The new course description uses the discussions in RPT to concentrate students' efforts on the skills and qualifications required in the oral exam. Most importantly, these skills would include the ability to discuss with the examiners the interplay of theory and practice. As described in the assessment criteria in the course description (see. Appendix 2), this ability includes providing a solution to constructive controversy with the examiners through critical reflection. In this way, students train these required discussion and presentation skills in every class instead of listening to a lecture.

Fourth, we now emphasize that this course is an extension of the course FoMAR from the previous semester in order to emphasize the theory of science foundation.

4.5 Peer control on readings, attendance and progress

The format change to RPT automatically implements a social control that forces all group members to prepare. In contrast to other European HE policies, most seminars in a Danish setting do not have compulsory attendance. Lecturers are not allowed to change that policy independently. Therefore, students may avoid the seminar if they did not prepare their readings. The RPT-restructure in 2012 generated a new form of social control for students to read the assigned material (Topping 2005): in case students did not prepare their respective parts, groups were not able to obtain the necessary information during the class in due time, and the members had to take on extra work at home. In this way, we implemented quasi-mandatory attendance and reading. This strategy was found to be fruitful. The comments from Focus Group 1 show that

> students prepared: "*much better, since others were dependent on me knowing my part"* (Meget bedre, da andre var afhængige af, at jeg kunne mit stof", translated by the authors).
>
> "[…] the students feel guilty if they aren't prepared and therefore the student is making a bigger effort to understand the theory."
>
> "[…] you are responsible for the learning of the whole group instead of only concerning your own learning."
>
> "You are forced to contribute a lot more instead of the one-way teacher-led way. Otherwise no one will learn anything."

Furthermore, we implemented a process control by asking group leaders to hand in monthly reports on their progress in form of a "*one-page project manager*" (Campbell et al. 2013). These reports were discussed during regular monthly meetings with the lecturer. The format of the progress report was predetermined in form of an Excel spreadsheet to enhance comparability. Because the lecturer had to supervise between 15 and 20 groups, these reports helped to identify groups that were running into trouble. An example report is depicted in figure 4 (next page).

The core idea of the progress report is to visualize the tasks of the group members both to the group and to the lecturer. After filling out the personal and project information, students are required to list the tasks they must master before submitting their report ("*Major tasks*"). It was of the utmost importance that these tasks related to 'end products' and not to processes. In the given example, we see that step has been followed fairly well. Task 1 is stated as being "*Finding a [partner] company [for the case study report]*", which is better than describing the pure process (e.g., scanning or looking for a company).

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Group 6 — **Project Leader: *student name*** (EMAILADDRESS@asb.dk) — **Project: How does [company name] show that they earn money continuesly with respect to stakeholders**

Project Objective: Report for exam — Date: 1-May-12

Objectives				Major Tasks (inc. end-products)	Project completed by: week 7	week 8	week 9	week 10	week 11	week 12	week 13	week 14	week 15	week 16	week 17	week 18	week 19	week 20	week 21	week 22	Owner / priority [student 1]	[student 2]	[student 3]	[student 4]	[student 5]
			1	Finding a company	●																A	A	A	A	A
			2	Finding a research question	●																A	A	A	A	A
	●		3	Visit company for a presentation of their company and 1. interview	●																A	A	A	A	A
●			4	Finding literature on how to conduct 2. interview			●																A	A	
●			5	Define our own assumptions/framework of what a business model is			●														A	A	A	A	A
●			6	Writing the research section								→	●										A	A	
●			7	Write the assumptions and framework sections								→	●								A				
●			8	Designing 2. interview								→	●								A		A	A	A
			9	Transcribe the 1. interview (POSTPONED)								○	→	→	→	→	→	○							A
	●		10	Executing 2. interview										●							A	A	A		A
			11	Write the introduction section (POSTPONED)									○	→	→	→	→	○							A
●			12	Find literature based upon the 9 block of the framework											●						A	A	A	A	A
○	○		13	Profil og value proposition													○					A			B
○	○		14	Cost structure + Revenue Model													○				A	B			
○	○		15	Target Customer, relationship													○						B	A	
○	○		16	Core competencies + partner network													○				B				A
○	○		17	Distribution, value configuration													○						A	B	
			18	Standardise language in project (not assigned yet)														○							
			19	Standardise recommendation (not assigned yet)														○							
		○	20	Friendly reviewers feedback															○		A				
		○	21	Proofread															○		B			A	
			22	Transcribing 2nd interview (Only if time)																					
			23	Project delivery																○	A				
○			A	Quality of group meetings - Increasing -												N/A									
	○		B	Communication with companies																					
		○	C	Communication with external parties																					
			D																						
			E																						

Previous literature integrated | Emperial data analyzed | Friendly reviewed paper writing

