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PISH COUNTRY STUDIES (DENMARK)

PISH PROJECT

Prepared
by
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Section 1: Introduction

This report is part of a wider study conducted in the Problem-based Learning, Intercultural Communications and STEM in Higher Education (PISH) project. The project consist of partners from Denmark, Germany, Finland, Italy and Greece. The focus of the project is on promoting effective dialogue between students from different cultures in a Problem Based Learning (PBL) group setting. The effective dialogue enables the students to cooperate and collaborate better without cultural bias while studying on PBL project and study groups.

The first task towards promoting effective dialogue is to identify the cultural challenges students encounter in PBL project and study groups. To achieve this task three STEM teachers and six STEM students were interviewed. The students were interviewed in two focus group sessions. Half of the students interviewed were foreign students, while the other half were local students, as presented in table 1. The teachers were interviewed individually, due to scheduling issues. The study was replicated at selected Higher Education Institution (HEI) in each PISH partner country. Table 1 provides the profile of the respondents in Denmark.

TABLE 1: PROFILE OF RESPONDENTS TO THE COUNTRY REPORT.

	Profile of the respondents
● Number of teachers interviewed	6
● Number of students interviewed	6 (3 foreign students, 3 local students)



• Names of HEI represented in the Interview	Aalborg university Denmark
• Countries of origin of foreign teacher(s) interviewed (if the teacher is a foreigner).	Denmark, Albania and Greece
• STEM courses taught by the teachers interviewed	Danish teacher (Economics/Mathematics) Albania (Object Oriented Programming) Greece (Cyber security)
• Country of origin of students interviewed	Denmark (local students), Pakistan, Nepal and Malaysia.
• STEM discipline or field of study of the student	The Danish students study software Engineering and application development. The International students study
• Gender of teachers interviewed	All male
• Gender of students interviewed	5 male and 2 female were interviewed. Four of the male respondents were Danish.

The identification of these challenges is important. This is because it enables PISH partners understand the current state of the problem as well as identify different methodologies and tools that will enable the students deal with these challenges. Their ability to deal with the challenges enables the students from different cultures study effectively, leveraging on the knowledge and competence of one another within the PBL group. The tools however will be developed for the teacher, who will then use them to guide the students to solve the challenges. In this case, the teacher acts as the facilitator. The tools will be compiled in a toolkit for the teacher.

This report is based on the outcomes of the challenges identified in the focus groups and Interviews conducted with the students and Teachers in Denmark. The respondents were from Aalborg University, Copenhagen. The report is jointly produced by Aalborg University Copenhagen and Crossing-Borders Denmark.

Section 2: State of the art on HEI STEM in Denmark

This section provides an insight into the current state for STEM education in Denmark using a set of indicators. The indicators are provided in table 2. These are student and country based indicators. The section is divided into two sub-sections based on the student profile indicators and policies

governing STEM education in Denmark. Based on these indicators, PISH partners and readers of this report will gain insight in situation as it pertains to STEM education in Denmark.

Section 2.1 Profile of STEM students in Denmark

This section provides an insight into the profile of STEM students and their learning environment in Denmark. Here the reader will learn about the percentage of foreign STEM students in Denmark, the class size, and the number of STEM students admitted per years in Denmark. There was effort to identify the number of STEM students but that did not yield concrete results.

However, Denmark is a country with a strong education system, based upon its comprehensive welfare system, which offers free education to all EU/EEA students. Through insights provided by the statistics in table 2 below, it can be seen that STEM students accounted for 23.79 percent of all admitted students in 2021. However, in looking at the international aspect of Denmark's education system, it has a 11% higher share of international students than the OECD total (OECD, 2019).

TABLE 2: PROFILE OF HEI STEM STUDENTS IN DENMARK

Indicators	
<ul style="list-style-type: none"> Number of HEIs in the country. 	43 (Ministry of Higher Education and Science, 2021)
<ul style="list-style-type: none"> Number of STEM students in each HEI. 	STEM students admitted per year: 15,251 (2018), 15,448 (2019), 16,828 (2020), 16,040 (2021) (Danish Ministry of Higher Education and Science, 2021)
<ul style="list-style-type: none"> Average number of student per class. 	N/a
<ul style="list-style-type: none"> Average age of Danish students (Optional) 	21.4 years old (Rossander & Rasmussen, 2019)
<ul style="list-style-type: none"> Average number of foreign students in total 	34,030 (2017)
<ul style="list-style-type: none"> Percentage of students from EU 	Across all tertiary levels, the share of international students enrolled in Denmark is 11%, higher than the OECD total of 6%. About 83% of them were from Europe compared to 42% across the EU23 countries. (OECD, 2019)
<ul style="list-style-type: none"> Percentage of from Non-EU countries 	N/A

There are international students enrolled in STEM education in most of the 43 HEIs in Denmark. Some HEIs do not offer STEM education. However, it has been difficult to find the actual percentage of enrolled international student undertaking a STEM education in Denmark.



