

Report concerning:

Problem solving and intercultural dynamics in a PBL context:

Challenges and solutions

Executive Summary

Recent years has witnessed an increased internationalization of universities including AAU Copenhagen's study programs where 25% of the students are Non-Danish. This provides new opportunities and challenges for the students and teachers. This report presents in a short form findings from a survey investigating if Danish and non-Danish students differ in their participation in the PBL group work and what we have done to solve the identified challenges.

The study finds that non-Danish students face significant challenges in the forming phase primarily because they are less trained in 'out of the box-thinking', have a lower degree of self-efficacy, feel more concerned about speaking out unless they have thought through all dimensions of the problem and feel more concerned about peer reputation effects. The cumulative effects of the small, but significant differences impact the forming phase negatively, which in turn increases the risk for intercultural conflicts.

The student survey also indicates that group supervisors might be too task focused and that they need to pay more attention to group and intercultural dynamics. We propose several recommendations for students, supervisors and study boards, including among other things the need for identifying (or developing) appropriate pedagogical supervision. The supervision needs to focus explicitly on overcoming creativity constrains, limiting fear of speaking out, building up psychological safety etc.

The team behind the project has actively disseminated the results to the Study board for Industry and Global Business Development and other relevant stakeholders.

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Why this report?

Recent years have witnessed an increased internationalization of universities in Denmark and worldwide. In the case of Aalborg University it is more pronounced in the Copenhagen Campus where 25,5 % of the students are full degree international students (app. 807 out of 3.169) compared to 12,9 % (app. 2.199 out of 17.018 students) in the Aalborg Campus. Fortunately, internationalization of universities carries many advantages, but also some challenges for students and staff.

Internationalization of universities means that they can function as laboratories for developing and cultivating the skills sets needed for future employee of Danish and multinational companies and organizations. Aalborg University's PBL model thus needs to equip the students with group or team working competencies including intercultural skills. PBL provides the students with a good experimental site for working in intercultural groups as typically half of the workload during a semester is composed of group work where they have to solve real life challenges in collaboration (typically) with companies and organizations. Moreover, the PBL groups are often international in scope as witnessed by, for example, the study program in Operations and Innovation Management (with a specialization of Media Management) where none of the groups included in this study were composed of Danish students only.

Internationalization also carries numerous challenges and problems for universities. The authors of this report have been teaching and supervising international or cross-cultural groups at Aalborg University Copenhagen and have experienced how students and supervisors occasionally face difficulties in transforming cultural diversity into an asset instead of a friction or source of conflict.

This report aims at explaining the findings concerning the scope of group and intercultural dynamics and challenges and to present the activities we have undertaken to disseminate the results.

Who participated in the study?

The survey covers the three main faculties at AAU Copenhagen. The technical and natural sciences are covered by inclusion of the following master level programs: Global Systems Design, Operations and Innovation Management and Operations and Management Engineering. Humanities are covered by Tourism program and social sciences by Global Refugee Studies. Bachelor studies were not included due to the different structures concerning the projects, which made comparative questionnaire-based research impossible. The programs Information Systems and Medialogy were incorporated as a clearly inter-disciplinary program.

The survey was distributed to approx. 800 students with a valid number of responses of 169. The response rate was 22-25%, taking into account that the questionnaires were also distributed to

students that had left their programs etc. A pilot test ensured that the validity of the answers is high, fatigue time not exceeded, anonymity ensured, etc. We could not identify a response bias (e.g. only the unsatisfied one reply).

We analyze data quantitatively to identify statistically significant differences between the different groups (Danish vs. non-Danish students). Means were compared in independent T-tests as it provides a convincing method when comparing two groups. The quantitative data analysis was complemented with qualitative methods in the early phase of the project and for validating the patterns found in the quantitative method.

Before addressing group and intercultural dynamics and challenges, we underscore that the students - and in particular the non-Danish students - are highly satisfied with their study programs and the campus (see table 1). The dynamics and challenges identified below are thus not impacting their satisfaction with the study program, or suggesting that AAU Copenhagen provides poor supervision. Rather, results should be seen as opportunities for improvement, and that challenges might be unavoidable in the context of internationalization.

Table 1: Student satisfaction

		N	Means	Stan div	Stan err.
I am happy with the study program.	Dan	71	3,76	,902	,107
	Non-Dan	87	4,13**	,873	,094
Overall, I am satisfied with AAU	Dan	71	3,92	,937	,111
	Non-Dan	88	4,34***	,829	,088

We have also managed to get a large proportion of the non-Danish students to respond to the questionnaires. This is captured by the fact that slightly more than half of the respondents are non-Danish (app. 54%) and slightly less than half of the students are Danish (app. 46%) (see table 3). Gender distribution was approximately equal (see table 4). As it is to be expected on Masters programs in the Danish university context the majority of students are between 20-29 (in total 130 students), 34 students are between 30-39 and only 4 students are above 40 years (see table 5 for details).

To sum up, there is a decent distribution across faculties, gender, age, nationalities etc. with a large number of all groups. There is thus as said above good reasons to assume that there are no major concerns concerning non-response rate biases.

What did we find?

We will briefly summarize the findings for detailed results kind refer to the full report attached.

