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Fostering Active Learning in an International Joint Classroom: A Case Study

ABSTRACT

Engaging students in an international online setting that is interdisciplinary and culturally diverse is a challenge. A joint classroom between German and Ugandan universities used a formative assessment approach paired with active learning elements to foster individual and peer learning in an international virtual setting. A survey at three different times across the semester explored students' perceptions towards the value of the active learning activities and evaluated how perceptions changed over time. Overall, students enjoyed the diverse active learning activities and perceived value toward their success in class. This was more pronounced and unidirectional for individual tasks than it was for group work. In addition to the findings of the structured survey, observation and feedback indicated that other elements contributed to effective course delivery. These included clear and frequent communication to the students from the primary instructor, prompt feedback from the instructor on graded exercises, such as a reflective learning diary and ungraded quizzes, and student confidence that sincere effort would achieve a good grade.

KEYWORDS

joint classroom, formative assessment, retrieval practice, active learning, international plant breeding

INTRODUCTION

Active learning is fundamental in higher education course design (Ambrose et al. 2010; Barkley and Major 2020; Campbell and Norton 2007). In this paper, we understand active learning as an overarching approach to design learning situations (in class and beyond class) in which students can cognitively and affectively engage with the topics of a course in a collaborative manner. Over the last few decades, the scholarship of teaching and learning has explored how different teaching and learning strategies can be used to foster such activities and to strengthen cognitive and affective engagement of undergraduate students (Cherney 2008; Hailikari et al. 2021; Misseyanni et al. 2018; Turki, Jdaitawi, and Sheta 2018). Whilst an active learning strategy works reliably in one course design, several aspects need to be considered when implementing the same active learning strategy in a different course design (Børte, Nesje, and Lillejord 2020). Some of these aspects originate from what we know about students' basic needs. Barkley and Major (2020) elaborate that these basic needs include safety and security of the learners' emotional well-being. The absence of a safe learning environment will discourage students to participate and truly state what they think or feel because of potential rejection and criticism of peers and instructors (Barkley and Major 2020). Hence, designing a course setting in a way that students can feel secure and valued is crucial. If there

are factors that hinder such security, social awareness, and cultural embeddedness, the effectiveness of active learning strategy is diminished.

Such challenges tend to increase if learners are in an unfamiliar learning context. Studies in the broader field of digitalisation and internationalisation of higher education stress that teaching and learning can become difficult if students and/or teachers are unfamiliar with a course setting or the teaching/learning approach (Bond et al. 2020; Chang and Gomes 2020; Crose 2011; Dumford and Miller 2018; Ellis, Pardo, and Han 2016; Thielsch 2017; Tualaulelei et al. 2021). These studies emphasise that hidden expectations (of teachers and of students), different learning biographies, and varying epistemologies (hence, the different understandings of how new knowledge emerges) may influence the ease with which students open up to and engage in active learning approaches and technologies. Commonly encountered challenges in teaching in virtual environments are how to address social relatedness in an online course and how to enhance student engagement in asynchronous collaboration (Thielsch 2021; Weidlich 2021). If such a course is conducted in an international setting, differences in expectations among learners and teachers on how a course should be organised and conducted might add to these challenges.

This paper presents findings from a case study that is both international and virtual. In a virtually conducted joint classroom between one German university, the university of Göttingen, and a centre within a Ugandan university, Makerere University Regional Centre for Crop Improvement (MaRCCI), students were encouraged to engage actively in synchronous class sessions and beyond via several didactical approaches that invited active student engagement. Those approaches centred on a formative assessment design that was part of the courses' assessment strategy. Since we expected that some active learning approaches would be unfamiliar (and potentially challenging) for the diverse group of students, the course lecturers teamed up with educational developers to research the perception of the didactical design of the student group with a longitudinal survey study. The details of the approach are contained in the description of the case study.

We raised two research questions that explore: (1) how the active learning elements were perceived by students and (2) how this perception changed over time. We will explain both questions in detail at the end of the description of the case study.