Major tasks / **Target dates** / **Objectives** / **Budget** / **Summary & forecasts**

Budget: (very tight)

Status: Different tasks are distributed and we now have 10 days to write and B priority have 3 days to correct

We have problems in finding out how we write in the same language and in the same style

As nobody have asked to deliver their chapter later than the deadline we are still on time (no forecasted delayes)

[student name] is looking for a external party to proofread the project

OVERALL STATUS (very tight)

→ Dependent on critical path
○ Planned
● Completed
As planned
Behind plan / over budget but recoverable
Behind plan / over budget and **NOT** recoverable

However, the students could have included the actual outcome, e.g., by stating "Confidential agreement with partner company has been signed". Each of these tasks has to correspond to an objective they set for themselves ("Objectives"); if this match could not be made, students were asked to reconsider the task they wanted to execute. The groups then decide on a weekly time schedule ("Target dates"). They add empty circles for the weeks they plan to work on this task. The empty circles are replaced by a full circle when the task has been mastered in that week. If the task is completed earlier than planned, the excess circles are removed again. In the displayed example, students were in week 18 and still had 4 weeks to submit their project. It is crucial for the students to understand the 'critical paths' in their planning. In the displayed example, the students have decided that the follow up-interviews only makes sense after the first interviews from the case study have been transcribed—as we see, this milestone was missed. Some of the tasks were ongoing and had no definite date. In the given example, "*[Ensuring] Quality of the group meetings*" and "*Communication with companies*" were tasks that the students wished to focus on. They rated the latter one well ('green'). They also indicated that their group meetings started with frictions ('yellow') but improved in the most recent two weeks. Students should also fill out which student was in charge ("*Owner / priority*"). In this example, we see that the students did not perform this task well. Many of the tasks were owned by all group members and largely had top priority. Again, this observation may be made predominantly in all Danish groups. Here, the habit of establishing homogeneity and sameness fosters harmonic group work but often compromises prioritization and effectiveness. This phenomenon might be interwoven with the reluctance of mingling with foreigners or using English as a lingua franca: despite all internationalism, the "other" might be perceived as a threat to harmony and the constructed homogeneity. Another part of the report is the "*Budget*", which should

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indicate how much time each student is going to invest in this project and how each member perceives the time already spent. In our example, we see that the students did not agree on plan budgets for their time. The last—and maybe most important—part of the report is the status update. Students should write free text to the lecturer on how the project is going. In doing so, we created free space for students to report any content in their own style. We thus prevented alienation through over-quantification (circles, timeline, budgets…). In the given example, students were signaling to the lecturer that they will have no problems meeting the final deadline. They are very specific in noting the problems that they were facing (aligning the language in their report). They also provide future outlook of their activities (finding a proofreader). Finally, students gave their overall assessment of the project ("*Overall status*"). In the given example, students were still confident as to meeting the submission deadline, even though they experienced some time budgeting issues.

The monthly report had several advantages. The students had to make decisions on who takes on which tasks by when and thus were required to assign concrete responsibilities. From the perspective of the lecturer, failure to hand in these reports (on time) immediately signaled that the groups were not well managed; this was an indicator of reacting to problems much earlier than in the previous course. In addition, the lecturer had a quick overview of where the project was; the two most critical points were completing the interviews and sending a first draft for friendly review to some fellow students. Another issue was that the students needed to be reminded to give feedback to their partner company.

5 Monitoring the change

5.1 Student Focus Group 1: a survey

To understand the students' assessment of RPT, we established student 'focus groups' in 2012 (Concannon et al. 2005; De Rijdt et al. 2012; Love et al. 2006). To the first focus group, we administered a survey. We sent out an online questionnaire via the local online teaching platform with seven questions on 5-point Likert scales (1 = completely disagree; 5 = completely agree), a section for the students' gender and age, as well as an option to provide general comments and explanations for all scaled questions. A total of 30 students responded positively to this invitation (response rate = 47%). Table 1 summarizes the survey questions in full, the descriptive statistics of all items, and the correlation of these items.

We observe no differences in the answers relating to participants' gender or age. On average, respondents evaluate RPT as being as good as or better than teacher-led instruction in other subjects (values of 3.0 or higher). However, it is important to note that standard deviations are relatively high, especially for question 7, which asks whether students would prefer more RPT. Therefore, RPT is a controversial topic (De Rijdt et al. 2012; Schmidt et al. 1994). Still, the reasons behind this controversy—the students criticize the intended factor of mutual control—has to be assessed. As one student notes:

> "Downside is that all group members need to be well prepared and mentally ready for the group thing. If not, it will affect your learning. Notes are not as good as normal, as you cannot prepare your own notes for all the texts."