Is there a differences in creativity? This is captured by the students' perceived ability to be trained in thinking out of the box in their home country. This difference influence the ability to participate in problem-solving in groups. The Danes are far more confident in thinking out of the box. There is thus a significant difference when it comes to creativity in regards to problem-solving.

It is important to have a certain degree of self-efficacy to be active in problem-solving in PBL group work. The non-Danish student tend to score significantly lower on many self-efficacy accounts.

The Danes also score significantly higher in respect to being able to deal with unexpected events (which is an integrated component in problem solving activities in the PBL context). It thus deserves attention as the non-Danish students score significantly lower. As the population for non-Danes contains students from different types of countries (e.g. in respect to hierarchy) supervisors may need to pay special attention to student from hierarchical countries.

Coping with uncertainty. Along the lines of the previous results, these findings show that there are significant differences between the Danish and non-Danish students' ability to cope with uncertainty, and thereby their ability to engage actively in problem solving. The Danish students are more confident in bringing forward ideas without having thought through all details. This fear of speaking up is further more underpinned by that the non-Danish students harbor more concerns about the impact of speaking up under uncertainty for their reputation than Danish students do.

While not alarming, these differences should be addressed systematically in the supervision and possible as early as possible. There is e.g. a need for introducing new elements in the supervision, see the full report.

Concerning supervision it becomes clear that there are significant differences in the expectations to the guidance given by the supervisor. The non-Danish students expect significantly more direction than the Danish ones do. The foreign students tend also to expect the PBL-experienced students to take on the role as informal group leaders. In combination, concerning non-Danish students these three factors tend to encourage a behavior characterized being less active in the forming phase.

To feel at ease in the group is needed for PBL to function. This is what we refer to as psychological safety. The students in general consider that the psychological safety is high, yet there are still challenges in need of being addressed where the most outspoken is concern, especially among foreign student about speaking out in the group work. This means that they are slightly more hesitant to join actively in problem identification and solving – and as they are also less experienced in thinking out of the box – this combination can lead to a more passive role for the foreign students.

A natural question is then if the supervisors have the competencies for enacting supervision assisting the students in developing their cultural intelligence and implementing culture sensitive interaction strategies. The findings – and this is based on the students' perceptions only, not the supervisors

own articulated experiences – suggest that supervisor pay to little attention to group dynamics including to intercultural dynamics in the group (see table 13). The supervisors might have too much focus on the tasks and less on the group dynamics in general and especially the intercultural dynamics.

What should be done about it?

We recommend the following to students, supervisors and study boards to deliver appropriate pedagogical supervision.

- Supervisors need to pay more attention to group and intercultural dynamics as they influence group development and subsequent group performance. For example, supervisors could assist students in building up conscious strategies for addressing how cultural intelligence influence students from other cultural background than their own in the problem solving phase (and beyond).
- Supervisors could address psychological safety directly as part of supervision. For example, during the early group phases, supervision would benefit from trust building exercises in addition to the current task focus.
- Supervisors can address student voicing issues (not speaking up) by designing supervisions sessions in ways that give the students more time to reflect. For example, rather than expecting students to spontaneously engage in discussion, supervision practice and meetings could, among other things, focus more on incorporating breaks for reflections, encourage student presentations at meetings, or asking students to prepare in-advance an agenda with questions and their answers.
- The program coordinators need to be aware of group and intercultural dynamics and possibly receive training in cultural intelligence. The program coordinators also need to be in dialog with the supervisors about the challenge and possibly organize seminars targeted at the supervisors.
- The study board could make intercultural project supervision a mandatory theme in the programs coordination meeting and follow up consistently.
- Adjunktpædagogikum and supervisor courses should pay more attention to the challenge of group and intercultural dynamics.

The list is not conclusive but suggests a number of central solutions to the challenges. Supervisors need to accommodate the specificities of the study program, the character of the students, group dynamics etc. when implementing intercultural supervisions ‘experiments’.

What needs to be assessed further?

The study also revealed new topics in need of attention. The study in hand analyzed the conflicts pertaining to the forming phase but qualitative interviews revealed that the time pressure and stress level led to more pronounced conflicts in the performing phase. The study also found that a need for analyzing more in-depth the impact of the adjourning phase on students ability to overcome experienced intercultural conflicts. We also urge that further studies map the supervisors' intercultural competencies to be able to design the needed intercultural training programs targeting supervisors.

What have we done to ensure awareness about the challenges?

The results have been distributed to numerous stakeholders and we have made the team available for further discussions.

The results have been distributed to the following:

Teachers involved in the programs analyzed,

The study environment group in Copenhagen campus (meeting the 27th May),

The International office in Copenhagen,

All employees in our department in Copenhagen

Poster has been developed (to be presented the 'Teaching day' in Copenhagen.

Outside AAU a reference to the report has been posted on LinkedIn and .

Ongoing initiatives:

We will present the findings before the summer in a meeting on the campus where all employee at the Copenhagen Campus is invited.

We are currently writing a scientific article based on the findings.

We also planning to make a video with the findings, if we can get groups interested.

Summary

We found that the cultural differences are pronounced and creates challenges for the both students and supervisors. We identified a limited awareness of the problems among the supervisors (according to the students) and proposed recommendations for the various stakeholders.

Please consult the full report for more details.

