

Evaluating students' expectations and experiences regarding a Swedish-Bhutanese teaching exchange

Niko Gentile¹, Tshewang Lhendup², Cheku Dorji² and Henrik Davidsson¹

¹ Department of Architecture and Built Environment, Lund University, Lund (Sweden)

² College of Science and Technology, Royal University of Bhutan, Thimphu (Bhutan)

Abstract

This article evaluates students' expectations and feelings of a short bi-directional *International Credit Mobility (ICM)* teaching exchange between Lund University, Sweden and the Royal University of Bhutan. The teaching exchange regarded two courses on fundamentals of energy production from PV and fundamentals of daylighting. The evaluation was carried out via focus groups. The results suggest that students of both countries have high expectations on exchange teachers, which represents both an opportunity and a threat. The students expected and confirmed that the exchange could provide distinguished point of views on the same aspects of renewable energy. The students longed for extended and periodical exchanges with international teachers. Surprisingly, there was little discussion on the different teaching styles of the exchange teachers. Since exchange lectures were attended with enthusiasm, we conclude that these lecture may be planned for core parts of course. Also, we found that proper exchange planning is needed in order for the exchange to be successful.

Keywords: teaching and learning, students' expectation, daylighting, PV, renewable energy, constructivism, transmissive teaching.

1. Introduction

The action *Capacity Building in Higher Education – Key Action 2 (KA2)* of the *Erasmus+* program is an effort of the European Commission to support international, modern and accessible higher education in EU and non-EU partner countries. Among others, the program supports joint projects having as goals the development, testing and adaptation of learning and teaching methodologies and pedagogical approaches (European Commission, 2019a). Such goals are challenging, especially when the exchange involves partners with different traditions in teaching and learning.

During the years 2015 to 2018 Lund University (LU) coordinated a KA2 project called “Curricula development of Interdisciplinary Master Courses in Energy-efficient Building design” (CIMCEB) in Nepal and Bhutan. The project focused on capacity development within the field of pedagogical methods. Therefore all workshops and all classes, within the CIMCEB project, were carried out by teachers for teachers; more information are provided in Davidsson et al. (2017). This activity was complemented by a spin off to the CIMCEB, namely an *International Credit Mobility (ICM)* exchange between Lund University and the Royal University of Bhutan (European Commission, 2019b). In this project two teachers from Bhutan were invited to teach to students at Lund University in Sweden and four teachers from Lund were invited to teach to students at the Royal University of Bhutan (RUB).

The ICM exchange program included basic of solar PV in both Sweden and Bhutan, where the teaching was implemented in existing teaching modules. Because of the additional two Swedish teachers, the Bhutanese students were also provided with an additional crash course on daylighting fundamentals and daylighting modelling, which was outside their normal learning curricula.

Building on the experience of CIMCEB, the Bhutanese and Swedish teachers involved in the ICM exchange decided to gain a better understanding of the effectiveness of their teaching approach in respect to students with diverse cultural background and supposedly different teaching traditions. This was done by organizing focus group interviews with the students immediately before, immediately after, and about one month after each

teaching exchange. The focus group explored students' expectation and experiences about the exchange. This paper reports on the evaluation of the focus group interviews. By exploring students' expectation and experience, the paper aims at contributing to more effective teaching exchanges in the field of renewable energy.

1.1. Relevance of evaluating teaching exchanges

Teaching exchanges can change the world perspective of teachers, raise their cultural awareness, and positively influence their home teaching; even their research is greatly affected by getting acquainted with different teaching traditions and methods (Alkarzon, 2016; Law et al., 2011). Faculty exchanges also have a direct and almost immediate impact on teaching, research and service internationalization at their home universities (Alkarzon, 2016). But it is on the students' development as human being and professionals that teaching exchanges unleash their whole potentiality. A comprehensive survey on 6391 individuals who got some education abroad during their studies provided scientific evidence that studying abroad is beneficial in respect to individuals and global goals, such as production of knowledge, entrepreneurship, civic engagement, and, not to be forgotten, philanthropy and voluntary simplicity (Paige et al., 2009).