This paper is organised in five sections. After these introductory thoughts, we will present the case study. Here, we offer insights into the course context, the students who participated in the joint classroom, and the didactical course design. Based on this information, we outline the research question that guided our study. Thirdly, we shed light on the research methods that we applied to generate and analyse data within this teaching context, before sharing and discussing the results as the fourth and fifth sections.

THE CASE STUDY

Context, student group, and course design

The course "Breeding tropical and subtropical staple crops and their impact on global food security" is designed as a master's level course in higher education in the relevant two-year agriculture study programs and involves students in plant breeding and related fields. The course was designed as a joint classroom organised by the University of Göttingen in Germany with input and participation of the Makerere University Regional Centre for Crop Improvement in Uganda (MaRCCI), which are both large higher education institutions. A joint classroom approach belongs to the broad field of virtual exchange (O'Dowd 2018) and relates to the so-called internationalisation at home (Jones and Reiffenrath 2018). In addition to analogous and local

didactic designs, joint classrooms represent a way to open up access to international perspectives for non-foreign-mobile students and allow for a deepening of intercultural communication and collaboration (Reiffenrath, de Louw, and Haug 2020). We offered the non-compulsory course at the University of Göttingen for the first time during the winter term 2020–2021 from October to February, and now can offer it on a yearly basis. Based on the joint classroom approach, in which both universities use a "shared syllabus" (O'Dowd 2018, 7), two culturally and geographically diverse academic institutions in Germany and Uganda collaborate to enable their students to connect to the international and multidisciplinary aspects of the course topic. International students should be able to adequately engage with this timely topic (Repinski et al. 2011). Presentations by interdisciplinary experts from academia, national, and international research organisations and other professional contexts globally complement the international perspectives and the prior knowledge of individual participants in this joint classroom.

The course is taught in English and is limited to a total number of 30 students, 15 from each institution. During the 12-week course, 22 students participated, 15 from MaRCCI in Uganda and seven from the University of Göttingen in Germany. The student group represents diverse learning backgrounds. In the first session, students were invited to anonymously provide demographic information via a direct response tool with anonymous responses appearing on the instructor's shared screen. Twenty students were present for this class activity and participated, which resulted in the following: 11 students had previous work experience in an international joint classroom, while it was the first one for eight students. In addition, students reported belonging to the following study programs: German master study programs of agriculture, Sustainable International Agriculture (SIA), integrated Plant and Animal Breeding (iPAB) and ethnology, and the Ugandan study program Plant Breeding and Seed Systems. The home countries of students were reported to be Germany, Italy, China, South Korea, Nigeria, Uganda, Ethiopia, Kenya, Namibia, Congo, South Sudan, Tanzania, and Ghana. All students from the Ugandan university were African, while students from the German University came from Europe, Asia, and Africa. This activity served two aims: to make transparent that the course includes talking and reflecting about individual learning approaches and to raise awareness of the student backgrounds. The beginning of the course was also designed to explain and discuss the modalities of assessment and the didactical design in general. Both were expected to be unfamiliar to the group of students, especially in this virtual setting.

A syllabus was provided on the first day of class, along with general information about the virtual platform and the environment in which the virtual course was conducted (in the German university's LMS Stud.IP and ILIAS), along with the learning techniques to be employed and their purpose. Questions to help guide the teaching methods were discussed with students, including "which active learning techniques will be used" and "what should those techniques enable?" These questions were discussed in advance and students' responses, collected in a short class survey on the first day, helped to justify the usage of those learning techniques and approaches. Survey results, discussed more fully in subsequent sections, confirmed this information. The grading criteria, grading scheme, and percentage distribution of the individual graded assignments were presented and discussed on the first day of class. Ensuring the greatest possible transparency in this regard helped to reduce misunderstandings about the grading process. A unique and challenging aspect of this joint classroom endeavour was that it was a graded course for the Gottingen students, while it was on a voluntary, non-credit basis for the Ugandan students. The Ugandan students were graded in the same way as the German students, but only had to pass the course to obtain a certificate that did not list final grades. The Uganda institution was not able to implement this course due to

administrative delays, so it was offered as a non-credit opportunity for the Ugandan MaRCCI students with a certificate from the German University of Göttingen.