Looking at the correlations of the questions yields further insights: students who feel that they achieved higher learning outcomes (Q1) also appear to acknowledge that their higher-learning outcome (Q6) is related to situational conceptual superiority over teacher-led instruction ($\beta = 0.769$; $p<0.001$).

We discuss critical remarks on dependency on others in section 6. In total, the first focus group may be recommended for monitoring purposes, and the questions captured in table 1 may serve as a template.

#	Question	Min	Max	Mean	S.D.	Correlations								
						Q1	Q2	Q3	Q4	Q5	Q6	Q7	G	A
Q1	Relative learning outcome	1	5	3.5	1.042	1								
Q2	Relative preparation time	2	5	4.2	0.747	**0.377 ***	1							
Q3	Relative class contribution	1	5	4.3	0.988	0.084	0.257	1						
Q4	Relative recapitulation time	1	5	3.3	1.015	0.000	0.121	-0.083	1					
Q5	Relative reflectiveness	1	5	3.7	0.980	0.068	0.157	0.085	-0.065	1				
Q6	Superiority RPT	1	5	3.5	0.860	**0.769 *** **	**0.519 ** **	0.235	-0.029	0.234	1			
Q7	Increase of RPT	1	5	3.0	1.326	0.237	0.145	0.034	-0.198	0.179	**0.437 ***	1		
G	Gender	0	1	0.33	0.479	0.000	0.128	0.291	0.165	0.122	0.028	0.018	1	
A	Age	22	36	24.9	2.510	0.152	0.156	0.124	0.187	-0.067	0.150	0.185	0.115	1

n = 30. * p<0.05; ** p<0.01; *** p<0.001 (two-tailed).

Q1 - How do you assess your learning outcomes (understanding of the subject) due to peer teaching compared to teacher-led instruction?; Q2 - How much time did you invest in the preparation of the classes compared to teacher-led instruction?; Q3 - How much did you contribute to the discussion in class compared to teacher-led instruction?; Q4 - How much time did you invest in recapitulating the classes compared to teacher-led instruction? Q5 - How mentally active (e.g. thinking, reflecting) were you in class compared to teacher-led instruction? Q6 - Overall, how does peer teaching compare to teacher-led instruction?; Q7 - Are you in favor of more peer-teaching during the Master program?

Table 1

5.2 Student Focus Group 2: semi-structured face-to-face interviews

As a second focus group, we invited all students for personal interviews. We offered this as an option to the

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focus group that had already answered the survey. We recommend providing a second contact person who has no course responsibilities to avoid agency-conflicts and biases.

Only five students responded positively to our invitation for personal interviews (response rate = 8%). The themes covered by the semi-structured interview were as follows:

The student's overall assessment of peer tutoring/The perceived cooperation level of fellow students/The perceived role of the lecturer/The learning process/The learning outcomes/The workload/The role of social skills

We analyzed the students' responses by conducting thematic analysis (Braun et al. 2006; Guest et al. 2012), a qualitative "method for identifying, analysing and reporting patterns (themes) within data" (Braun et al. 2006: 79). The seven pre-structured interview themes became our categories and thus allowed for direct and structured detection and comparison of the students' own ideas and emphases. Within these categories, two interrelated themes co-occurred that related to 1) the random group composition and 2) the level of effort in class. As to the random group composition, students criticized that they had to work with less ambitious or skilled group members, as they were not allowed to pick their 'favorite' fellow groups members. Accommodating for this might be problematic, as an intention of random group composition is to let the less equipped or marginalized students benefit from the more equipped students. At this point, we also note that Focus Group 2 consisted of students whom we perceived as being above average in terms of participation and ambition during the lecture. This group also exhibited great self-confidence and control during the interviews. Their criticism must be seen through this lens but taken seriously. Some concrete suggestions by the students on to how to encounter these problems were that the guiding questions provided by the teacher could be more directive. Furthermore, formatted, written article presentations should be uploaded by the tutoring student a week before the actual class. Despite the students' discomfort with the random group composition, they expressed appreciation of engaging in content-related exchange with international students, thereby being forced to speak English and to approach topics from diverse perspectives.

Important for the functioning of the change and the further development of the class were opinions that some students felt insecure during RPT and wished that the teacher would have defined criteria for the students' in-group-presentations to ensure equal quality. Furthermore, they expressed the wish for more teacher-student discussion, especially asking for more time with the lecturer during the group work:

> "Lecturer could have made time plan when he comes to the group and spend a minimum time there have intervened more in their discussion to provide reassurance."

The interviews convey that students are on the one hand appreciating RPT because they feel that they are treated at eye-level and that their discussion skills are used. However, they are also critical about RPT, as they find it more demanding than simply taking notes during traditional teaching. In addition, we detect a discomfort with the increased uncertainty surrounding the fellow students being in charge.