Nevertheless, STEM classes in HEIs in Denmark are often multi-cultural. The percentage of international students in a particular class also depends on the language of instruction. If the language of instruction is Danish, then the number of international students might be relatively small. If the language of instruction is English, then there will be a sizable number of international students. Majority of those students are from EU member states.

Section 2.2: State of the art on STEM education in Denmark

This section provides an insight into the policies governing STEM education in Denmark.

National attitude/policies and initiatives towards promoting STEM Education in Denmark.

There are numerous reasons why STEM is a hugely important sector for Denmark. It will be relied upon to promote Denmark's green transition goals, and it is the area in which the solutions of the future will be shaped. The significance of STEM in Denmark is highlighted by the fact that one in five new jobs in the Danish private sector is in STEM (Lederne, 2018).

In the ten-year period from 2008 to 2018 the number of Danish students receiving STEM education increased by 91%, with a total numerical increase of 9404 people during this period (Danmarks Statistik, 2020). Continuing that growth, between 2019 and 2020 there was a historically significant boost in students entering STEM in higher education institutes (HEIs) of 9%, however, between 2020 and 2021 the latest figures show that there was a 5% decrease in accepted STEM students. Nevertheless, the trend in the proportion of young people choosing STEM is still too slow. Even the historically high increase of 9% between 2019 and 2020 was considered tardy of an increase to some at the time, especially when considering the urgent need for STEM workers to enable Denmark to advance technologically and sustainably.

The decrease between 2020 and 2021 has worried many, but it was part of an overall decrease in university admissions for the year, which many have stated was inevitable due to the abnormally high influx of students to higher education in 2020 during the Covid-19 crisis (SCM Logistik, 2021). A significant positive of the current STEM education numbers, according to the Minister of Education and Research, Ane Halsboe Jørgensen, is the 10 percent increase in women joining STEM programmes in comparison to 2019 (Teknologiens Mediehus, 2021). While the increase of women in STEM programmes in Denmark is hugely positive, the fact that only 1 in every 3 STEM students in Denmark are women should not be overlooked (SCM Logistik, 2021).

Christina Laugesen, the head of education policy at Lederne, has called for new initiatives and a greater focus on attracting women to STEM educations (Lederne, 2021). She considers it a necessity, otherwise, it may end up costing a heavy price for Danish society and the labor market. Without women in STEM, Laugesen fears that the solutions of the future will only be made to suit one half of the population. This activity demonstrates that new efforts need to ensure the increase in women who can connect their future dreams and career choices with STEM education. This is



achieved by continuing to show that there is room for women in the study environments in technical education and by showing the breadth of career opportunities at the end of a STEM programme.

National initiatives have been created to strengthen STEM subjects from a Danish perspective (Faber, Nissen, & Orvik, 2020). One of the main focus areas is strengthening talent development in science through encouraging children and young people with a flair for science to develop their talent. Another initiative that should be mentioned is the Danish National Technology Pact, which is a coalition of a number of partners ranging from Government representatives (Minister of Business, Minister of Education, Minister of Education and Research and the Minister of Employment) along with companies, educational institutions and organizations, all of whom have pledged to disseminating knowledge of the STEM subjects, as well as running projects that promote STEM subjects.

University initiatives towards promoting STEM education in Denmark.