The core elements of the course involved synchronous contact phases, pre-structured self-learning phases, and a multi-layer formative assessment approach as recommended in the literature (Black and William 1998; Hattie and Yates 2013; Sadler 1998; Trumball and Lash 2013; Yorke 2003). This formative assessment approach was further supplemented with the use of an e-portfolio to document and reflect on individual learning steps (Stratmann, Preussler, and Kerres 2009). Both graded and non-graded assignment packages were interlocked with active learning strategies to motivate students to continuously participate during in-class sessions and in self-learning phases. In addition, formative assessments enabled the teaching team to provide continuous feedback on the students' learning processes (Hattie and Yates 2013; Henderson et al. 2019). The diversity of assessment elements was designed to encourage and apply different learning strategies. It was also designed to engage students in the challenge of working in a diverse cultural context and to view it as a positive aspect of learning and personal growth. The didactical design enables a high level of emotional security because students built grades over the course of the semester and accessed grades on a continuing basis.

Four assessment components were used in this course to promote active participation. These included short quizzes conducted during class sessions (ungraded self-assessment), weekly learning diaries, a final online exam, and a group project involving a written assignment and an oral presentation. These assessment components are described below.

Quizzes: These were not graded, but constituted a valuable tool to achieve active learning in individual course units. Based on the retrieval practice approach (Karpicke and Blunt 2011), we worked with quizzes using an online response tool regularly throughout the course. The questions asked in the weekly course units related to the course content and prompted retrieval of knowledge gained during topical presentations the previous week. In addition, questions were asked about learning modes or individual student interests, items relevant to group dynamics.

Learning diaries: The weekly learning diary, similar to the quizzes, aimed at supporting students to repeat, retrieve, and acquire a deeper understanding of the new information. Students were required to prepare weekly learning diaries after each unit and to submit them via the learning platform in a timely manner. As part of the learning diary and to prepare for the corresponding unit, one single question required students to design questions ahead of time. The core content of the diary entries were the individual's comments on new knowledge gained to document their learning, prompted by questions that required students to reflect on content in the presentations. This was supplemented with a section that required students to document their changes in thinking, such as how their ideas and perceptions changed as a result of class sessions and discussions.

Group project: Four to five students representing both universities worked in groups with each group developing a practical research project related to a relevant topic. Students designed these projects collaboratively for a potential field excursion into either partner country, Germany or Uganda. The collaborative group work challenged students to communicate across cultural differences due to the international composition, enhanced the multidisciplinary approach, and was supported by regular consultation with the instructors regarding tasks and teamwork. The goal was to show the value of experience gained through working on a diverse team. To strengthen group coherence and productivity, exercises that required members to critique themselves and each other were included among the tasks for the group work. A joint write up was submitted by each group and assessed by instructors. Each group presented their work orally in class, with the presentation assessed by instructors and peers.

Online exam: In the penultimate week of the course, a compact online examination was administered. The content of the online examination was based on materials that were presented during the course in the diverse formative assessment elements. The online exam constituted 20% of the grade and was administered on the ILIAS System. The exam was semi-optional for the students from the Ugandan university, but the certificate included notation of exam participation.

Feedback to students was provided by all instructors from the University of Göttingen in Germany and MaRCCI in Uganda on in-class questions, quizzes, and development of the group project. The German instructor provided feedback on every assessment element, including the learning diaries and the online exam. For an overview of the formative assessment elements and their characteristics, see Table 1.

Table 1. Elements and characteristics of the formative assessment design

Assessment element	Frequency	Phase	Social constellation	Graded
Quizzes	Weekly	In-class activity	Plenum	No
Learning diary	Weekly	Self-learning activity	Individual work	Yes
Group project: working period	Over 12 weeks	Self-learning activity	Group work	No
Group project: presentation	Once	In-class activity	Group work	Yes
Group project: report	Once	Self-learning activity	Group work	Yes
Online exam	Once	In-class activity	Individual work	Yes

Active learning strategy

The overarching active learning strategy was closely related to the formative assessments. The educational aims were twofold (even though interrelated): addressing the individual needs and perspectives within the diverse student group and fostering peer learning in an international virtual setting. The learning diary was used as a means for students to actively reflect on their learning processes as applied to course topics. The diary also provided focused learning impulses as well as regular feedback to individual students from the instructor. The students could build their final grade based on several sub-grades throughout the semester and had access to those grades constantly, which helped students to gain confidence in their progress. These elements established the foundation for student engagement in class.