5.3 Students' seminar evaluations: a survey

We compared several means of the seminar evaluations of the 2011 teacher-led format to the 2012 RPT format using a T-test. The two sets of evaluations are comparable because the same teacher instructed the two classes in the same program at the same university. The evaluations comprise items that are standard at Aarhus University and on which the lecturers have no influence. For HE lecturers, whose institutions do not provide such an evaluation, we recommend keeping voluntary track of student assessments for their own development or for research purposes. We selected items relating to general information (e.g., "*how many hours do you spend studying per week?*"), the context (e.g., perceived contribution of the lecturer to the students' learning experience), a peer-related assessment (on the fellow students and the students' own contribution) and the learning outcome and benefit from the subject. Table 2 shows the result of the two evaluations and provides an overview of additional categories.

Compared to 2011, students do not report increases in their total workload, the time invested in the subject, or the number of classes they attended (gen1, gen2 and gen3). It is still positive to notice that the standard deviations decreased a bit, meaning that the low-effort students increased their minimum contribution to this class, whereas the ambitious students achieved their goals with fewer hours. This task supports our assumption and the remarks made by some students that the workload was better distributed. The increased workload in the beginning of the semester reduced the effort that students had to invest at the end of the semester, e.g., the preparation of the exam or finding suitable literature for their reports.

Quite to the contrary, students perceive substantial and significant improvements in their qualitative contribution to the seminar (input 1 and input 3). The perceived contribution of fellow students increases as well, but the change is not significant.

Relating to the context of the lectures, we observe that the framework surrounding the lecture (*stud2)* was not assessed as being better in 2012, indicating that there is no general bias among the students in 2012 leading them to provide better evaluations. However, we observe

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ID	**Questionnaire item**	**2011** Mean	**2012** Mean	**Change**	**p-value**
	General				
gen1	On average, how many hours a week do you spend studying? (Preparation, participation, group work etc. for all your classes)	29.57	31.35	1.79	n.s.
gen2	How many hours do you spend on average per week on this subject? (including instructional classes if the subject includes this activity)	6.26	7.59	1.33	n.s.
gen3	How many of the latest 4 classes did you attend?	3.78	3.88	0.10	n.s.
	Context				
stud1	Student's qualifications to study the subject	3.55	4.12	0.56	**
stud2	The framework surrounding the lectures	3.13	3.46	0.33	n.s.
stud3	Aims of the subject and the lectures	3.30	4.27	0.97	***
stud4	Suitability/qualilty of content	3.30	4.09	0.78	**
stud5	The lecturer's contribution to the learning process	3.74	4.44	0.70	***
stud6	Student's contribution to the learning process	3.33	4.06	0.73	**
input0	**Contribution to the learning process (average)**	**3.28**	**4.20**	**0.92**	*******
input1	Your own contribution towards maximising your benefit from the subject	3.43	4.29	0.86	***
input2	Fellow students' contribution towards maximising your benefit from the lectures	3.22	3.82	0.61	n.s.
input3	If a person who know you really well should describe your efforts in the subject, they would be described as	3.17	4.47	1.30	***
out0	**Learning outcome and benefit from the subject (average)**	**3.04**	**4.08**	**1.04**	*******
out1	The contribution of the lectures to knowledge and comprehension	3.04	4.35	1.31	***
out2	The contribution of the lectures to making you able to analyse and solve tasks and problems within the subject field	3.09	4.06	0.97	***
out3	The contribution of the lectures to seeing new perspectives in this subject	3.26	4.18	0.92	**
out4	The contribution of the lectures to seeing new perspectives in the curriculum as a whole	2.87	3.65	0.78	n.s.
out5	The applicability of the subject in practice	3.17	4.24	1.06	**
out6	Your total benefit from the subject	2.96	4.06	1.10	**
out8	Your benefit from this subject, compared to your other subjects	2.87	4.00	1.13	***

* p<0.05; ** p<0.01; *** p<0.001 (two tailed, equal variances assumed).
Response rates (RR): RR 2011 = 48% (n=23 of 48); RR 2012 = 27% (17 of 64).
The items stud1-stud7 are the summaries (means) of larger groups of questions. These items are measured by a 5-point Likert scale from 1 = "strongly disagree" to 5 = "strongly agree" or 1 = "completely dissatisfactory" to 5 = "completely satisfactory".

significant differences on the 5-point Likert scale in that the students feel substantially (0.56 - 0.97) higher qualified (*stud1*). The students also believe that they contributed more (*stud5*) and find the course better aligned with the program (*stud3-4*). Most interestingly, they feel that the lecturer has contributed substantially more to their learning process (*stud5* improved by 0.7 on a 5-point scale) even though the amount of active lecturing was reduced drastically: in the 135 minute sessions in 2010/2011, the lecturer spoke for approximately 120 minutes each session. In 2011/2012, this time was reduced to only 10 minutes (not including the time spent talking to individual groups during RPT)! This finding is encouraging for lecturers who are afraid of letting go of control of the lecture.

