

**Students in Early Childhood Teacher Education and Their First Experience  
With Problem-Based Learning:  
A Comparative Study From the Perspective of Students in Kyrgyzstan and Norway**

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**ABSTRACT**

*This comparative study examines how students from Early Childhood Teacher Education in Kyrgyzstan and Norway value their first experience with Problem-Based Learning. The study is a result of the collaboration between ECTE in Kyrgyzstan and Norway focusing on student-active learning. The research is important because there are few if any studies focusing on PBL in Early Childhood Teacher Education (ECTE), and little use of PBL as a basic norm in Kyrgyzstan. Our data consists of students' anonymous, written, open-ended questionnaires. These are analysed by means of qualitative content analysis. We found evidence that students value collaboration, and in this report, we describe their experiences with the PBL-method and suggest some implications for the quality of learning. We discuss and compare similarities and differences in students' experiences in light of cultural differences.*

**Keywords:** Comparative study, Cultural context, Early Childhood Teacher Education, PBL

**INTRODUCTION**

The study is a result of a Eurasia-funded collaboration between Early Childhood Teacher Education (ECTE) in Kyrgyzstan and Norway focusing on student-active learning. We present a comparative study involving ECTE-students from International University of

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Central Asia (IUCA) in Kyrgyzstan and NLA University College (NLA) in Norway following the students' first experience with Problem-Based Learning (PBL). It is a comparative study using qualitative content analysis of students' anonymous, written, open-ended questionnaires collected in 2018 and 2019. As researchers, we represent private universities from two different countries and cultures.

The significance of the study concerns PBL used in ECTE. On a national level, the study introduces PBL into a Kyrgyz setting. A search for English- and Russian-language research articles on PBL in Kyrgyzstan reveals few studies on PBL in the medical sphere. It seems that neither theoretical nor practical aspects of the PBL approach have been researched and implemented within the educational system of Kyrgyzstan.

On an international level there is a substantial number of research articles on PBL in general and connected to higher education. There seems to be a general lack of research on PBL in Early Childhood Teacher Education. There are international studies on PBL and School Teacher Education from 1980 onwards, which are confirmed in literature reviews (Borhan, 2014; Rahmawati, Suryani, Akhyar & Sukarmin, 2020). In Norway PBL has mainly been developed and researched in the context of medical and social education. We have found three reports on PBL-projects in Norwegian teacher education (Nes & Strømstad, 1999; Helland 2004, 2007). This article is a contribution to research connected to PBL in ECTE, focusing on student experiences in different cultural contexts.

Our research question is the following: *How do students from Early Childhood Teacher Education in Kyrgyzstan and Norway value their first experience with Problem-Based Learning?* The paper will present similarities and differences in students' experiences of PBL in the light of the cultural and pedagogical context of ECTE.

NLA University College has had an interdisciplinary bachelor-programme based on PBL and the 7-step model (Pettersen, 2017, p. 66) as its main teaching and learning strategy in all disciplines of the ECTE since 1999. This means that all subjects every semester are taught interdisciplinary, as an integrated totality. From 2013 to 2022, there were staff and student exchanges between IUCA and NLA. The goal of the collaboration is to strengthen student-active learning and critical thinking in both countries. The Norwegian teacher-researchers have taught master classes on PBL with Kyrgyz students and developed workshops with staff, focusing on facilitating PBL-tasks. The IUCA-staff were less experienced in facilitating PBL, compared to the NLA-staff. Today IUCA staff are emphasizing the facilitation of PBL in their education programs.

There are differences at the state level in official laws and regulations on ECTE in Kyrgyzstan and Norway. The Norwegian government has enacted an overarching political decision relating to universities and university colleges (*UH-loven*, KD, 2015),

and in addition a *Framework Plan* and *National Guidelines* for ECTE (KD, 2012; UHR, 2018). The Norwegian Educational Department has, in its report to Parliament (KD, 2017), recommended PBL as student-active learning, suitable for engaging and activating students and for promoting critical thinking (pp. 52-53). The collapse of the Soviet Union induced contradictory changes in the further development of Kyrgyzstan. National reforms for quality in education have encouraged new attitudes in the field of education. The state educational standards *Educational activities of the university* (Ministry of Justice, 2021) impose requirements on higher professional education. IUCA education is governed by local institutional regulations.