Peer learning, as a second focus, was encouraged by the mixture of direct response quizzes and the following discussion in class. These activities created a platform for students to compare their own learning process with those of peers. Furthermore, they prompted targeted explanations by instructors and generated critical discussion amongst the group of students. Altogether, these created a framework for the groups to engage in fruitful discussions on topics also related to their group project. The group project, which required a write up followed by a presentation, benefitted from the students' in-class discussions. Our strategy is based on findings of social and cognitive psychology, especially the self-determination theory of Deci and Ryan (2012). This theory

underscores the importance of experiencing autonomy, competence, and relatedness in individual learning processes. The active learning strategy that guided our course design tried to incorporate all three of these elements.

Another guiding principle derived from our understanding of student engagement. Active learning "is fundamental to and underlies all aspects of student engagement" (Barkley and Major 2020, 9). The term student engagement refers to the "synergistic interaction" from active learning and motivation which leads to student (learning) behaviour (Barkley and Major 2020, 9). A person's engagement in a learning process might prompt taking notes, asking questions, or critically reflecting on what they just heard. In consequence, student engagement and its core element of active learning might sometimes be invisible from the outside. This understanding guided the design of the different didactical approaches in class, including the formative assessment tasks and the various active learning techniques.

Research questions

As mentioned previously, one important aim was to determine the students' perception of the didactical design of this course. Did the formative assessment approach and the combined active learning elements work for the group of students? Did these elements support their affective and cognitive involvement or their motivation to learn? More specifically, we raised two research questions (RQ) to develop the survey study:

- RQ 1: How did students rate the various active learning elements in this course regarding the perceived joy and perceived value for individual course success?
- RQ 2: How did this perception change during the course of the semester?

The following section describes the methods applied to conduct the research.

METHODS

Since we aimed to monitor and better understand the students' perception of the different active learning strategies in class, the research was designed as a longitudinal study and data was collected at three measuring points (week 1, week 7, and week 12) via an online survey. Survey quality was evaluated twice: first within the interdisciplinary team regarding comprehensibility and logic, and again after the first measuring point. Then we used the answers of the student group to reorganise and delete non-functioning or superfluous items. The surveys were implemented in the learning management system ILIAS and each student was invited to share his/her perspectives in class. Each of the three surveys followed the same logic, only slightly adapted regarding the tenses (e.g. "I will enjoy working with the learning diary" was changed to "I enjoy" and to "I enjoyed"). For each active learning strategy (synchronous quizzes, class discussion, individual learning diary reflections, working in a group project during the semester, and creating an e-portfolio as means of formative assessment), close-ended survey questions invited students to indicate their experiences. A five-point descriptive rating scale was applied (five = "strongly agree," four = "agree," three = "undecided," two = "disagree," one = "strongly disagree") as well as the possibility to indicate if an item did not apply for a student ("I don't know"). These rating items referred to a persons' learning activity perception by addressing cognitive and affective attitudes (e.g. enjoyment during the activity, motivation to come prepared to class, expected value for one's individual course success). To complement the rating-based items of the survey, some open-ended questions were included to collect additional opinions regarding the learning activities and the course organisation. In the surveys, each student was asked to use an individualised but anonymous code, which allowed us to compare results between each measuring point. The majority of the 22 students participated in the

surveys (20, 16, and 16 students participated in the three surveys, respectively). Twelve students participated in every survey and most of the ensuing analysis is based on this group. Even though the sample size in this course as well as the data for the longitudinal analysis is small and may be inadequate to make generalisations, the responses provide valuable starting points to evaluate and further develop the active learning approach in this setting. Since we will conduct this course each year, we will continue to collect data and thus be able to continuously re-evaluate our results.