A number of Higher Educational Institutes has further pushed the importance of STEM education in the country, with many initiatives dedicated to recruiting young people into STEM related programmes. One initiative of note is a collaboration between all Danish Universities, in an initiative called Engineer the Future, in which AAU, AU, DTU, SDU, VIA University College and University College Absalon are all involved. Engineer the Future focuses on spreading awareness of the diversity in IT education within Denmark. Another initiative is the "IT-VEST" collaboration between AAU, AU and Syddansk University, which chooses to focus on bringing change to diversity in STEM regardless of gender, religion, sexuality, nationality, etc. The project identifies three focus areas; 1) recruitment and outreach, 2) onboarding, and 3) retention. (Faber, Nissen, & Orvik, 2020)

However, one of the more interesting aspects of Danish universities initiatives towards promoting STEM in Denmark is that they largely focus on addressing the gender imbalance within STEM. Each university in Denmark has initiatives that directly address the need for women in STEM, whether that be through IT-camps for girls, coding cafes for women, networking groups at universities for women in STEM programmes, and various events to introduce girls to STEM topics. (Faber, Nissen, & Orvik, 2020)

In addition to the IT-VEST collaboration, as mentioned above, there are also other examples of danish universities merging into different constellations of collaboration in the field. One such collaboration is future people, a nationwide collaboration/campaign involving eight Danish universities with the goal of raising awareness of the institutions' diverse IT education programmes that the universities offer. The following universities are included: AAU, AU, CBS, DTU, ITU, KU, RUC and SDU. (Faber, Nissen, & Orvik, 2020)

Teaching methods/approaches used in STEM education in country x (optional if you are not able the relevant information).



This section describes the mode of teaching and the nature of the STEM class in Denmark. The form of teaching and approaches to teaching vary slightly in each Danish HEI. The pedagogy framework governing the teaching activities in the university defines the form of teaching. For example in Aalborg University, the mode of teaching is Problem Based Learning.

Similarly, the class size where the teaching occur vary as well. There are classes that host about a hundred students or more in large auditorium and those that host about either about 60, 15 or 10 students. The latter three figures are mostly the case as opposed to very large class size of about 100. When it comes to STEM education, there are different reasons for the variation in class sizes. Some of these reasons include:

- a. Mandatory courses versus elective courses: Elective courses relatively have lower class size than those seen in mandatory courses.
- b. Multiplicity of STEM courses: Most STEM courses are highly specialized. However, some of these specialized STEM courses complement other STEM courses. For example, a person studying the development of web application and services will take courses similar to the person studying either software engineering or computer science. In some Danish Universities, a single department or education does not always offer the common courses. Rather such department or education could have a teacher that offer the same course. As a result, such class size could be either large or small depending on the number of students that have registered for the course and whether it is a mandatory subject for the course.
- c. Multidisciplinary/Interdisciplinary courses: There are STEM courses that are inter disciplinary. In such courses, a student from the other discipline can, if allowed, opt to register for take a STEM course. The course might be useful for either his or her project. It could also be that the course is a joint course provided jointly by two departments. Classes in such courses can also be large or small. They are more likely to be large if the course is mandatory.

Based on the pedagogical framework, teachers utilize different teaching methods. Such methods could be in either the form of a seminar, tutorial, lectures, group work within the class, project activities (where students learn on the project) or gamification. In some cases teachers may adopt more than one teaching method to either deliver instructions or facilitate group learning activities in the classroom. Hence, teachers are allowed to be creative, within the university's pedagogical framework, in how they teach or engage with students in different class settings. To provide an insight into the class setting and teaching method in Denmark, Aalborg University was used at the case. Three STEM teachers, from Denmark, Greece and Albania were asked to describe their class setting and teaching methods. The STEM teachers teach **mathematics/economics courses**, Cybersecurity and Object Oriented Programming respectively. Their feedback are presented in table 3 below. The STEM teachers teach object oriented Programming, Cybersecurity and **Economics/mathematics**. The feedback from these respondents are presented in the table below.

The case of Aalborg University.



The pedagogical framework at Aalborg University is Problem Based Learning as mentioned earlier. The class demography, class size and teaching method adopted by the teachers, interviewed are presented in table 3 below.

TABLE 3: OVERVIEW OF CLASS SETTING FOR HEI STEM STUDENTS IN COUNTRY DENMARK

General Respondent Indicators	
<ul style="list-style-type: none"> Average number of students in the respondent students' classes. 	<p>An average of 30 to 40 students. About 10% to 30% of the class are female.</p>
<ul style="list-style-type: none"> Average number of foreign in the same class with the respondent student. 	<p>At the bachelor and masters, for courses taught in English, almost 50% of the students are International students. For courses taught in Danish, International students are less than 40%.</p>
<ul style="list-style-type: none"> Mode of teaching (eg, active learning, collaborative learning, 	<p>The mode of teaching involves active and collaborative learning via Gamification, group work, lectures, learning via projects using PBL.</p>
<ul style="list-style-type: none"> Mode of student interaction within the class 	<p>Student interact throughout the semester via collaborative projects with their classmates. They also interact in the class via collaborative class exercises, tasks and assignments. Such task could be a mini project, which is separate from the semester project. The mini-project is also a semester long project but it is centered on the course. While the semester project is broader as the student elicits inputs from different relevant courses to either solve or investigate a problem.</p>