The promotion of PBL risks implementing a western learning strategy in a non-western culture (Gwee, 2008; Frambach, Talaat, Wasenitz & Martimianakis, 2019; Naji, Ebead, Al-Ali & Du, 2020). Research points to Asia as having a strong tradition for the authority of tutors and hierarchy of age and education (Gwee, 2008, p. 20). This is comparable to Central Asia in general, whilst on the other hand IUCA has a will to focus on democracy and strengthening their student's citizenship.

## THEORY AND RELATIONSHIP TO PREVIOUS RESEARCH

In this section, we will present theory and previous research relevant for our research question. We assume that our readers are familiar with the basic theory on PBL. To be able to discuss the findings we also find it important to investigate research carried out on PBL in different cultural contexts.

### **Problem-Based Learning (PBL)**

Although the PBL method was originally designed for medical schools, it has been adopted in diverse fields and educational environments to promote the use of authentic tasks, problem-solving, critical thinking and analysis, self-directed learning, and small-group collaboration (Nilson, 2010). In brief, PBL is a student-active approach that makes a fundamental shift from a focus on teaching to a focus on learning and the forming of habits through practice and reflection (Barrows, 1994). The process enhances students' learning, motivation and participation. Students and tutors are encouraged to work co-operatively and to become co-learners, co-planners, co-producers, and co-evaluators. The principal role of teachers is to provide the educational materials and to be a facilitator or a tutor monitoring the learners.

The PBL-method is grounded in social constructivist theories of learning, in which the individual and social aspect of learning is essential. The constructivist perspective on learning focuses on knowledge as individual interpretation of reality (Pettersen, 2005, p. 76). Savin-Baden & Major (2004) explain that a PBL-course gives the students "the

opportunity to construct knowledge for themselves, to make comparisons with other students' knowledge and to redefine knowledge as they gain experience" (pp. 29-30).

Collaboration is thus an essential part of PBL, where learning communities participate and work closely on a common task, sharing, negotiating, and constructing new knowledge (Pettersen, 2017, p. 36). Collaboration is also important for team learning in PBL. Students' engagement is a crucial part of their success or failure in PBL work (Savin–Baden & Major (2004, pp. 74-77), and the approach requires communication, acceptance and mutual support on the part of all participants. «Collaborative learning is a pedagogy that has at its centre the assumption that people make meaning together and that the process enriches and enlarges them» (Matthews, 1995, p. 101). The ability to solve conflicts is necessary. Students must be able to make decisions together, attend to the perspectives of others, and question evidence as well as each other's assumptions (Savin-Baden & Major, 2004, p. 73). This is knowledge acquisition with mutual responsibility. In the collaboration, a PBL-group also must utilize the skills of critical thinking, communication, creativity, problem solving and perseverance in the group and in the learning situation.

Another essential component of PBL is reflection. Barrows & Tamblyn (1980) point to the importance of reflection by saying that learning happens through solving problems and reflecting on the experiences. Reflection gives students an opportunity to talk about their experiences and to discuss how they can improve their skills. Grüthers (2011) describes reflection as challenging one's way of thinking, and points to the danger of taking everything for granted. She associates this with self-reflection, the ability to view and to evaluate ourselves (p. 74). Klemp (2013) seems to agree with this when she points at the necessity of taking a second look at things and thereby sharpening our thoughts. These reflections might be done both individually and in the PBL group.

### **Research on PBL in a cross-cultural context**

This study examines the use of PBL among novice students on two different continents with different educational traditions. It is therefore relevant to search for research in a cross-cultural context. The research we present below is either from non-western countries or conducted within a cross-cultural student-group.