In analysing the data, we applied descriptive as well as inferential statistical analysis using the open access statistical analysis software PSPP. For these analyses, only the complete data sets of those students who participated at each survey were included (n = 12). Means and standard deviations offered first insights into the data. In addition, we used the non-parametric Friedman test (Zimmermann and Zumbo 1993) to compare group means (not on individual level), explore the data further, and test for differences between the three measuring points. Were the active learning elements perceived as enjoyable and helpful by some or all the students in our course? The Friedman test allowed us to compare whether the students' opinion about one of the active learning elements changed evenly (or not) over time. It enabled us to determine whether their enjoyment and the perceived value of one of the active learning elements increased or decreased comparably within the whole group or just for some of the students. We expected the groups' perception of each single active learning task to change during the course of the semester. Our expectation was that the longer a person engaged in these active learning activities (such as learning diaries), the more distinct that persons' perception of the value of those activities would be. Based on the null hypothesis of no significant differences over time, we tested whether there were similar changes in student perception for each learning activity over time or whether the students would rate the benefits/enjoyment of one learning activity differently over the period of the course.

To obtain some qualitative data and to be able to include the students' voices more directly, we asked open-ended questions in the survey and overall course evaluation. In weeks 7 and 12, we asked students to describe their experiences working in this joint learning setting regarding (1) the entire course and (2) project groups. In addition, we asked what new knowledge they gained from (1) group work and (2) the entire course. In the survey of week 12, we asked for one sentence that described their changes in thinking regarding working in an international setting as: "I used to think" and "now I think." The qualitative data were not part of the statistical analysis presented on the following pages, but are noted in the final discussion.

An additional end of semester evaluation carried questions designed to understand the student sample better (such as home university, master's program). This overall evaluation contained open-ended questions as well to gain qualitative insights into the learning experience of students, such as "what is something the instructor does well and you hope will be continued in the future," "how does the exchange and interaction with students of another country helped you learn," and "how did you grow individually during class and which new competencies did you develop." The overall course evaluation was not part of the statistical analysis presented on the following pages.

All data was collected anonymously and with informed consent of students. To achieve this, each survey and the evaluation started with general information on data handling. In addition, the goal of the study was discussed in class to ensure no student would fear that their (non)participation would influence success in class. Therefore, each student participated on a voluntary basis and gave explicit consent to participate.

RESULTS

Our research focussed on how students rated the enjoyment whilst working with the various active learning elements as well as how they valued those contributions for their individual course success. The analysis showed how the student's perception changed over time. In terms of language barriers, observations suggest that this was not a significant problem.

How the students rated the perceived enjoyment whilst engaging in an active learning task

Based on the analysis of the means (M) and standard deviations (SD) of each active learning specific item, we can conclude that the group enjoyed the individual learning tasks (Table 2). Even though the overall rating decreased to some extent in the middle of the semester, the majority indicated their enjoyment as shown by a high mean (3.5–4.3) on the five-point scale.

The data offer two interesting insights into the students' perceptions: The individual tasks were enjoyable at the beginning of the course (t1), and were scored even higher at the end of the semester (t3). Here, the data emphasises the groups' enjoyment of the short quizzes (M = 4.33; SD = 0.49), the discussion following a quiz (M = 4.17; SD = 0.58), and the learning diary (M = 4.33; SD = 0.65). In contrast to this, the group-based activities were perceived to be more enjoyable in t1 than they were in t3. Regarding both items—group work and working with peers from the partner institution—the means decreased while the standard deviations increased. Table 2 shows the means *(M)* and standard deviations (SD) of each active learning element and the changes in enjoyment that the students perceived over the semester.

Table 2. Items on perceived enjoyment; means and standard deviations (n = 12)

Items "I will enjoy / enjoy / enjoyed…	Time1 (t1) M (SD)	Time 2 (t2) M (SD)	Time 3 (t3) M (SD)
… the short quizzes"	4.17 (0.72)	3.75 (0.75)	4.33 (0.49)
… the discussion following a quiz"	4. 09 (0.83)	3.58 (1.00)	4.17 (0.58)
… working on the learning diary"	3.82 (0.75)	3.83 (1.03)	4.33 (0.65)
… the group project"	4.33 (0.65)	3.75 (1.22)	3.67 (1.44)
… to work online together with peers from the partner institution"	4.25 (0.75)	4.08 (1.31)	3.83 (1.40)
… creating an e-portfolio"	4.08 (0.79)	4.0 (1.00)	4.33 (0.65)