Based on the feedback of the teachers, it is clear that they teach STEM classes ranging from small to average class sizes. In their STEM classes, there are more males than females and a sizeable number of International students. The highest number of International students are from European countries and China¹. In the case of students from the former, free tuition in Denmark is an incentive. However, the number of foreign students decrease, once the course is in Danish.

Nevertheless, the mode of teaching used by the teachers promotes collaborative learning. The students collaborate around a project to fulfil their learning objectives. The students also collaborate in regular class exercises as well. One could say that there is an element of cooperative learning

¹

<https://studyindenmark.dk/news/considerably-more-international-students-pursuing-a-full-study-programme-in-denmark>



here as well, as the students also possess the individual goals of both gaining the right knowledge as well as acing their examinations.

However, the utilization of different teaching methods helps the student gain knowledge as an individual and as a collective unit. It helps the student to also learn pragmatically how to work together in a group as well as how to accommodate people from different cultures. The teacher acts as a facilitator in the learning process by providing the roadmap as well as supervising the learning process. The teacher also in some cases provides theoretical overviews that will help guide the student in their learning process within projects.

To ensure effective learning among the different groups in class, the group size is often small. They are typically between two and six students. The size of the class project groups are decided by the teacher of the course.

The description provides an overview of the teaching method and how it is utilized in an HEI in Denmark. Other HEIs have different approaches. In the next section, the intercultural challenges encountered by foreign and local students in their project group, class groups, and outside the classroom will be described. These challenges described will be based on feedback from the foreign students, local (Danish students) and teachers interviewed.

Section 3: 1

This section highlights the intercultural communication barriers and challenges encountered by students within and outside the classroom. The context of the problem in the classroom, as mentioned in the previous section, are multicultural PBL groups. The context of the problem outside the classroom are problems encountered by either the local or foreign students in multicultural groups outside the classroom.

To gain an insight into these challenges, the aforementioned teachers, three foreign students and three Danish students were interviewed. The three foreign students were Master students from Nepal, Pakistan and Indonesia. The Danish students interviewed were Master students who, except one were also previous bachelor students from AAU. The Danish students were IT engineers, while the foreign students with interdisciplinary background but also studied IT engineering courses. In essence, both cluster of students were either full or partial STEM students. The profile of the teachers were mentioned earlier.

The outcome of their reflections are reported in two sub-sections of this section of the report. The first sub-section presents insights into the intercultural challenges encountered by foreign and local students in the classroom. The Second sub-section presents insights into the intercultural challenges encountered by foreign and local students outside the classroom.



Section 3.1 Intercultural challenges encountered by Students within the classroom

In this section, the reader will find the feedback on the challenges encountered in PBL groups in the classroom as described by the teacher, foreign students and local students respectively. The caveat in this section is that, the challenges mentioned here are those experienced by the respondents. Their experience may not be universal, hence it should not be generalized.

1. **Intercultural communication challenges as observed by the teachers in the classroom**

The teachers, interviewed listed some of the challenges they have identified within student groups they either teach or supervise. However, they did observe that the problem is greater at the bachelor level than at the Master level. This is because the Master students are fewer, busy with their work and already have their networks outside classroom. Whereas the bachelor students are much more, numerically, and are eager to know one another.

The most obvious challenge observed is that of clusters. These are clusters of local students working together and clusters of foreign students working together. This is observable in both the Master and bachelor level. Although the clustering is not a norm as there are successful groups with a mixture of foreign and local students, the clusters are common. The teachers surmise that it has to do with the students not knowing themselves. Hence they rather stick to people they are comfortable with. The teachers also provided insight into how the problem could be solved. This is reported later in this report.

Here is a breakdown of the challenges identified by the teachers.