In the field of engineering, the value of implementation and evaluation of teaching exchanges is perhaps even greater. Borrego and Bernhard (2011) analyzed the didactical traditions in regard to engineering education, limitedly to European countries and the U.S.A.. They found different traditions with distinctive approaches. For example, they claimed that European teaching approach tends to ground on authentic problems which are solved in a cross-disciplinary approach, while the U.S. approach is more evidence-based and set stricter disciplinary boundaries (Borrego and Bernhard, 2011). This example is not of secondary importance. Indeed, the comprehension and evaluation of corresponding prospects is crucial for a growing international education in engineering. To use their words "*More than ever before, we will need to bridge international perspectives, disciplinary values, and education research and practice*" (Borrego and Bernhard, 2011, p. 38).

When considering renewable energy, it is not only the teaching style being enriched. The mere presence of students with different backgrounds is an added value for both the class and the teacher. The fact of applying general knowledge to specific contexts – e.g. in terms of climatic conditions or available resources - generates a number of new challenges which eventually lead to new solutions. Diversity becomes, in fact, an "*enhancement factor for pedagogy*" (Gutiérrez et al., 2018, p. 270) in the field of renewable energy. As a matter of fact, students list diversity in both classmates and teachers as one of the success factors of any educational program in renewable energy (Holtorf et al., 2018).

Although the education in renewable energy would benefit from teaching exchange, there is a shortfall of worldwide course offered on the topic. Lucas et al. (2018) compared such offer to the industry demand. They found that there is a considerable deficit of educated experts, and their competences are often too generalist. Additionally, they found that course offer is concentrated in Europe and North America, while there is a lack of offer in developing countries (Lucas et al., 2018).

In respect to the latter, Bhutan suits well the establishment of extensive educational programs on renewable energy, especially in the field of passive and active solar technologies. First, because the solar potential of Bhutan and surrounding countries is high (Gelsor et al., 2018), and the energy demand is constantly increasing (Hassan et al., 2017). Secondly, and perhaps even of greater importance, because the Bhutanese challenging "zero carbon commitment" implies strong policies and massive investments in renewable energy (Newman and Yangka, 2018).

Building on these considerations, we, authors of this paper, promoted the *International Credit Mobility (ICM)* exchange between Lund University and the Royal University of Bhutan that it is here evaluated. When planning the exchange, we considered that, to success, the exchange preparation should be structured and post-exchange activities should be planned (Law et al., 2011). Especially the exchange preparation phase led to a profound reflection on the teaching methods that we had to adopt. Indeed, based on anecdotal observations, we supposed that the Swedish teaching and learning traditions would differ from the Bhutanese one, challenging the students' expectations and, thus the success of the exchange. Such observations were confirmed by literature. For example, the extensive OECD Teaching and Learning International Survey (TALIS) 2013 (OECD, 2013) and the results of two years of consultancy for the European Commission carried out by Dow (2006), suggest that European teaching approach is grounded on social constructivist principles, whereas the Bhutanese approach seems to be traditionally

transmissive (Stacy and Bennett, 2017). However, it should be mentioned that, aided by the small size of the country, the literature on Bhutanese teaching and learning is limited (Gyamtso and Maxwell, 2012), and the Bhutanese case is extremely particular. Transmissive teaching tradition comes from Bhutanese deepest Buddhist roots, while secular education seems to be much more constructivism-oriented (Gyamtso and Maxwell, 2012). While constructivist approaches are promoted in secular education, the workload on teachers seem to be a barrier to their practical implementation (VanBalkom and Sherman, 2010).

Just as the difference between the constructivist and the – hypothetically – transmissive approaches, other differences in the teaching and learning traditions may be found between the two countries.

In view of such complex situation, we decided to experiment our short teaching exchange grounding our lectures on our own traditional teaching styles. However, we wanted to explore students' expectations and experiences in order to gain knowledge for future longer exchanges. In particular, we addressed whether our teaching-as-usual would meet students' expectation when implemented in alien environment, and which are the opportunities and threats connected with such strategy.

The ultimate goal of this evaluation and reflection is to plan future effective teaching exchanges aimed at the development of internationally relevant in-house Bhutanese courses on passive and active solar energy, as well as to increase the internationalization of existing courses in Sweden.

1.2. Limitations of the study

The study has a number of limitations which conditions the strength of findings. Among those, we would like to highlight the following three. Firstly, due to the small sample size, there is no statistical analysis of results and most of the conclusions are drawn on a qualitative analysis. Secondly, the Swedish class includes mostly exchange students. However, over half of them are originally from Europe, which we consider homogenous in terms of teaching style and traditions. Finally, the course on daylighting in Bhutan is not part of the normal curricula; thus, expectations may be biased by the originality of the course.