The largest improvement (1.04 points of the 5-point Likert scale for output0) is in the students' assessment of their own learning outcome (key competencies). Despite our small dataset, this change is highly significant at the 0.1% level. In conclusion, the student evaluations point to a substantial improvement of the seminar and their learning outcomes.

5.4 Faculty observations: peer evaluation

The lecturer decided to ask for peer-review of the changed seminar by two senior faculty members. Each of the faculty members visited one of the classes, and the evaluations were uniformly positive. The Danish context

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easily allows for voluntarily yet professionalized faculty peer review, as researchers working at the established pedagogical centers and networks offer mentoring and pedagogical guidance as a service (Lauridsen 2013). Agency conflicts do not pose a threat, as the university hierarchy is not built around 'chairs', and every researcher/teacher represents his own independent unit. However, to further prevent dependence and agency conflicts, we recommend that senior faculty members be peer-reviewed by other senior faculty members. In particular, pre-tenure junior staff should connect peer review to educational teacher training or to an appointed pedagogical supervisor. In universities/countries where there is no such policy, supervision networks could be installed (see limitations). The evaluations to the lecturer comprised approximately two standard pages of written text and contained comments on the following categories:

- course concept, perceived student understanding of the course's structure, students' security level, guidance/intervention by the teacher, activity level of the groups, prepared material by the students (notes, highlighted texts, full papers), note-taking by students in groups, quality and quantity of poster-discussions.

5.5 Examiner feedback: after the exam

In Denmark, most seminar papers and exams are graded in cooperation with external examiners to assure inter-subjectivity and/or a link to organizational practice. Given the relatively low teacher-student power distance in Denmark, this technique may be regarded as a useful precaution to prevent teacher bias. The external examiners' tasks are neatly regulated and comprise the restriction that examiners and students must not know each other (AU 2014). In our case, the same three external lecturers evaluated the students both in 2011 and 2012, making way for useful feedback on the students' performance after the remodeling of the course. The external examiners provided feedback implying that the quality of the papers as well as the reflectiveness of the students in the oral exams had increased. This direct comparison of the exam performance quality of the students in the two courses in question is recommended, if possible, for assessing the effect of the implementations (Chi et al. 1994; Yew et al. 2012).

6 Discussion

This paper provides a documentation of a seminar change process from teacher-centered teaching to reciprocal peer tutoring. To do so, we documented a mixed-method quasi-experiment over two years in a Master's seminar in a Danish setting. The redesign was intended to answer the changes in higher education by heterogeneity (Lueg 2011) and what has previously been described as the "*superdiversity*" (Vertovec 2007) of the student body. Consistent with previous studies (De Backer et al. 2012), the redesign from a teacher-led format toward RPT had a mostly positive reception among students, faculty and external examiners. In total, the introduced approach to learning content is more accessible to the broader spectrum of students at contemporary universities because many have problems transferring abstract concepts from a teacher-centered lecture. This approach strengthens group work skills and knowledge mediation among all lines of diversity, and the mutual social dependence allowed by this structure leads to qualitatively better and more reliable preparation as well as stable attendance.

However, we note limitations of our work and drawbacks of the change implementation. The students criticized unwanted effects of the randomly composed groups, such as free riding and dependence among students perceived as being less capable. We thus conclude that the changes introduced have proven to be mostly helpful for the weaker students but that additional steps must be taken to guarantee progress and security for ambitious and advanced students. To ensure this treatment, we first recommend building on our observation that ambitious students developed advanced feedback and questioning techniques to gain more from the other tutors (De Backer et al. 2012; Falchikov 2001; King 1997). Second, we suggest that teachers offer slightly more guidance and implement simple control instruments such as obligations to hand in outlines of one's work a week before the RPT lesson or a continuous process validation report made by each student. Despite these legitimate concerns, we note that confusion in the first encounter with RPT must be considered part of the learning progress towards autonomous learning in business and the social sciences (Mazur 1997) as well as towards overcoming textbook-orientation and positivistic definition dependence.