How the students rated the perceived successfulness of an active learning task

The differences between individual tasks and group-related tasks becomes even more evident in the perceived value toward one's success in class (e.g. good grade; Table 3). The results indicate that for some students the group work was highly valuable for their own learning and success, while for others it was not especially valuable. In t1, the group project was rated as valuable "to improve my success in class" with M = 4.17 (SD = 0.72), but the students' perception changed during the semester and in t3, the group project was ranked much lower and more dispersed (M = 3.5; SD = 1.24). This was also the case with the perceived value of working with peers from the partner institution (t1: M = 3.92, SD = 0.67; t3: M = 2.92, SD = 1.56).

While the perceived value for one's success in class decreased in the group work elements, the data demonstrates that the group increasingly perceived that the learning diary and the e-portfolio collection in general would improve their success in class. Table 3 depicts these increasing and decreasing ratings for each active learning element.

Table 3. Items on perceived value for the individual course success; means and standard deviations (n = 12)

Items "I think [the] / [The] …	Time 1 (t1) M (SD)	Time 2 (t2) M (SD)	Time 3 (t3) M (SD)
… short quizzes [will] improve my success in class (good grade)"	4.08 (0.67)	3.92 (0.51)	4 (0.85)
… discussions following a quiz [will] improve my success in class (good grade)"	3.92 (0.79)	3.92 (0.51)	4.17 (0.72)
… learning diary [will] improve my success in class (good grade)"	3.92 (0.51)	4.17 (0.72)	4.42 (0.67)
… group project [will] improve my success in class (good grade)"	4.17 (0.72)	3.73 (0.79)	3.5 (1.24)
…working online in a group together with peers from the partner institution [will] improve my success in class (good grade)"	3.92 (0.67)	3.64 (1.03)	2.92 (1.56)
… e-portfolio with several small graded assignments [will] improve my success in class (good grade)"	3.75 (0.87)	4.08 (0.51)	4.33 (0.65)

How the overall perceptions changed over time

The Friedman test was applied to assess significant changes over time for each of the active learning elements for the whole groups (n = 12, Table 4). This aimed to explore whether the length of experience with one active learning element would lead to equal changes in the perception of all students or whether such changes were happening unevenly. Based on a significance level of 0.05, we tested the extent to which the data indicates unidirectional changes of the students' perceptions between the three measuring points. Focusing on perceived enjoyment, the data demonstrate significant—aka unidirectional—changes when students worked with short quizzes ($p < 0.042$) and with the learning diary ($p < 0.039$). In contrast, the changes in perception concerning the experienced enjoyment while working on the group project ($p < 0.247$) and with the international peers ($p < 0.707$) tested insignificant. Apparently, some students rated those active learning approaches higher over time while others rated them lower—aka non unidirectional. Again, the data show that the perceptions of the students—and to be more precise the 12 people in this sample—differed regarding these collaborative learning elements, while their perception of the in-class and individual activities developed more homogeneously.

With respect to the perceived value for one's success in class, no significant changes could be found in the data with the Friedman test. However, in comparison to the other active learning elements, the group rated the value of the learning diary the most consistently ($p < 0.067$) and as we already know from this section, its rating was consistently high. Table 4 summarises the results of the Friedman test for both areas, the perceived enjoyment and the perceived successfulness.

Table 4. Even changes over time analysed with the Friedman test (n = 12)

Active learning element	Friedman test *Significance level 0.05	
	Enjoyment	Successfulness
… short quizzes	0.042*	0.717
… discussions following a quiz	0.012*	0.368
… learning diary	0.039*	0.067
… group project	0.247	0.143
…working in a group together with peers from the partner institution	0.707	0.331
… e-portfolio with several small graded assignments	0.779	0.121

DISCUSSION AND IMPLICATIONS

Since our analysis is based on a small sample, we include extracts from the open-ended questions of the surveys and course evaluation as we discuss the findings. Thereby we wish to include the student voice more explicitly and aim to support the interpretation of our analysis, especially since there might be important influences in light of cross-cultural awareness and internationality.