- a. **Challenges with students collaborating with one another:** it is the teachers' opinion that cross-cultural collaboration could be better especially within semester project group. This is because every now and then clusters emerge because students pretty much decide whom they will collaborate. The teacher pointed out that the problem is greater when it comes to class project. The reason for this challenge is that students do not really know themselves. This makes it easier for students to work with people they are either familiar with or have a history of past collaboration. In most cases, the student where they share previous collaborative experience will be a local student.
- b. **Misinterpretation of verbal and non-verbal communication:** The teacher indicates that the problem exists as a result of cultural differences. However, the teacher concedes that the problem is not significant because students pretty much communicate in English.
- c. **Challenge of building bridges:** This is challenge encountered mostly by foreign students. This is evident in their not being able to join the class groups consisting of local students. This results in different clusters developing. This results in a trend where International students work together while local students work together with local students. The cluster is possible because the percentage of international students are high.
- d. Challenges related to not understanding the teaching and grading culture in Denmark. This is not necessary a culture issue, it also has to do with character.

2. Intercultural communication challenges as experienced by foreign students

- a. **Difficulty in bonding with other international students:** This challenge is about the initial difficulty towards bonding with other international students from other cultures in project groups. A student from Nepal, working with another international student, observed this challenge. This challenge arose from the inability of the student to create a working relationship with her project group member from another culture. The source of the challenge is in her inability to find a working rhythm with her group mate. In the student's opinion, the bonding would have been easier if they were able to bond outside the group as well. However, due to cultural difference, it is difficult for her to break the ice. The student further observed that she would not have faced the challenge if the other international student were Nepalese as well. This being that she would have had certain things in common that enable her to bond not just when studying but outside as well, which will aid the group dynamics.
- b. **Difficulty in bonding with local students:** The three respondents faced greater challenges bonding with local students. This in part is because they subscribe to a different education from the local students but take courses and participate in group academic activities with the local student. The student expected the local student to reach out and invite her into their class group. However, the student mentioned when she was paired with local students, the local were welcoming. Hence, one could also surmise that the local students might also have similar expectations of being invited into their group as well. This surmisation is because one of the respondents from Nepal had a good experience where she became friends with a local student after working together in a group. However, this is not always the case.
- c. **Language barrier:** A respondent from Pakistan noticed that local students often do forget that they have foreign students in their group. Hence, they switch to Danish (the local language) unconsciously in the course of the discussion. This makes it challenging for the local student to capture the knowledge conveyed, especially if there is no interpretation afterwards. Another aspect of this challenge although not mentioned by the respondent is that their inability to speak Danish could also be a problem.

3. Intercultural communication challenges as experienced by Danish students in the classroom.

The Danish students interviewed had worked in PBL project groups with foreign students. However, over the years, they have maintained a closed group. They indicated that generally, Danish students are always open to working with foreign students. However, they experienced and observed as well that the teacher's meaningful effort to create multicultural PBL groups sometime fail. The groups sometimes metamorphose with Danish students preferring to work with other Danish students. The reasons for the break up are neither racial nor stereotypical but as a result of the experiences of the Danish student with the multi-cultural group. It should be



noted that these are observations of the respondents and neither a generalization of the problem or the norm in any of the Danish HEIs.

- a. **The burden of expectations:** The respondents pointed to the fact that they want good grades, hence everyone in the project group ought to be proactive towards that goal. Their experience in working with foreign students indicate that foreign students are often bugged with issues that could make them slack in what the groups expect from them. Such issues include, resident permit requirements, working extra hours to make ends meet etc.
- b. **Lack of knowledge of the competence of the foreign student:** The respondents indicated that the semester is quite short and they have to start working from day one. However, they are unable to decipher the competence of the foreign student and how it will help the group achieve the grade they desire in the exams. They would appreciate having a period at the beginning of the semester, where they get to meet the foreign students that will be taking classes with them. This will enable them socialize as well as get to know the competence that will be of added advantage to their group projects. For example, a foreign student might be a good software developer etc. They noted that these gatherings will help them bond. Otherwise, with the current semester structure, they have little or no time to learn about the foreign student. Hence, they prefer to work with someone they know or is from the same culture.
- c. **Differences in work ethic:** Another challenge identified from a cultural point of view is that the work ethic of some foreign students (they did not mention the culture), they have worked with, does not match theirs. For example, when given a task Danish students do not wait for instructions. They proceed to brainstorm on how to solve the task. However, for some international students, they can only contribute if they have clear instructions. It often results in personal friction and delay in the delivery of tasks, which affects the project activity as a whole.