2. Methods

2.1. Data collection

The students' expectations and experiences were evaluated for the PV course in Sweden and the daylighting course in Bhutan. The PV course in Bhutan was not evaluated due to small student sample. The evaluation was based on interviews in the form of focus groups, completed with cross-check questionnaires. The focus groups were conducted in three occasions: immediately before, immediately after, and about one month after the conclusion of the teaching exchange. The first two occasions were necessary to assess the students genuine expectations (before), their initial thoughts on the actual matching of such expectations (immediately after); the third was planned to understand the students thoughts after absorbing the teaching experience, since a change in students evaluation over time has been highlighted in literature . The protocol of each focus group was as follow:

- Focus group interview
- Hand-in of a focus group manipulation check questionnaire

Each focus group lasted for maximum 30 minutes. After the focus group, the focus group manipulation check questionnaire and the course evaluation were handed in to the students in printed form. The interviewer left the room and left the students answering to the questions privately and anonymously.

The focus group interviews followed best practice as illustrated by Robson (2011). The participation was on anonymous and on voluntary basis; in addition, the students could drop out at any moment of the interview. The focus groups were conducted by independent and trained moderators, who did not participate in the teaching exchange. The interviews were recorded and later transcribed by external researcher. As a rule, each focus group was participated by a maximum of seven students. The Bhutanese focus groups interviews were conducted in Dzongkha language; due to presence of exchange students in the Swedish course, the Swedish focus groups were conducted in English language. However, the questionnaires were handed-in in English to both groups.

The interviews were conducted in a comfortable environment, with students and interviewer sitting around a table.

The moderator started by welcoming the students, introducing the topic, and acknowledging the importance of their participation. The students were also provided with general guidelines; they were reassured that any opinion was welcomed and that they should speak freely. The moderator addressed the following open-ended questions:

- What do you expect from this course?
- What do you expect about the teachers?
- Do you think that this course will be useful for your future?

The same questions were posed in past tense form for the focus groups carried out after the exchange. Although the questions were possibly dichotomous, the moderator tried to invite for a deeper reflection and discussion. The questions were intentionally open and we did not address the teaching style as main topic. The intention was to see if different teaching style was so impactful on students' expectations to be independently brought up as matter of discussion in the interviews.

At the end of the discussion, the moderator hand-in the two questionnaires and left the room.

The manipulation check questionnaire aimed at evaluation of the quality of the focus group interview, in respect to both the moderator and the other participants. This aspect is of outmost importance, being group dynamics a strength and limitation a focus groups (Morgan, 1996). The questionnaire was adapted from the one proposed by Fife (2007, sec. Appendix B), this being based on the work of Morgan (1996).

2.3. Data evaluation

The recorded interviews were transcribed in written form by an external researcher. The aim was to analyze the written interviews by using a semi-statistical approach (Robson, 2011). In practice, recurrent words and terms were identified and categorized in thematic area. The most recurrent words or group of words would describe thoughts of the students. However, this was possible only for the Bhutanese interviews, while the Swedish one included less students and more concise interviews. For the latter, a qualitative analysis of the interviews was performed.

The questionnaires were analyzed in terms of frequency of answers, but no significance analysis were conducted due to the small sample size.

3. Results

3.1. Participation and focus group manipulation check

The focus groups were participated by 33 of 33 Bhutanese students (100% response rate) and 10 of 21 Swedish students (48% response rate) (Table 1). However, the third occasion in Bhutan was participated by 29 students, and the Swedish participation decreased over time, starting with ten students at the first interviews, and only six at the following two. The decrease in participation, which was totally on voluntary basis, was linked to a busy study period for the students, who understandably favored their mandatory activities. This circumstance limited the amount of data collection and, thus, the results.

Tab. 1: Summary of courses structure and number of interviewed students

Course	Length (hours) and	Number of exchange teachers	Students (total/participating in the study)	Remarks
Daylighting – theory and simulations (in Bhutan)	16 hours Mar/Apr 2018	2	33/33	Students were BSc, MSc and faculties
Basics of PV systems (in Sweden)	16 hours Sep 2018	2	10/21	MSc students, many exchange students

In regards to the focus group interviews, the interviews seem to have been conducted in a proper way (Figure 1). Most of the students felt free to speak their mind and they could freely discuss important aspects of their expectations. The groups were also quite well sorted, as only in few cases the students

felt that someone was dominating the discussion. Overall, it seems that the results were not biased by group dynamics or the moderator.