We contribute to practice in higher education first by providing a template for introducing change. We also provide arguments for the introduction of a full RPT concept, even in seminar forms, that seemingly work well without any type of group work. We thus demonstrate that even a traditional top-down lecture may be beneficially adapted into an RPT module. This documentation may prove especially useful in settings where syllabi are constructed around textbooks and where lecturers only have limited time to invest in such a change. Changing a class into RPT demands a mainly research article-based course construction and heavy planning. Our study provides a detailed guideline and benchmark for the redesign of a seminar as well as for course responsibles who have limited time, e.g., for junior staff before tenure. On the practical side, we see special benefits for junior staff, as the observed quality increase in research orientation of the students may lead to better connectivity between the lecturer's own research foci and the students' reports. On an important side note, to facilitate change implementation, our study demonstrates that RPT may even be applied in groups of

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almost 70 students, which shows that collaborative forms of learning are by no means cost-ineffective for university management (King 1997; Opdecam et al. 2012; Sand-Jecklin 2007; Topping 2005).

We recommend embedding the use of this documentation into teacher education seminars for the further improvement and discussion of adaption options to the specific country's, university's, and discipline's surroundings and requirements. Even if some of the steps or preconditions in the outlined scenario are not applicable in other settings, we thus provide a basis for discussion in teacher training or assistant professor education. Further research and discussion could, for instance, center on the question whether the outcomes will be different in other social science disciplines, where discursive group work, multidisciplinary method and theory approaches and constructive controversy have a longer tradition.

We note that it is of greater importance to provide all monitoring and implementation material bilingually to foster participation and understanding in the multicultural classroom. Because most Danish universities provide these materials—such as the standardized evaluations—we are aware that this part might be more time-consuming were implemented in different settings but intend to provide inspiration for construction of such evaluations. We are also well aware that a systematic pedagogical training is not a standard part of university staff education in Europe. Therefore, the political and organizational conditions for reflecting, implementing and facilitating such a change together with coworkers, pedagogical supervisors and senior staff may be less advantageous. In contrast, the 'Danish' problem of lack of attendance and thus our focus on implementing a system of mutual control by RPT might be less interesting in national traditions of compulsory seminar attendance. We presume that researchers and teachers might even encounter disapproving student and even fellow researcher reactions to RPT in cultural settings other than Scandinavia (for a critical discussion s. Grammes 2009). University traditions with high power distance might be settings in which the professor, by applying eye-level teaching styles (that are usually associated with graduate assistants or tutors), risks losing authority due to relinquishing the role of the "*in control*" and "*knowledgeable*" expert (Kendall et al. 2012, 187). Therefore, the qualities of the Danish setting, which is in large parts comfortably suitable for changes towards a less teacher-centered approach, might not allow for exact reproduction in different national traditions. One possibility of addressing this risk this would be to take control in different manners, such as, for instance, providing a more instructive task frame or requiring more demanding and time-sensitive output from students and groups. In settings where there are enough resources, the entire class could be accompanied by student tutors, who take on a consulting role in the groups.

Therefore, future research could repeat our experiment or simply alter case-relevant components of implementation or monitoring in a context that is different from ours as well as investigate programs in other disciplines. We intended to provide a documentation of a revelatory case study of a best-practice example. Despite the limitations in our research and in the global applicability of our documentation, we hope to inspire higher education lecturers and course responsibles to give RPT more consideration.

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Appendix

Appendix 1: List of articles the students had to prepare per session including scaffold of guiding questions

Session 1 dealt with Business Models (Casadesus-Masanell et al. 2010; Chesbrough 2010; Chesbrough et al. 2002; Johnson et al. 2008; Magretta 2002; Osterwalder et al. 2005; Seddon et al. 2004; Teece 2010; Tikkanen et al. 2005; Zott et al. 2007, 2008; Zott et al. 2011).

Guiding questions:

* How do the authors define “business models”? Which concepts from business or economics do they resemble? Discuss especially the difference to a strategy!

* What does the concept of these specific authors not include? How does it differ from the definitions of the other articles?

Session 2 dealt with theory in a case study (Eisenhardt 1989; Hopwood 2002; Ittner et al. 2002; Ittner et al. 2001; Llewelyn 2003; Luft et al. 2002; Lukka et al. 2010; Malmi et al. 2009; Modell 2009; Zimmerman 2001).

Guiding questions:

1. expert: Read LLewellyn (2003): What counts as “theory” in qualitative management and accounting research? What are her five levels of theorizing?
2. expert: Read Eisenhardt (1989): How can you use a case study to create theory?
3. expert: Skim Ittner & Larcker (2001) and read Zimmerman (2001) and Ittner & Larcker (2002). What does Zimmerman (2001) criticize, and how do Ittner & Larcker (2002) address his concerns?
4. expert: Read Zimmerman (2001) and the replies from Hopwood (2002), Luft & Shields (2002) and Malmi & Granlund (2009). How do they address Zimmerman’s (2001) concerns?
5. expert: Read Modell (2009) and Lukka & Modell (2010): When can single case studies like yours be valid?