The immediate take away from the feedback from students is that both local and foreign students possess the desire to work together. However, the major challenge lays in how and in what way they can reach out to one another to collaborate and cooperate in the learning process. For the Danish students, cooperation is high on the agenda towards working together. While for the foreign students, collaboration is high on the agenda towards working together. This is a challenge the teachers have to recognize. However as will be revealed later, the three group of stakeholders believe the solution to these challenges are outside the classroom and not within the classroom. This is as a result to the tight time schedule allocated to each semester.

Section 3.2: Intercultural communication Challenges encountered outside the classroom

Our respondents did not really delve into the challenges they encounter outside the classroom. However based on the answers provided by Danish students, they are already a tight group of friends and network outside the classroom. Hence, the need to go hunting for new friends is not there. But as mentioned earlier, they are interested in knowing their classmates. Currently the



university hosts the Friday bar, where students socialize. The problem from the perspective of the interviewed Danish students is the broadness of the initiative. They will not find who they know over there. Hence, they propose class centric socialization events.

The international students from Nepal and Pakistan are part of the young professionals in Denmark and international online internship with a multicultural organization called Ubertrip respectively. They did not identify challenges to their collaborations in these organizations. This is because, these are organizations that help prepare them for the labor market. In such organizations, people are open to learn from one another as a way of building their capacity to find new jobs.

However, when it comes to interacting with their classmates outside the class, the interaction actually begins in the classroom. When local and foreign students are unable to interact beyond being polite to one another, then chances of their interaction outside the classroom is slim. Hence, there is little or no interaction in general with persons they do not have a rapport with. Although this discussion is within intercultural communication, actually this transcends to personality as well.

The teachers interviewed have adopted initiatives to solve the problem. In

Section 4: Challenges encountered by HEI Teachers in solving the identified challenges.

The teachers interviewed have adopted initiatives to solve the problem. These initiatives are listed in section 5. However, these small-scale initiatives targeted the challenges posed by clustering. Hence, these initiatives have not gone a long way in addressing some of the other problems raised by the students. This is also because teachers are not aware of the root cause of the problem. However, having said so, the teachers did not encounter challenges in the initiatives they adopted.

Section 5: Initiatives adopted by HEI teachers to solve the problem

An initiative adopted by the teachers to deal with clustering involves the mixing students more during class project groups. This initiative enables the local student and the foreign student learn more about each other's knowledge, work ethic etc., as they work together. The class group project environment is also ideal, as the outcome of such projects do not count as continuous assessments. Which is the case for semester and course projects. Hence, both foreign and local students are relaxed and can help each other in the learning process. As mentioned by the foreign student from Nepal, one of such initiative led her to engage better with her local Danish colleague in the group outside the classroom. Furthermore, the class group project environment reveals the competences of the local and foreign student to each other, so if they have to form a group, they have an informed basis for working with one another.

Aside helping students work together, the teacher have also adopted measures to ensure that they take cultural difference into how they communicate to students. In one of such measures, the teacher involved had to change how he communicates with local students. This is because most



international students emerge from cultures where the teacher is an authority, whereas for the local student, the teacher is more of a facilitator and not an authority. Hence, the teacher had to adapt to become more of a facilitator than a teacher when dealing with local students. In another instant, the teacher is conscious of not using words that can be perceived as either stereotypical or prejudicial to any culture in class. This act creates an atmosphere where students from different cultures respect each other and are willing to work together despite their differences.

Section 6: Recommendations from students and Teachers on how to solve the challenges.

So far in the report, there have been recommendations on how to solve some of the problems mentioned. In this section, the recommendations are segmented. The first set of recommendations is from the teachers, followed by foreign students and local students.

Recommendation from Danish students.

The Danish students interviewed were very open to learning about more about foreign students, but specifically what they can offer to the PBL group. Their recommendations were as follows.

- A class get together at the beginning of the semester: Such initiative should occur when they are freshmen. This enables them interact with their potential classmate and get to know them better as well as their competences. They frowned against the current university approach where such events are organized at the education level. In such a scenario, they do not know who their potential classmates would be.
- Occasional class get together: They also proposed the need for occasional class get together. The caveat was that such get together should not be at the thick of the semester. That is because they would be busy.
- Occasional outdoor class event: Another proposal from the Danish student was inspired by a practice in some education in Copenhagen University where the class could take a weekend off camping.