In the following, we will present some research from an international perspective (Gwee, 2008; Mohd-Yusof et al, 2013; Fung, 2013; Frambach, Talaat, Wasenitz & Martimianakis, 2019; Naji, Ebead, Al-Ali & Du, 2020).

Frambach, Talaat, Wasenitz & Martimianakis (2019), raise questions about the spread of PBL globally, arguing that it promotes a Western imperialist or neo-colonialist agenda (p. 932). They point to the challenges of “financial costs, physical requirements, demands

on human resources” etc. (p. 934.) The PhD thesis by Fung (2013) also highlights the importance of the cultural context, saying, “it is paramount to consider cultural background when introducing an innovative education model” (p. 7).

Matthew Gwee from Singapore tries to identify the major challenges in implementing PBL in Asia. He points to the tradition in which the teacher has great authority within a social hierarchy based on age and education (2008, p. 17). This might make students avoid discussions and hesitate to make critical comments. On the other hand, Gwee (2008) points out, “The Asian culture emphasizes group before individual interest, including a group-oriented approach to the achievement of tasks” (p. 20). He thinks this is consistent with the aim of collaborative small student groups and underlines the importance of a safe environment, pointing to findings indicating that this is more important than culture in teaching and learning (p. 19).

Mohd-Yusof et al. (2013) point to the fact that western countries such as Denmark, score moderately low on Power Distance and Uncertainty Avoidance (Hofstede Insights, 10.11.2021): “Consequently, it is common for students to discuss among themselves topics and share their knowledge in collaborating on a problem or even to argue with a teacher” (p. 9). In data from Kazakhstan, we see a higher Power Distance and Uncertainty Avoidance. “In other cultures, with a higher Power Distance or a more masculine competitive nature such behaviour is much less natural or may even be unacceptable” (Mohd-Yusof et al., 2013, p. 9).

There seem to be few research articles on PBL in Central-Asia and in Russia, and none on PBL in ECTE. A website of the Osh International Medical University (Kyrgyzstan) indicates that their curriculum includes PBL (08.06.2022). Kapitonova et al. (2020) describe how PBL is introduced in medical universities in post-Soviet countries, among them Kyrgyzstan: “contributing to the optimization of the educational process”. In Azerbaijan, PBL is presented in management education (Mammadova, 2020).

There is a lack of comparative studies on PBL conducted on different continents with different educational traditions. This study answers the need for a cross-cultural comparative study investigating ECTE-students’ experiences with PBL.

## METHODOLOGY

Analysis of responses from students in different countries requires consideration of the cultural background of students. In this chapter, we will present the epistemic framework and the methodology of a comparative study. The chapter will also present our choices, ethical considerations, and the analytic design.

Bray, Adamson & Mason (2007) say, “Rather than a mechanical identification of similarities and differences between two or more places it is suggested that attention be paid to the underlying context of these commonalities and differences, and to their causal relevance to the educational phenomenon being examined” (p. 88). This study therefore conducts analysis at both national and institutional levels (3.1) and will consider the cross-cultural and the educational context of the student groups. Stephens (2009) states, “the validity power of qualitative research depends on the researcher’s ability to [...] establish cross-cultural comparisons and contrasts” (p. 6).

The validity of this study might be challenged, given the differences in culture, variance in students’ earlier learning experience, and complex linguistic landscape involving the use of English, Russian and Norwegian (see 3.5). Despite these factors, it is interesting to investigate how novice students with these different cultural and educational backgrounds experience their first meeting with PBL-tasks. At IUCA, both visiting and local professors use a language that is not their own mother tongue in their communication with each other. This practice extends to interactions with students as well. Words might have different meanings in different cultural contexts.

The questionnaires were written in English at IUCA and Norwegian at NLA. The IUCA-students could answer in Russian or English. Russian is the mother tongue for some of the IUCA students, but for others the mother tongue is Kyrgyz. All the questionnaire responses were translated into English from Russian or Norwegian by professional translators. We cannot know how or if the translation influences our understanding of the text, but we have cross-checked the translation with the original language of the text.