The statistical analysis demonstrates that we achieved our aim to address the individual learner's needs and perspectives. However, even though the didactical conception to foster peer learning proved to be operational, it might not have worked out as expected. Not all of the students benefited from the group project or from working in multidisciplinary and international groups. The data are based on student perceptions, thus some might have not enjoyed group work but learned a lot. We included open-ended questions in the surveys and evaluation and would like to share a few responses. For future surveys, more questions on intercultural communication could be helpful. However, some students valued that: "I developed a cross-cultural knowledge" (ML84, evaluation) and "I learned how to interact with people from different cultures" (SR68, evaluation).

In this study, we wanted to explore how the students rated the various active learning elements in this course and to specifically analyse how this applied to the perceived enjoyment and the perceived value for the individual course success (RQ1). Furthermore, we asked how this perception changed during the course of the semester (RQ2). Based on the results of our analysis we can state the following:

The overall impression whilst working in the different learning activities was that the students enjoyed the tasks and rated them as valuable for their success in class, as the following statements show:

> The learning Diary is the highlight for me. It is a new aspect of learning to me and I have liked it so far (MM61, survey 7).

> The Menti questions and the learning diary experience has improved my learning skills (EH56, evaluation).

> I have added skills on virtual learning, the use of the learning apps have improved my skills, working hard to meet deadlines, need for regular review through weekly learning diaries has improved my thinking, need for interaction or building network to develop skills (EH56, evaluation)

> The fact that I had to be in time in doing my assignments and attending class improved me as a person. I had to be on [my] toes to ensure I was on tabs on everything that was happening in class and group work which is a plus, because at first I thought I could not handle it all (RS70, survey 7).

However, the results show that regarding both aspects—enjoyment and success—the perception of individual and in-class tasks was consistently either high to start with or increased over the semester, whereas this was not the case for the group-related activities. And even though the rated enjoyment dropped in the middle of the semester for some activities, this can be explained through the individual experiences with an activity. For example, the students' perception of the quizzes, which was comparably high at the beginning (t1: M = 4.17, SD = 0.72), might have decreased during the middle of the course (t2: M = 3.75, SD = 0.75) because of the repetition associated with it. However, in retrospect, the students rated the perceived enjoyment with the quizzes even higher than at the beginning (t3: M = 4.33, SD = 0.49). But what led to the increasingly divided perception of the group work? What caused the expected joy (t1: M = 4.33, SD = 0.65) to change into a rather disparate value at the end of term (t3: M = 3.67, SD = 1.44)? What caused the increasingly disparate student opinion that working with their peers in the group project was not (always) valuable for their success in class (t1: M = 3.92, SD = 0. 67; t3: M = 2.92, SD = 1.56)?

It is noted that student perceptions of the international group work diverge from their perceptions of the other learning settings and assignments. But first, let us again share some insights into the students' experiences, which point out some challenges as well as benefits:

> Working with people with different backgrounds and thinking had been difficult for me, but the project group has changed my mindset and has helped me a lot in working with people (FA67, survey 12).

> I am not satisfied with our group work, but it was true that I liked to interact with others to solve problems (GG77, survey 12).

> It was fortunate that my group had students from four different countries so my interaction with them has helped me learn (EH56, evaluation).

> I didn't really enjoy it [the group work] enough because I didn't have group members with the same zeal (MM61, survey 12).

> It improved my communication skills (ET90, evaluation).

> I benefit from the knowledge from group members. I participate in the synthesis of variant ideas. I developed skills to match different ideas and come out with only one that is integral and strong. (ML84, survey 7).

> It's great to work with people from different backgrounds as I got a touch of how different they think on some issues (RS70, survey 7).