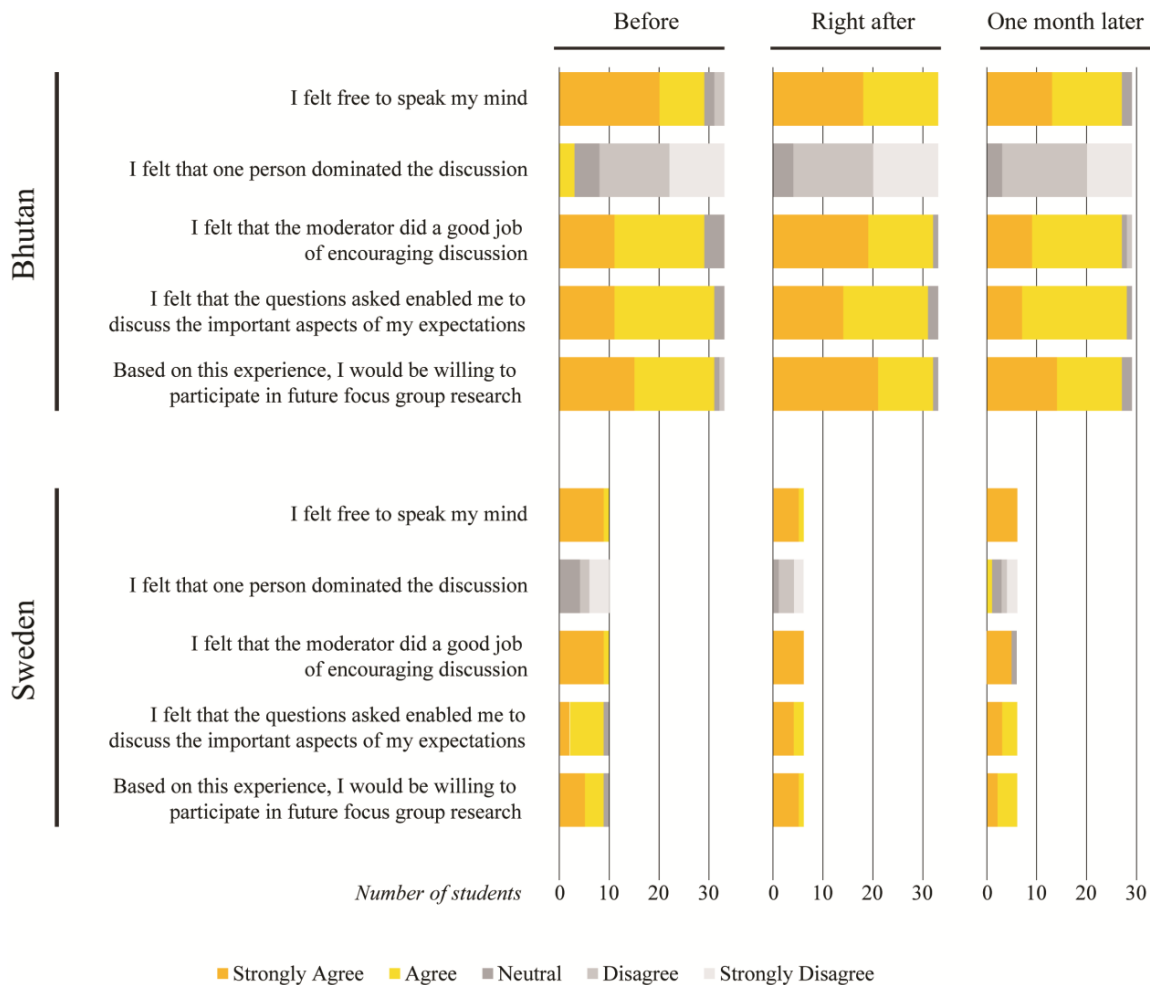


Fig. 1: Results of the focus group manipulation check questionnaires

3.2. Results from the focus groups in Bhutan

Before the start of the daylighting course in Bhutan, the Bhutanese students took part in the first focus group interview.

When they were asked about course expectations, all the comments were on “facts”. Most of them were on scientific knowledge, on simulations and requirements; many others on knowledge about sensors and technology.