### **Epistemic frame**

This is a comparative educational study using qualitative content analysis with student responses. Analysing data from different cultural contexts opens for different levels of analysis. We will conduct our analysis at the national level of two countries, the institutional level of two universities and the student-group-level.

ECTE-students from both Kyrgyzstan and Norway answered open-ended questionnaires right after they had finished their first introduction to PBL and their first PBL task. To ensure professional relevance, students were presented with a case relating to everyday life in a local ECEC either in Kyrgyzstan or in Norway. The 70 students from Norway (surveyed in 2019) were first-year bachelor-students, in the first weeks of their study. The 26 students from Kyrgyzstan (surveyed in 2018 & 2019), were a mixture of college students and first- to third-year bachelor students. The numbers in the student groups also differed, with seven in Norway and three to four in Kyrgyzstan. The local university professors attended as PBL-mentors in both institutions, but at IUCA, the visiting professors attended together with local staff. At NLA, students were given four weeks for

their PBL-task, while at IUCA they had one week. These differences might have affected some of the responses and thus present a challenge to the validity of the study.

The questionnaires in 2018 and 2019 had multiple questions. We have chosen to focus on the three questions that are similar in both questionnaires, and which we consider central to the comparison of the ways in which PBL is understood. These questions focus primarily on the students' experience of their first PBL task. They evaluate the method and the quality of the group work and compare PBL to other learning methods.

The questions are:

1. How did you experience PBL as a student active learning method?
2. List at minimum two challenges and two joys connected to the PBL-work in your group.
3. How would you describe the quality of learning from a PBL process, as compared to other methods of learning?

### **Comparative study**

This is a comparative study at a micro level with a focus on student experiences (Stephens, 2021; Kosmützky, 2018). An overall definition of comparative research might be “empirical research that collects data and/or carries out observations across national, geographical, and cultural boundaries in at least two of such entities, and systematically relates those entities in a comparative analysis” (Kosmützky, 2018, p. 1). Having data from educational settings in two continents, we find it important to consider Wahlström, Alvunger & Wermke's (2018) reason for a comparative education study: “The comparative research approach is viewed as a response to the internationalization of education policy while simultaneously recognizing that education is a highly regional and local activity” (p. 587). In our context, we recognise that “curricula differ significantly between national arenas because different national contexts offer various traditions and structures” (Op.cit. 2018, p. 593).

### **Qualitative content analysis**

To understand and analyse our data we have used content analysis to determine the presence and relationships of words and statements in the student answers. These are elaborated and categorised into codes (Colombia Public Health, 2022). A text involves multiple meanings, and there will be some degrees of interpretation meeting the text (Graneheim & Lundman, 2003, p. 106). Krippendorff (2013) writes that such interpretation is necessary in order to make a valid inference with a text (p. 24). We took into consideration the translation of languages used by the students and the differences in educational contexts, to establish cross-cultural comparisons and contrasts (Stephens, 2009).

We then searched for visible, manifest content in the answers to each question separately (Graneheim & Lundman, 2003, p. 106), and immersed into the data to find meaning units and categories of interest for the research question (Graneheim & Lundman, 2003, p. 107). According to Graneheim & Lundman (2003), this constitutes the “what” of the data (p. 107). Going deeper into the analysis, we tried to answer the “how”, finding codes and the underlying *latent* content (op.cit. p. 106). We analysed one question at a time and then looked for links between meaning units in our data.

### Analytic design

All the attending students answered the questionnaires, with 70 students from NLA and 26 from IUCA. Answers from each student-group were systematized in tables for each of the questions. Next, we searched for meaning units in the responses before developing the codes. Based on the differences in group-sizes, we calculated the percentage of responses from each student-group.