Recommendations from foreign students

Just as in the case of Danish students, foreign students were also eager to work together with local students. But they felt that it is difficult to break into such groups. One of the reasons for this is the language barrier. Hence they came up with the following proposals:



- A cultural day: The respondent from Pakistan recommended a cultural day, where students could learn about other culture. This will enable students understand their similarities and differences and how to work together despite these differences.
- A class end of semester event: The respondent from Indonesia proposed an end of semester event at the end of the semester. The reason for the idea is that local students already have tight knit groups during the semester. Hence an after semester event will help both local and foreign students get to know each other before the next semester.

The proposals are not aimed at dealing with the language barrier as such but with having the chance to interact.

Recommendations from teacher.

The teachers were not sure that master students and bachelor students in their third year of study will be interested in social events. This is because they have jobs and it becomes difficult to organize events. However, they propose that such events should be classed based. They further proposed class sport activities, small gathering where the teachers also attend. This enables the student to interact with not only the students but teachers as well. They also lauded the university Friday bar initiative and initiatives from individual teacher, for example, the STEM female engineers etc. It is the feeling of the teachers that such activities will enable the students to get to know one another and be more open to working with one another in PBL groups.

Conclusion

The outcome of the interviews were interesting. The local students and the foreign students are interested in working together but do not know how. The foreign student interprets the reserved nature of the local student as lack of openness, whereas the local student is open but in a way that is different from what the foreign student understands. The local student on the hand is in search of foreign students to work with, but does not know how to go about it.

However, based on the proposed solutions offered, the teachers and students seem to indicate that the solution to the identified challenges are outside the classroom. The idea is that students are more likely to work together if they know each other. This is true in an environment where people actually possess intercultural communication skills. Students do not need so much intercultural communication skills to get along in an event. However when they are involved in a serious task, such as working on projects in a PBL environment, the stakes are high. Their future depends on it and misunderstanding; differences of opinion on how to solve the task at hand arise. In such a scenario, either a local student or foreign student might either become very vocal or reserved if they either do not care about each others feeling or want to spare each others feelings. In such a situation



clusters may emerge again, if either the local student or foreign student decides to work with someone who has a cultural understanding of his or her thinking and behavior. Someone he or she can communicate with and collaborate better.

Hence, in addition to the extracurricular activities aimed at helping both local and foreign students work together, there is the need for training on intercultural communication.

References

- Danish Ministry of Higher Education and Science. (2021). *Optagelsen 2021*. Hentet fra <https://ufm.dk/uddannelse/statistik-og-analyser/sogning-og-optag-pa-videregaende-uddannelser/2021/notat-5-stem-it-og-ingeniorer.pdf>
- Danmarks Statistik. (24. September 2020). *STEM-studerende næsten fordoblet på ti år*. Hentet fra <https://www.dst.dk/da/Statistik/nyt/NytHtml?cid=33210>
- Faber, S. T., Nissen, A., & Orvik, A.-E. (2020). *REKRUTTERING OG FASTHOLDELSE AF*. Hentet fra https://veluxfoundations.dk/sites/default/files/rapport_villum_fonden_kvinder_i_stem_2020_final.pdf
- Lederne. (27. July 2018). Hentet fra <https://www.lederne.dk/presse-og-nyheder/pressemeddelelser/2020/glaedeligt-med-flere-studere-nde-paa-stem-studier>.
- Lederne. (28. July 2021). *Kun hver tredje nye STEM-studerende er kvinde*. Hentet fra <https://via.ritzau.dk/pressemeddelelse/kun-hver-tredje-nye-stem-studerende-er-kvinde?publisherId=4827139&releasId=13627226>
- Ministry of Higher Education and Science. (2021). *Recognised higher education institutions*. Hentet fra <https://ufm.dk/en/education/higher-education/the-danish-higher-education-system/hei-list#portal-logo-wrapper>
- OECD. (2019). *Education at a Glance 2019*. Hentet fra https://www.oecd.org/education/education-at-a-glance/EAG2019_CN_DNK.pdf
- Rossander, L., & Rasmussen. (2019). Hentet fra <https://uniavisen.dk/en/20-facts-about-danish-students/>
- SCM Logistik. (5. August 2021). Hentet fra <https://scm.dk/kun-hver-tredje-nye-stem-studerende-er-kvinde>
- Teknologiens Mediehus. (28. July 2021). Hentet fra <https://ing.dk/artikel/optag-paa-stem-uddannelser-falder-ventet-ida-formand-au-dekan-bekymrede-248644>



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