Three students use the word practical, “*practical demonstration*”, practical examples and practical oriented learning. The other students use expressions such as “*real life examples*”, “*provide us the necessary guidance*”, “*should be willing to share resources that will benefit us*” and to “*clarify our doubts*”. There is thus a tendency of expecting to be served facts and methods. At the same time three of the students mentioned “*interactive session*” or “*group discussions*” indicating that they do not only expected traditional desk teaching from the teachers. However, there were no comments on soft values such as cultural setting, or the fact that they will have a teacher from Europe that might have a different approach.

When asked to discuss about the future opportunities brought by this course, all students focused on technical benefits such as; “*implement lighting design*”, “*proposing passive design*”, “*designing sustainable building*”, “*efficient daylight*” and “*advanced simulation software*”. Even for this question the students did not mention cultural or geographical differences.

Right after the course, the large majority of the students said that the course lived up to the expectations or was even more than expected. The common factor among the positive students was the software teaching/program.

The negative student considered the course to be too much repetition from earlier courses, especially for the theoretical part. Some of the partly satisfied students brought up a lack of training using technical instruments and little understanding on how to use the simulation program for different buildings. Surprisingly, none of the students mention the cultural exchange, even if the content included only examples from European daylight architecture.

All students think that the teachers lived up to the expectations. Nineteen students also used words or phrases such as “*helpful/help*”, “*patient*”, “*friendly*”, “*kind*”, “*approachable*”, “*frank*”, “*responsive*”, “*asked*” (e.g. asked if everything was going well) when they describe the teachers personality. Nine of the students describe the teachers using words or phrases such as “*knowledgeable*”, “*highly learned*”, “*professional*” or “*highly experienced*” when they describe the competence. In practice, it seems that, in respect to their initial expectations, the students focused more on soft aspects of the teachers, rather than on knowledge and content. However, there is no clear mention of different teaching style or approach, namely there is no comparison with their teaching as usual. The guest teachers are not “more friendly” or “more approachable” than what they are used to, but certainly these qualities are highly valued by the Bhutanese students.

One of the students note regarding the teachers that “*they were trying their best to adapt in the new environment*”, indicating that this student understood that the teachers had to and was trying to adjust to a new teaching situation in a new and different culture. Students also express gratitude to the teachers for answering questions during the breaks and for sharing lunch with the students at the student’s dining hall. Finally, all the students agreed that the course would have been useful for their future profession, especially in respect to the simulation part.

After one month, the students’ comments did not change much. There were still positive comments about the course, although some complaints about the length of the theoretical part was raised. Similarly, the students claimed that it was difficult to proceed with the simulations without a teacher support; this would most probably require longer teaching exchanges, in order for the students to reach proficiency with the software.

The comments on teachers remained unchanged, with a large majority of positive comments on “soft” aspects of guest teachers, and few on their knowledge. For the first time, six students expressed future support via e-mails from the guest teachers as something that would be needed and much appreciated.

Even after one month, all students considers the course to be helpful in the future. Interestingly enough, only four of the students spoke about usefulness of simulation or software. This diverges a lot from the previous interview, when thirteen students mentioned the same aspect. After one month the students spoke more about what they have learned rather than how they did it (in this case through simulations). The knowledge thus appears to have matured over time.

3.3. Results from the focus groups in Sweden

Before the course, the students’ expectations about the course were mainly about the technical content of lectures. For example, in the first interview group the first speaker mentions technical aspects like “*the physics behind the whole things*” and “*practical use of PV systems*”.

This theme is later repeated from other students, when they use phrases such as “how everything's works... practical use of PV systems”, “...PV about how they are different and how they function and how they can be applied”. The technical content is cited again, this time by putting it into the Bhutanese context, when a student presents the idea that “I think they are from different part of the world, so I would like to hear some comparative thing like what they do there and what we do here”. This is expectation is shared by other in the group, “we know the situation here in Sweden and situation in Lund campus and the incoming teachers will also show us totally different climate and how they behave and what are their performance”, “Hopefully they will give us an abilities to move around the world and always be able to find the best solution and best fitting system because we knowledge about at least two climates and countries” and “I wouldn't like to be very much focus on what they are doing in their own country because probably the chances that 50 % of the whole class will work with it which is not in Bhutan, so I would like to be more general aspects or even like Swedish or European standards that I will be much more happier with.”.

The interviews before the course started in Lund was carried out in two groups. In the first interview group the first speaker mentioned technical aspects like “the physics behind the whole things” and “practical use of PV systems”. This theme was later repeated from the other students in that group when they use phrases such as “*how*

everything's works... practical use of PV systems", "[...] PV about how they are different and how they function and how they can be applied". Another student simply agreed with the first speaker.