Session 3 dealt with academic writing (Anderson 1995; Aspara et al. 2013; Booth et al. 2008; Cobb et al. 1995; Kennedy et al. 2008; Nor-Aziah et al. 2007). Guiding questions:

- What is the research question of the case study?
- How did the authors structure the abstract and the introduction (e.g., can you identify different subsections)? Compare them to the guidelines in Booth, Colomb & Williams (2008), chapter 16.
- How does the article link theory to the case?
- Can the authors’ arguments and their validation convince you of their conclusions? Do they answer their research question?

Session 4 dealt with methodology (Ryan et al. 2002; Yin 2009).

Guiding questions:

- Think about a specific company: What would these six steps look like for your investigation?

Session 5 dealt with project management (Campbell 2010) and was teacher-led

Appendix 2: Comparison of course descriptions for Business Models from 2010/2011 to 2011/2012
Changes made by the authors to the original documents:

- Differences in the verbs describing the students' qualifications and competences are underlined.
- Shift in foci are in bold

2010/2011	2011/2012
BACKGROUND AND RELATIONS TO OTHER COURSES	
Business Models in the high technological and research oriented innovation environment – from project to organisation. The objective is to provide the students with tools, which will enable them to identify an **organisation's** current situation. With this identification, the student should be able to define future-oriented solutions with growth opportunities, following implementation of strategy and reporting tools. The theoretical aim is for the student to acquire knowledge and competences within different **business models and reporting tools**. Subsequently, the student will through a case study attain practical skills in order to analyse and evaluate the livelihood and future possibilities of a specific organisation's using the business models concepts.	Drawing on the specific topic of "Business Models" as a leitmotif, this course is a practical application of the pre-requisite course "Foundations of Research" (or any other course on research methods). The goal of the course is to enable students to plan, investigate and compose a **group-report** on a Business Model in practice, and to reflect on their findings individually in an **expert conversation**. Proficiency of these capabilities matters for both project-related work in a **professional career** as well as for writing a stringent **Master thesis**.
MAIN TOPICS	
The business potential, and the understanding of this, is crucial to be able to manage high technological and researchoriented ideas from the **innovation** environments towards substantial source of income, thereby creating growth and new work places in the business world. It is therefore crucial in the innovation and development phase to consider how the project is moving from idea to commercialization. In other words, what should the business model look like? The central issue is to identify a business model and understand how to describe such a model in order to make it useful with objective results and trustworthiness. Research has shown that the commercialization process is the most crucial part of an organisation's existence. A large part of the self-employed pioneers within the innovation environment is typically a highly specialized person with natural science or IT technology as background – often without any business-related competences. Dealing with **high technological projects** the income is based in the future. This is due to the long development phase prior to commercialization. Development costs include material costs, salaries and time. Consequently, this specific type of companies need external financing in the development and introduction face. This external financing can be achieved in the following ways: Financing from the bank; Aid and/or support from public authorities and other funds; Venture capital. It is critical for the entrepreneur to describe the logic that couples the idea to the future income in order to obtain this **external financing**. In this case it is important to be clear on how the business model is compound. This description and identification is also usable in the commercialization process. Moreover, it can be used as a tool for legitimation and development. Some high technological and research oriented organisations are able to obtain venture capital from innovation funds, "business angels" or other venture organisations. In this case, the organisation will be asked to develop a business plan. A business plan can be the first step towards visualisation of the organisation's business model. The business model goes one step further since it is focused on explaining value creation and how this is supported by specific indicators.	In order to successfully complete these tasks, the course covers at least the following main topics: 1. **Business Models:** comparative understanding of different state-of-the-art definitions in leading practitioner publications and academic journals. 2. The role of **theory** for understanding business models: moving from "describing" to "reflecting". 3. **Academic writing**: turning a single case study into a convincing "story" with implications of broader or more general case studies: a systematic approach to rigorous research and credible conclusions. 4. **Project management**: managing oneself and the team to conduct projects that have clear outcomes.

The business model approach is thereby a performance measurement based approach to reduce agency cost. This is done through an external sufficient communication about the organisation's **value creation**, strategy and future goals. Such an approach will assist the organisation in answering the following questions: How can we get started with the analysis? How can appropriate performance measurements be obtained for an organisation that may not be making a profit? How do you outline the strategic and operational risks?	