Table 1 illustrates the process of developing the codes (Graneheim & Lundman, 2003), showing some of the ‘meaning units’ extracted from student answers in the questionnaire. The meaning units are condensed before they are categorised and coded. Table 1 exemplifies meaning units (student answers) ending with codes.

| Question  | Meaning unit  | Condensed meaning unit              | Code                             |
|---|---|-------------------------------------|----------------------------------|
| 1: How did you experience PBL as a student active learning method?                      | <i>The students discuss more, so the students therefore become more active (NLA).</i>                       | Discuss and being active            | Collaboration                    |
|   | <i>This method helped me to make up specific questions to a problem, and to find solutions (IUCA 2019).</i> | Problem-solving                     | Evaluating the PBL method        |
| 2: List at minimum two challenges and two joys connected to the PBL-work in your group. | <i>Coming to consensus was hard (IUCA 2019).</i>  | Difficult to reach joint agreements | Collaboration                    |
|   | <i>Challenging that it takes a lot of time (NLA).</i>   | Time-consuming                      | Problems connected to the method |



|  |   |   |                                     |
|--|---|---|-------------------------------------|
| 3: How would you describe the quality of learning from a PBL process, compared to other methods of learning? | <i>Using PBL makes you more active and involved (NLA)</i>   | Involvement and collaboration             | Active and reflective collaboration |
|  | <i>This method gives us the opportunity to properly solve a problem, and to set up our own specific goals. (IUCA 2019).</i> | Finding help to solve problems/ set goals | Problem-solving                     |

Table 1. Examples on the steps from question to codes.

Many of the meaning units and codes correspond across the questions, as illustrated in Table 1. The meaning units for the first question (“How did you experience PBL as a student active learning method?”) were extracted into the following categories: *collaboration, evaluating the PBL method and learning outcomes*. From the second ‘question’ (“List at minimum 2 challenges and 2 joys connected to the PBL-work in your group.”), the categories extracted from ‘challenges’ were: *collaboration and problems connected to the method*, and from ‘joys’, we found the categories: *collaboration, PBL as a method and learning outcomes*. To the third question (“How would you describe the quality of learning from a PBL process, compared to other methods of learning?”) we found the categories: *active and reflective collaboration, problem-solving, improving the quality of learning and problems connected to the method*.

We will present the categories from the analysing process gathered in 4.1 – 4.3 as the codes *Collaboration, Valuation of the PBL-method and Quality of learning*.

### **Ethical considerations**

It was a voluntary task to answer the questionnaires, which were answered with the researchers present. The questionnaires are all written on paper anonymously. It is not possible to trace an answer to a specific student, and the study is in line with the Norwegian national guidelines for research (Sikt). We did not ask for gender in the questionnaire because only the Norwegian university had male students and being a minority, they could be more easily identified.

It is also an ethical consideration to let the students answer the questionnaires in their ‘mother tongue’, making it easier to make a precise and honest answer. At the same time, we know that for some Kyrgyz speaking students Russian is their second language, and Norwegian students might be bilingual. This is not registered in the questionnaires but might affect the findings.

The data, the analysis and the discussions must be treated with respect for different cultural and educational contexts. As researchers, we represent the two involved countries and therefore have an insider knowledge of the different cultures.

## FINDINGS AND DISCUSSIONS

The research question in this study is *How do students from Early Childhood Teacher Education in Kyrgyzstan and Norway value their first experience with Problem-Based Learning?* The responses reveal some similarities and differences in the students' perspectives. Analysing the questionnaires, we find that the students experience both advantages and disadvantages of PBL. The discussion to follow will take into consideration theory, earlier research, and the cultural context.

### **Collaboration**

Savin-Baden & Major (2004) point to different social skills that are required of members of a PBL group (p. 73). These skills are important for collaboration, as they enable members to communicate clearly, to accept and support other team members, to resolve conflicts, to make decisions, and to elicit each other's viewpoint and perspectives.

*Collaboration* is an important code in our findings, connected to all three questions. We find a similarity at the student-group-level, with mostly positive responses on collaboration. The students in both groups report on different aspects by expressing how they value working in teams, being active when learning together, sharing knowledge and ideas, and discussing and looking for links between theory and practice.