In the second group, instead, the third speaker presents the idea that "I think they are from different part of the world, so I would like to hear some comparative thing like what they do there and what we do here". This is later repeated from the other speakers in that group using such phrases such as, "we know the situation here in Sweden and situation in Lund campus and the incoming teachers will also show us totally different climate and how they behave and what are their performance", "Hopefully they will give us an abilities to move around the world and always be able to find the best solution and best fitting system because we knowledge about at least two climates and countries" and "I wouldn't like to be very much focus on what they are doing in their own country because probably the chances that 50 % of the whole class will work with it which is not in Bhutan, so I would like to be more general aspects or even like Swedish or European standards that I will be much more happier with".

The fact that the first group speaks mainly about technical expectations and not about cultural exchange, while the second group mainly does the opposite is interesting in itself, as it points at a risk with focus group studies. In this case it is easy to assume that the first speaker in group 1 and the third speaker in group 3 affected the others with their ideas. They set the agenda for the conversation. Their opinion becomes exaggerated and it could be interpreted as it was the honest opinion from all of the group members. It should further be stressed that what was discussed in the groups was each and every students ideas not affected by the others. However, this is unlikely from a statistical point of view.

In regards to the teachers, the students mainly considers the level and content of teaching, rather than the teaching style: "*the right way of teaching for everybody ... we are coming from super different backgrounds and some are engineers and some are architect*". Indeed, the class in Sweden is formed by students with different educational backgrounds, some being architects and others having education in some branches of engineering. They are mainly worried of being able to cope with the content of the lectures. It seems they expect the Bhutanese guest teachers to be very acknowledged with the topic, thus providing difficult or advanced concepts in class, for example "*to make everybody understandable because if they only teach physic, it is probably be boring and hard to understand for somebody*", and, again, "*something which is super basic for them might not be super basic for me. Therefore, it would be nice if they start from the very basic*", and finally "*it would be nice if there is some simple introduction about the basic concepts*". In contrast, one student hoped for a bit of challenge in the lectures "*needs to be little bit a challenging for the people*".

The remaining part of the comments were dealing with other organizational aspects of the entire PV course and they did not either focus on the guest lectures only, nor on the expectation in terms of teaching style.

Ten students attending the first focus group interview session expressly claimed that the course would be useful in their future, while the remaining four made neutral comments or did not speak.

The focus group interviews were repeated right after and one month after the course ended. In the two occasions, the answers did not change substantially.

This time there were less comments and the interviews were shorter. The feedback about the course expectation were diverse. Some students appreciated the lectures "*For me I didn't even had experience on solar before...so for me it was nice to have guest lecturer because they mostly talk about the basic things [...]*", but most of them agreed that the lectures were planned at a wrong moment of the PV course, "*I would like to have in beginning of the course instead of having it in the middle*". Most of students remarked that guest lectures had to focus on software, but guest teaching would have been best planned for the fundamentals of PV. The negative comments mainly aims at difficulties with what material to use for exam and how the different classes were bridged between the original teacher in Lund and the visiting Bhutanese teachers.

The students were instead satisfied with the teachers. They remarked the qualities "interactivity" and "engagement" in many occasions "[...] (it) was really really good because they wanted everybody to participate and they kind of got lot of people to participate", or "*For me it was really easy to follow and it was comprehensive and interactive at least for me*", but even "*they always tried engaging discussion during class*". The students also liked pace and content "[...] they actually made the topic that somebody who does not understand at the beginning quite interesting. They somehow made everybody get on board.". As negative comments, some students claimed that there were too long explanations for relatively easy questions. Although the interviews suggest that the

teaching style was generally pretty appreciated, there was no explicit comment on how this relates to common teaching style in Sweden. This is a conclusion in itself, since the “alien” teaching does not seem that alien after all.

Finally, the students were unanimously considering these lectures as very important for their future working life, but, differently from the interview before the course, they realized that they learnt about methods and tools, rather than experiences at different geographical locations. Therefore, there was a mismatch about expectation and actual content of the lectures. As a suggestion, future exchange courses may include a stronger “local” component in the teaching, since this seems of high interest for the students.

4. Discussion

The focus group interviews suggests that students of both countries have high expectations on teachers. These teachers are thought has highly knowledgeable in their own field.