INTENDED LEARNING OUTCOMES: QUALIFICATIONS AND COMPETENCES

The organization project builds a bridge between the student in a higher commercially oriented institution and the knowledge based **organizations**. Simultaneously, a more permanent bridge will be created between the business related research environment and the innovation oriented organizations. During the project, the students will obtain **knowledge** and analytical skills in order to create value for the **organizations** through a business model. Furthermore, the students will get the possibility to use several theoretical tools to analyze business models and to understand the assumptions for value creation in this specific type of organizations. The output will be a **report** of an analysis of the organization's business model, which the organization can use for itself and its financing sources.	Upon successful completion of the course, students will have acquired the following qualifications and competences: 1. Students will be able to reflect on the **context-specific** definitions of the concept of **Business Models**. They will also have the competence to extend, synthesize, associate and adapt the concept to the case-specific situation of their cooperating organization. Students will possess the ability to challenge the Business Model they encountered in their case study. They will also be able to discriminate the concept of Business Models from related concepts like “strategies” or “business plans” both on a theoretical and applied level. 2. Students will demonstrate the ability to **associate theoretical knowledge** with a practical context and then to hypothesize on the generalizability of the case. They will be able to critically question the role of theory in their case as well as their results, their own conclusions and points of view on the case. 3. Students will be able to independently identify and acquire relevant **information** for their investigations and to compose a concise group **report** on their work. They will be able to individually debate their results with an **expert committee**. This way, students will be prepared to write a rigorous **master thesis**. 4. Students will be able to independently identify and address the critical issues organizations have when applying a business model, and to formulate a **research question** guiding their project. They will be able to select and conduct the relevant analyses to convincingly support their argumentation (“story line”) on the case. This prepares the students for similar **future tasks** they will encounter as management accountants, analysts, consultants, top executive assistants, or entrepreneurs. 5. Students will be proficient in **project management**, i.e. the abilities to successfully plan, conduct, control and report on a project. They will have learnt to undertake independent **research**—that is aligned with **group objectives**—to demonstrate **practical and thought leadership** within their field. They are proficient in using all group members as specialists in one topical area in order to profit from “peer learning”.

FORMS OF INSTRUCTION, COMMENTS ON TEACHING

Classroom teaching, group work and practical dialogue. The students will be working in groups of 4-6 students. Each group has to analyze an organization from the innovation environment. In the starting phase, the students will attend several preparing lessons. Subsequently, the data collection will take place along with the organizations. During the project, a problem statement and a **mid-term evaluation** have to be verified in order to proceed with the project.	Classroom teaching, group work, practical dialogue, individual **group meetings**: • The course starts with classroom teaching and group work where students are familiarized with the latest academic concepts and findings. Students are responsible for taking an active role in discussing the concepts with their peers (“**peer learning**”). • The rest of the semester concentrates on group work where students will cooperate in a practical dialogue with an organization and conduct a case study on the organization’s Business Model. • At the same time, students will have the opportunity to discuss their progress **in individual group** meetings with the course instructor.

ASSESSMENT: TAKE-HOME ASSIGNMENT	
Groups of 4-5 students will be **arranged by teacher**. This is due to the fact that it is necessary with group mix with various backgrounds which is part of the learning process. The groups must find a company and use this **company** in the group assignment. This assignment is to be **handed in** during the semester. The papers will be the starting point for an individual, oral exam. The grade will be based on the oral examination.	Groups of 4 students will be **arranged by the course instructor**. It is explicitly intended that students have to cope with the various backgrounds of the group members as part of the learning process and as a preparation for teamwork in their later career. If required by special circumstances, students are allowed to work on an assignment in smaller groups; the standards are nevertheless equal for all assignments. The groups must find a **company** that cooperates with them on writing the assignment. The specific research question of the assignment depends on the individual context of the company and must be determined by the group. The assignment is to be **handed in** during the second half of the semester. The exam constitutes the major part of the students' final grade and must be defended in the oral examination.
EXAM FORM [unchanged]	
Exam: Individual, 20 minute oral examination based on the group paper (20-25 pages). **Re-Exam:** Individual, 20 minute oral examination based on individual paper. One week before the oral examination, a topic is uploaded via CampusNet. Based on this topic the student must prepare an individual synopsis between 4 and 6 pages. The synopsis constitutes the major part of the student's final grade must be defended in the oral examination.	
EVALUATION OF LEARNING OUTCOME: ASSESSMENT CRITERIA	
Grade 12: The student has obtained outstanding knowledge about fundamental **concepts and tools** of performance management and outstanding analytical and judgmental skills related to the construction, implementation and use of performance management **models** in a multinational company. Grade 2: The student has obtained basic knowledge about fundamental concepts and tools of performance management and basic analytical and judgmental skills related to the construction, implementation and use of performance management models in a **multinational company**.	Grade 12: The student demonstrates outstanding analytical and judgmental skills in assessing the **concepts *beyond* the initial coverage** in the beginning of the semester. The student can critically reflect on the **ontological and epistemological assumptions** of the concepts as well as on the self-conducted **case study**. The student convincingly hypothesizes on the **generalizability** of the case as well as on **related future developments**. Grade 02: The student has obtained basic knowledge on the concept of Business Models as presented in the beginning of the semester. The student is able to describe the application of a business model in practice and to convincingly argue the basic storyline outlined in the **group report**.