These student voices help us to bear in mind that "group assignment in itself does not guarantee knowledge co-creation" (Poort, Jansen, and Hofman 2020, 2). They highlight that students need to (be able to) engage with the peers in their group, as well as their different perspectives and the assignments, to benefit from group work as a site of interaction and learning (Poort, Jansen, and Hofman 2020, 2). In their survey of 1,025 students who participated in group work as part of their course load in internationally oriented study programs, Poort, Jansen, and Hofman (2020) revealed that group formation—whether students were asked to self-select a group for an assignment or whether groups are formed by the course instructor—did not significantly influence students' participation in and engagement with their group. Perceived cultural diversity, they found, positively impacted students' engagement in group work, in other words: "the more culturally diverse the group, the greater was students' engagement" (Poort, Jansen, and Hofman 2020, 8). The strongest aspect in the students' engagement in group work in their survey was trust—especially with regard to their cognitive engagement and academic contributions towards an end-product that they trust will be of high quality (Poort, Jansen, and Hofman 2020, 10). This can be established early in the collaboration by facilitating ice-breaking and trust-building activities, ideally before the group work phase begins (Poort, Jansen, and Hofman 2020, 12).

We expect that more qualitative data (collected via interviews, for example) might aid in understanding how to design complex group work settings similar to these in future international online courses. Certainly, learning scenarios, such as this joint classroom that depend on students' interactions across cultural divides, need to make time and space for a discussion about shared and divergent expectations of such group assignments. Instructors need to facilitate the negotiation of good standards and rules for productive group work and create a setting that enables an open communication about the factors of international collaboration, such as language proficiency, preparation time, and building character, as well as intercultural encounters that significantly influence the success of group work, such as academic socialisation, learning styles, and perceptions about the role of the student. The course design for this joint classroom, in consequence, will need some reconsideration regarding these aspects.

We would like to end with some critical reflection on the study itself and the context. As mentioned above, the data presented here is based on a very small sample size. We therefore plan to include the survey study in following semesters and to collect more data to increase the power and generalizability of our results. However, these results guided us to maintain the didactical elements of the e-portfolio with the learning diaries, quizzes, and online exam and to improve the group project so it better encourages active learning in this challenging context.

In addition to the active learning elements, effective implementation required that the course be hosted on a comprehensive learning management system. A syllabus clearly described course content, the expectations, and the weighting of assignments and course participation, with assurance that faithful submission of assignments would result in a good grade. Prompt feedback on assignments alerted students if they needed to approach anything differently and prompted instructors to address learning deficiencies of groups or individuals. This was highlighted in several

student statements, such as: "I really like that Instructor gives all feedback about my works and try to induce me to prepare class" (GG77, evaluation) and "The instructor was punctual, marked our works very fast and provided feedback immediately, I love this energy. This motivated me so much" (JA63, evaluation). The initial and ongoing guided interactions were also important for students to become acquainted with the instructors and the other students, especially those originating from other countries and attending a different university, thus preparing the students to benefit from class interaction and group work across the very different contexts involved. These additional aspects provided the context for the active learning elements to be effective.

Finally, we need to consider the findings of this study—and of the items on the group work in particular—in the context of the COVID-19 pandemic in both locations. At the time of the pilot course, students found themselves in a highly isolated learning setting with scarce social interactions outside the virtual realm. This may have affected their initial feelings about the group work and may have generated expectations about participation in the group that neither the assignment nor the learning environment could or were intended to fulfil. At the same time, students on both ends found themselves under increasing pressure as the semester progressed. On the German side, for example, a second lockdown began. It cannot be ruled out that the COVID-19 context may have influenced social interactions and students' willingness to step out of their presumed comfort zones in this course.

However, regardless of the pandemic situation, the students enjoyed the class. One student stated, "Doing the entire course work online has been a lovely experience, and interacting with my classmates doing group work enhanced my communication skills and I would love to do another joint class some other time" (SR68, survey 12). In several statements, students responded to the open-ended questions by highlighting the close proximity they perceived to the other students in spite of "cross-cultural differences" (FA67, survey 7) and "distance" (RS70, survey 7). One student noted that "it felt like we were in one room" (RS70, survey 7). The statements underline the social relatedness students have been able to develop over the course of the weeks they spent in the shared (a)synchronous online space. In our current geo-political climate, learning scenarios that use digital tools and communication to not only bridge geographical divides, but also cultural differences, diverse academic socialisations, and diverging expectations about teaching and learning are of increasing relevance. We thus hope that this paper has yielded insights for academics and educational developers seeking to effectively embed active learning strategies in their courses in order to harness the diversity of their learner groups as a resource in teaching and learning.

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