This is a double-edged sword which calls for extra care during the planning of the teaching program. For example, the Bhutanese students were a bit frustrated by the theoretical part in daylighting, because it included a lot of concepts with which they were already familiar. Similarly, the Swedish students found that the guest lectures were not perfectly integrated in the normal course. This confirms the importance of planning the exchange with extreme care, as suggested by Law et al. (2011).

On the other hand, it suggest that exchange teaching modules are attended with higher enthusiasm and attention. For example, the Bhutanese students had numerous questions during and after class, and they were longing for more knowledge. The Swedish students clearly stated that exchange teachers would have been excellent in introducing the fundamentals of the course, a part which is rarely left to guest lecturer since it is detrimental for the continuation of the course. Many of the students also asked for making the teaching exchange as annual or even bi-annual event, possibly with more hours of teaching and tutoring. Given the enthusiasm and attention with which exchanges are attended, it would be interesting to plan the content of guest lectures with the most critical parts of a course.

Before the exchange, Bhutanese students expected the teachers to provide new and in-depth knowledge. They expected to be fed with facts. Only one student spoke about to know to which extent daylighting design fundamentals can be generalized and still hold valid in both high latitude countries, e.g. Sweden, and countries closer to the Equator, e.g. Bhutan. No other student reflected on the fact that the teachers came from a different culture. Swedish students focused more on obtaining distinguished point of views on the topic, for instance to different geographical locations.

However, these expectations changed over time. After the exchange, the Bhutanese students appreciated “softer” skills of the teachers, without, of course, forgetting the knowledge. They also expected and asked individual consultancy and open discussion with teachers, which contrasts to literature indicating Bhutanese students as transmissivist learners. This pairs with comments of Swedish students, who highly rated the fact of Bhutanese teachers being helpful in individual consultancy.

Surprisingly, there was very little discussion on pedagogical differences and expectations. Not even more general cultural and geographical differences were mentioned too often, except for the interviews conducted before the teaching exchange. This study used open questions and free interviews to address this topic, as – at the study design – the authors expected that this would have been the main argument of discussion for students. However, we could not find evidence answering our initial research question, i.e. whether our teaching-as-usual would meet students’ expectation when implemented in alien environment or not. It could be possible that the teaching style was simply not perceived as alien. However, this remains in the field of speculation and should be better investigated.

5. Conclusions

This paper reported on the evaluation of a bi-directional short teaching exchange between the Royal University of Bhutan and Lund University, Sweden. The content of teaching exchange regarded daylighting and PV systems.

The exchange aimed at prompt the development of courses on passive and active solar energy strategies in Bhutan, as well as at increasing the educational portfolio of the Swedish partner. The teaching was evaluated via focus group interviews with the participating students, carried out before and after the training.

Before the training the Bhutanese students focused their group discussion mainly on the facts and methods to be taught. Later they focused more on what they learned rather than on how they did, indicating that the knowledge matured over time. However, there was little discussion on the cultural aspects linked to the fact that the visiting teachers comes from a different country. For the Swedish students the situation was a slightly different, where the discussion was both on technical questions and on cultural aspects. The Swedish students also express some worries about the level of teaching being different from what they would prefer. The fact that the Swedish students spoke about cultural aspects and was aware of the fact that the Bhutanese teachers might have a different level of teaching indicates that the Swedish students are more aware of the cultural differences between Bhutan and Sweden. If this awareness shown by the Swedish students is a general cultural understanding or if it depends on the fact that the students in Sweden comes from different countries and therefore is more aware of this fact is not answered in this work.

Considering the content of the interviews, we argue that:

- Students have high expectations on the exchange teachers and they attend lectures with interest; therefore, teaching exchange can potentially be focused on core parts of courses.
- Proper planning of the exchange is required to guarantee success of the exchange itself.

Despite our best effort, the results cannot conclude much on the initial research question “can teaching-as-usual be successfully implemented in an alien context?”, simply because the context does not seem to be so alien.