Working together in groups requires students to take substantive responsibility and collaborate in order to discover, understand, and produce new knowledge (Davidson & Major, 2014, p. 21). Students from both countries report that they share new knowledge and ideas by being active when learning together. One student reports getting "new insight and new knowledge" (NLA) and another says, "we maybe learn better in that we actively discuss, argue and brainstorm" (NLA). Student quotes emphasize that they appreciate sharing knowledge. One student says, "[...] we get to discuss and talk together, hear each other's point of view" (NLA 2019), and another says: "it activates our vocabulary, develops our critical and deep thinking" (IUCA, 2019). The majority of students in both groups indicate that they learn from each other and develop their knowledge in their groups. This is what Matthews (1995) describes as a collaborative learning process where students make meaning together in a process that enriches and enlarges them.

We find quotes that focus on students' engagement as crucial for success or failure in their PBL work (Savin– Baden & Major (2004, pp. 74-77). Students point to PBL as “a good method that allows everyone to participate” (NLA), and report that “sharing thoughts was very interesting and informative” (IUCA 2018). They also made statements like “each of us help, support, and add something important” (IUCA 2018). Regarding challenges, the NLA-students report that “some people don't participate much” and that it was difficult “getting everybody on board” and that “some people didn't care and didn't want to take part anymore” (NLA). 28.6 % of the NLA students report challenges with collaboration, while 7.7 % of the IUCA students report the same. This might be explained by the difference in the number of students in each PBL group and the difference in the duration of the PBL work, one versus three weeks. The differences might also be due to cultural factors connected to Kyrgyzstan being a post-Soviet society that values common goals and group loyalty, whilst in Norway we are seeing a development from community-centeredness towards individualism. The Kyrgyz students' respect for visiting professors might also be reflected in their commitment to their work (Gwee, 2008).

Students from both groups, 19.2% from IUCA and 10% from NLA, express that it is challenging to understand PBL as a method and to follow the steps. This might be due to PBL being a new method and for the Kyrgyz students also language challenges.

The cases given as PBL tasks are stories collected from real life in ECEC in each country. This gives students an opportunity to connect theory and practice, and many students see this as a benefit of PBL-learning. They make statements like: “[...] it matches very well to our life” (IUCA 2019), “I learn more from raising things that you can actually experience” (NLA). Positive comments on cases connected to life in ECEC are given from both institutions, like this from IUCA (2019): “The method really makes it possible to touch upon important problems and situations that may arise in the process of raising children”.

At an institutional level, we find that 5.7 % of the Norwegian students express that they preferred lectures to PBL, but we do not have similar findings among the IUCA students. It is difficult to conclude as to why students respond differently, but it might be connected to cultural differences and to PBL being a new method presented by visiting professors at IUCA. The students may have found it inappropriate to wish for a different method for teaching in this situation (Gwee, 2008).

### **Valuation of the PBL method**

A similarity in the students' answers is that many respondents value the PBL-method as effective for the learning process. They say, “PBL is more practical compared with other methods” (IUCA 2019), “Much better than seminars. You dare to say more in smaller groups. (NLA), “Hundred percent quality. I can't remember such method which can help

so good dissemble a situation” (IUCA 2019), “If you use PBL right, you learn better” (NLA) and “PBL method is very convenient and practical” (IUCA 2019).

The students discovered that the method helped them to become better at formulating research questions and finding solutions to a problem together. According to Savin-Baden & Major (2004), students are motivated to experience PBL, but each of them must provide their own thoughts to contribute to group discussions (p. 151). Murray-Havey, Poushafie & Reyes (2013, pp. 128-129) write that *students’ experience* of PBL-work makes them responsible for finding a research question. We have found students saying, “[...] from one small situation we were able to set up a few final results. We divided our problem into several categories and chose one final aim” (IUCA 2019) and “PBL forces me to think for myself and in collaboration with others” (NLA).