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7. References

- Alkarzon, A., 2016. The influence of faculty exchange programs on faculty members’ professional development. *Res. High. Educ. J.* 30, 1–16.
- Borrego, M., Bernhard, J., 2011. The Emergence of Engineering Education Research as an Internationally Connected Field of Inquiry. *J. Eng. Educ.* 100, 14–47. <https://doi.org/10.1002/j.2168-9830.2011.tb00003.x>
- Davidsson, H., Kjelsson, E., Pichugin, I., 2017. Development of Master courses in Renewable Energy and Energy Efficient Buildings in universities outside EU, in: Broman, L. (Ed.), 12th International Symposium on Renewable Energy Education Proceedings. *Acta Academiae Stromstadiensis, Strömstad*, pp. 40–45.
- Dow, W., 2006. The need to change pedagogies in science and technology subjects: a European perspective. *Int. J. Technol. Des. Educ.* 16, 307–321. <https://doi.org/10.1007/s10798-006-0009-7>
- European Commission, 2019a. Erasmus+ - Key Action 2 - Capacity building in the field of higher education [WWW Document]. URL https://eacea.ec.europa.eu/erasmus-plus/actions/key-action-2-cooperation-for-innovation-and-exchange-good-practices/capacity-building-projects-in-field-higher-education_en (accessed 2.22.19).
- European Commission, 2019b. Erasmus+ | EU programme for education, training, youth and sport [WWW Document]. URL <http://ec.europa.eu/programmes/erasmus-plus/> (accessed 2.22.19).
- Fife, E.M., 2007. Using Focus Groups for Student Evaluation of Teaching. *Mt. Rise, Int. J. Scholarsh. Teach. Learn.* 4, 1–19. <https://doi.org/http://dx.doi.org/10.1234/mr.v4i1.78>
- Gelsor, Nuozhen, Gelsor, Norsang, Wangmo, T., Chen, Y.-C., Frette, Ø., Stamnes, J.J., Hamre, B., 2018. Solar energy on the Tibetan Plateau: Atmospheric influences. *Sol. Energy* 173, 984–992.

<https://doi.org/10.1016/J.SOLENER.2018.08.024>

- Gutiérrez, M., Ghotge, R., Siemens, A., Blake-Rath, R., Pätz, C., 2018. Influence of diversity in lectures on the students' learning process and on their perspectives about renewable energies in an international context - The students' view. *Sol. Energy* 173, 268–271. <https://doi.org/10.1016/j.solener.2018.07.064>
- Gyamtso, D.C., Maxwell, T.M., 2012. Present practices and background to teaching and learning at the Royal University of Bhutan (RUB): A pilot study. *Int. J. Teach. Learn. High. Educ.* 24, 65–75.
- Hassan, M., Fatema-Tuz-Zohra, Akter, S., 2017. A Review on Energy Situation “Solar Energy Policies and Targets” in SAARC Countries. *J. Energy Nat. Resour.* 6, 45. <https://doi.org/10.11648/j.jenr.20170604.11>
- Holtorf, H., Brudler, E., Torío, H., 2018. Development of a holistic method for assessing success of renewable energy study programs. *Sol. Energy* 173, 209–214. <https://doi.org/10.1016/j.solener.2018.07.063>
- Law, K., Muir, N., Thompson, K., 2011. An evaluation of a European teacher exchange programme. *Nurse Educ. Today* 31, 76–81. <https://doi.org/10.1016/j.nedt.2010.03.020>
- Lucas, H., Pinnington, S., Cabeza, L.F., 2018. Education and training gaps in the renewable energy sector. *Sol. Energy* 173, 449–455. <https://doi.org/10.1016/j.solener.2018.07.061>
- Morgan, D.L., 1996. Focus Groups. *Annu. Rev. Sociol.* 22, 129–152. <https://doi.org/10.1146/annurev.soc.22.1.129>
- Newman, P., Yangka, D., 2018. Bhutan: Can the 1.5 °C Agenda Be Integrated with Growth in Wealth and Happiness? *Urban Plan.* 3, 94–112. <https://doi.org/https://doi.org/10.17645/up.v3i2.1250>
- OECD, 2013. TALIS 2013 Technical Report 464.
- Paige, R.M., Fry, G.W., Stallman, E.M., Josić, J., Jon, J., 2009. Study abroad for global engagement: the long-term impact of mobility experiences. *Intercult. Educ.* 20, S29–S44. <https://doi.org/10.1080/14675980903370847>
- Robson, C., 2011. *Real World Research*, 3rd ed. ed. Wiley.
- Stacy, I., Bennett, C.B., 2017. From reproduction to construction: Bhutanese higher education students' attitudes towards learning. *Cogent Educ.* 4. <https://doi.org/10.1080/2331186X.2017.1305712>
- VanBalkom, W.D., Sherman, A., 2010. Teacher education in Bhutan: highlights and challenges for reform. *Asia Pacific J. Educ.* 30, 43–55. <https://doi.org/10.1080/02188790903503585>