As mentioned, the IUCA-students were obliged to use a foreign language (English) in the PBL process, with visiting professors from Norway. IUCA-students commented on linguistic challenges. A difference in responses shows up at both an institutional and student-group-level because the IUCA-students had to use English to express their opinions in order to be heard and understood by others on an appropriate level (cf. Fung, 2013, pp. 115-117). They say, “I learned to [...] present a presentation correctly” (IUCA, 2018), “Activate our vocabulary” (IUCA, 2018) and “It taught me to quickly generate my ideas” (IUCA, 2019). According to Gwee (2008, p. 20), one reason why Asian students do not participate actively in discussion may be the lack of language proficiency. The NLA students spoke their mother tongue but nonetheless report other kinds of challenges with language and understanding: “Finding words and terms. Putting together words and different categories” and “Good to be able to discuss and share good ideas”.

A *difference* at the student-group-level is that 24.3 % of NLA-students comment on PBL being time-consuming. This corresponds to Grigg and Lewis (2018, p. 10) who find that students view time-management in PBL as being challenging and time-consuming. There are no comments on time-management from IUCA, which might be because of differences in the time allowed for the PBL tasks.

Students from the two institutions comment on PBL and problem solving from slightly different perspectives. NLA students say, “Difficult to find a problem. Can be difficult to understand” while a typical IUCA-response is “I thought it was hard to work on the steps, but it led to a good result” (IUCA 2019). From a slightly more positive angle, students also respond, “We get to thoroughly look at a problem and discuss it with one another” (NLA), “This method has step-by-step solutions. It has criteria that help solve a problem” (IUCA 2019) and “PBL work helps me to find connections inside the problem and organize them by order (IUCA 2019).

The student's responses reflected both cultural attitudes and peculiarities of their learning experience. The IUCA participants expressed their experience of the PBL method in less critical ways. This is probably due to their learning backgrounds at a national level where they are used to accepting their educators' knowledge with a 'blind respect' for their tutors (Gwee, 2008, pp. 17-18). After 10 years of school experience with a tradition of teacher-centred learning, 2-3 years of studying at IUCA with a focus on individual learning and student independent work may not be enough to change their learning attitude entirely.

Norwegian students are accustomed to expressing their likes and dislikes to their professors, and schools invite them to evaluate their learning outcomes on a regular basis. Despite these differences, we think that students from both countries might find it difficult to assess and criticize their professors' statements.

### **Quality of learning**

The students in both institutions mention quality of learning as an important factor. As pointed to earlier, the majority mentions educational aspects and how they learn to find solutions. This section focuses on the students' responses to understanding and reflection, and how they value their importance for learning. It shows that the Norwegian students have a more critical view of PBL and its quality of learning than the Kyrgyz students do. It is difficult to ascertain whether this is due to national or institutional levels of cultural differences or to differences at the student group level.

The NLA-students point to the quality of learning by describing PBL as improving "the quality of learning, compared with lectures and seminars". Others say that "active participation results in good learning", and that "I learn more by talking with others" (NLA). A few NLA-students express doubts about the quality of their learning in PBL, asking if the answers are good enough, and one student expresses: "[...] don't always know what's right or wrong". This is consistent with current research. Savin-Baden and Major (2004) write of students being afraid of falling behind in learning when they use PBL (pp. 81-92), and Naji, Ebead, Al-Ali, and Du (2020) find that inexperienced students were uncertain of being on the right track (p. 9). It is a fundamental feature of PBL-tasks that there are no solutions that are correct or incorrect (Barrows, 1994, Pettersen, 2017, p. 13) and PBL-work demands new responsibilities and roles for the students (Savin-Baden and Major, 2004, pp. 81-82). These uncertainties are integral to PBL, and this may be difficult for inexperienced students.

Students also report on PBL as a method for reflection. Grütters (2011) states that reflection challenges the thoughts that we take for granted, and Klemp (2013) points at the necessity to look at things once more and thereby sharpen our thoughts. In our data, we find that NLA-students mention *reflection* multiple times. Kyrgyz students express

the same with slightly different terms: “develops our critical and deep thinking” (2018). On the student-group-level, we see a similarity in this attitude towards reflection and critical thinking. On an institutional level, we see that ‘critical thinking’ is stressed as very important at IUCA. *Reflection* is a strong educational keyword on both a national and an institutional level in Norway and at NLA. An NLA-student responded that PBL is a “good arena for reflection [...]. Makes you aware of what you believe – your attitudes [and] values”. Other NLA-respondents say that it is good for reflection because it “makes us think for ourselves and reflect to get a broader understanding” and “get students to reflect and brainstorm” and to “achieve more reflection. Arrive at more than just the first and best answer”. Reflection and evaluation of the PBL tasks and the quality of the group work are according to Savin-Baden and Major (2004) crucial for the learning process. We find this on both the institutional and the student-group level.

### CONCLUSIONS AND IMPLICATIONS

We have pointed to gaps in existing research and find that our study contributes to these. Specifically, the gaps are connected to the use of PBL in Early Childhood Teacher Education and research on the use of PBL in Central-Asia. There is also a need for more comparative studies on PBL conducted in different continents with different educational traditions.

This study involves two countries with dissimilar historical backgrounds, cultural contexts, and educational approaches and philosophies. Despite the differences in earlier learning experience and language challenges, we find many similarities in the students’ evaluation of PBL. Students express a largely positive attitude to their learning with PBL, highlighting collaboration, valuation of the method and quality of learning. The reason for the similarity in their evaluations can be seen in the students’ remarks indicating that they recognise a connection between their given case and their future occupation (see 4.1).

The main differences between the NLA and IUCA groups seem to be on the national level, where we find that Norway has the most detailed academic regulations specifically concerning ECTE and student-active learning. There seem to be more cultural and educational differences on the national level than on the institutional level. Being a comparative study at a micro-level, the validity of this study is at a student and institutional level.

#### **Institutional and political implications**

This study has institutional as well as political implications. Students’ responses show that they value PBL as a tool to promote their learning process, but at the same time comment on problems with understanding the PBL-method. NLA started to use the 7-

step-model (Pettersen, 2005) in their PBL-approach in 1999. Over a period of more than twenty years, NLA has developed this model to serve their ECTE. The model is being used at IUCA now.

We see that IUCA and NLA can strengthen student-active teaching and learning, and by doing so provide tools that can strengthen an interdisciplinary ECTE-education. At NLA, our study found critical evaluation of the size of the student-groups, difficulties in getting everybody to participate, and time-management. This means that NLA needs to reconsider its quality of instruction, group structure and size, and time management. For IUCA the use of PBL and the student responses has led to the creation of a new course, entitled Problem-Based Learning. For both institutions, these findings call for a further development of PBL as a student-active learning strategy.

A political implication of the study might be that the experiences with PBL in Early Childhood Teacher Education provide a tool for the professional development of Early Childhood Teachers. PBL gives the students experience in identifying and solving problems, which are relevant for their future profession.

### **Limitations and potential for further research**

This study has its limitations. It is a comparative study on a micro level and does not answer for institutional or political levels in the two countries and it does not take into consideration the whole continents of neither Asia /Central Asia nor Europe. We are aware that there are many different models that exist within Problem-Based Learning and as mentioned in the introduction, the PBL-tasks in this study use only the 7-step model. This comparative study includes the experiences of PBL for a limited time sequence for the students involved, and it would be interesting to do a more long-term follow-up study with new students using PBL.

Another follow-up study can be to interview graduated students who attended the 2019-study and investigate the possible impact on their learning outcomes in retrospect, in their current work as Early Childhood Teachers. Further research on PBL in an intercultural context can involve video- documentation of student groups of both countries discussing their experience with PBL online.

In our study, we find that students comment on skills they have developed during the PBL-tasks. Many of these skills correspond to the 21<sup>st</sup>-century skills of OECD (2008): Critical thinking, Communication, Creativity, Problem-solving, Perseverance, and Collaboration. The 21<sup>st</sup>-century skills aim for worldwide impact, reaching across cultures and continents, and are therefore interesting for a follow-up study on PBL.

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