

Virtual Exchange

Borderless Mobility between the European Higher Education Area and Regions Beyond

Selection of Conference Papers
Presented on December 11, 2019

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Introduction

Dear Reader,

"Virtual exchange" constitutes an important element in the current discourse on internationalisation in higher education. Hence, the Erasmus+ National Agency for European Higher Education Cooperation at the German Academic Exchange Service (DAAD) took the opportunity to organise a conference on "Virtual Exchange – Borderless Mobility between the European Higher Education Area and Regions Beyond" in Berlin on December 11, 2019. The event was part of the ongoing "Global Policy Dialogue", which is an initiative of the Bologna Follow Up Group (BFUG) dedicated to strengthening relations between the European Higher Education Area (EHEA) and other higher education regions in the world.

In the runup to the conference the DAAD published a call for papers and we were very pleased to receive numerous contributions, which dealt with the topic "Virtual Exchange" from very different perspectives. This range of voices shows that many universities around the world are currently experimenting with virtual formats for teaching and learning or have already anchored them in the study curriculum. However, there are also higher education regions that have little experience with virtual learning and would like to see opportunities for exchange and cooperation. Bridges need to be built here in order to fully exploit the potential of online learning worldwide.

The contributions in the following pages include the papers selected for presentation at the conference. They investigate the challenges and best practises of virtual exchange in higher education regarding curriculum development, capacity building, and management and guidelines.

As the various discussions during the Berlin conference showed, even if physical mobility should not and cannot be replaced in the future, collaborative online learning plays a crucial role in facilitating academic cooperation, especially by enhancing, supporting, or complementing physical mobility, and as a component of implementing internationalisation-at-home.

Photo: Susanne Reich/DAAD



I hope this publication provides you with new and insightful ideas on virtual exchange within the European Higher Education Area and other higher education regions worldwide.

Enjoy your reading!

A handwritten signature in blue ink that reads "Stephan Geifes". The signature is written in a cursive, flowing style.

Dr Stephan Geifes

Director Erasmus+ National Agency "Higher Education"
German Academic Exchange Service (DAAD)

Boosting Exchange

**Digital Formats as a Means
to Enhance International
Cooperation between the
EHEA and Other Regions**



- ***Testing Online Inter-Institutional Collaboration across the Globe:
The Virtual Exchange Program***

Dr Anne S. Helsdingen, Ecole Polytechnique fédérale de Lausanne, Switzerland
Gijs Elkhuizen, MSc, Wageningen University and Research, The Netherlands
Françoise Docq, MEd, Université catholique de Louvain, Belgium

- ***A Framework to Boost Virtual Exchange through International
Virtual Collaborative Learning: The German-Iranian Example***

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Testing Online Inter-Institutional Collaboration across the Globe: The Virtual Exchange Program

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Since the first Massive Open Online Courses (MOOC) Stakeholder Summit in Lausanne in 2013, several universities have expressed their interest in having MOOCs count for academic credit. Their idea was simple: allow students to take their already existing online courses from any participating university in the Virtual Exchange Program (VEP)¹, partake in the exam at their own campus, and have the credits for that course count towards their academic degree program.

In November 2017, 11 different universities² signed a VEP agreement valid for the pilot phase of three years and based on four guiding principles: 1) Mutual trust between participating universities; 2) Small extra effort (use what we have); 3) Acceptance of different academic calendars; and 4) Use the same exam at each university.

This paper presents the general framework of the VEP and the administrative lessons learned with the aim of inspiring others to set up similar collaborations. We discuss how the differences in the administrative contexts of our VEP partners have consequences for organizing exchange on course level. The structure of the paper reflects the structure of the VEP agreement: for each topic, we describe the original idea, the challenges we experienced during the implementation of the agreement, and how we plan to address these issues in the near future. After this topic-by-topic discussion, we end with a brief discussion of the lessons learned and future outlook.

1. Details on the Virtual Exchange Program can be found at <https://vep-online.org>

2. Ecole Polytechnique de Lausanne, Switzerland (coord.); Australian National University, Australia; Delft University of Technology, The Netherlands; Hong Kong University of Science and Technology, Hong Kong SAR PRC.; Leiden University, The Netherlands; Rice University, United States of America; Sorbonne University, France; University Carlos III de Madrid, Spain; Université catholique de Louvain, Belgium; University of Adelaide, Australia; Wageningen University & Research, The Netherlands.

Definitions

The agreement starts with some definitions and conventions that we highlight here to facilitate a shared understanding:

- *Home institution: the institution where a student is registered to pursue a degree.*
- *Host institution: the institution offering an online course to students registered at one of the participating universities.*
- *Virtual exchange students (VEP students): students taking a credit-bearing online course from a host institution.*
- *Regular exchange students: students physically moving to an institution abroad for a semester of study.*

Objectives of the Virtual Exchange Program

The agreement states:

The objective of this agreement is to enable students to take online courses from the participating university (courses that are credit-bearing and appear on an official transcript), thus enriching their educational program without needing to travel to the host university. These privileges extend to selected students from the participating universities.

Moreover, during one of the first face-to-face meetings, several members expressed the ambition that the VEP become an opportunity for teachers who want a global classroom and access to a broad student cohort.

Indeed, the VEP has been offering international opportunities for students from the participating universities at no extra cost to the students. This is a great benefit, since in the regular exchange the involvement of extra costs excludes some students. The VEP was also expected to create an interactive international classroom, but this does not seem to be happening, probably because the VEP courses are self-paced and asynchronous, meaning that students do not have to be online at the same time to follow the online course. Nevertheless, the individual and self-paced nature of most of our online courses also carries a great benefit: it provides students an easily accessible, ubiquitous, and flexible way of enriching their personal study programs.

The VEP objective was formulated mainly from a student's perspective, but it also functions as a testbed for participating teachers. They have the opportunity to explore the full potential of online education, e.g., bringing together different learning communities (registered students from different institutions, online learners, professionals, etc.) and experimenting with different forms of blended learning.

Lastly, the VEP benefits the participating universities at an organizational level. The tight collaboration at administration level and necessary synchronization of administrative processes led to a unique situation in which different ways of administrative collaboration could be tested. Unfortunately, many rules and regulations of the home institutions still limit the number of VEP courses offered

to students, including regulations regarding free electives or student eligibility, and also slow and plodding academic committee approval procedures. But these challenges can be overcome by continuation of the communication and coordination on all levels of the exchange.

Selection of Online Courses for Exchange

The agreement continues with two important characteristics of the courses allowed to be part of the VEP experiment:

- *The online courses must be assessed under regular academic conditions (i.e., proctored simultaneously in the various locations).*
- *The institution's online course [...] must also be open to the institution's own students for credit.*

So, the main idea that enforces the fundamental principles of mutual trust and small extra effort was to “use what we have”: the VEP students would not require extra attention from teachers or administrators because we would offer only online courses that we already made available to our own students or to the world. Including extra VEP students in these courses would not bring extra work was the idea. However, for several reasons, it is proving to be rather difficult to use what we have: there are online courses that are only complementary to an on-campus course because they exclude, for example, laboratory sessions. Or some courses attract so many VEP learners that separate course sessions have to be organized to accommodate those learners. Still other courses are taught only in the local language.

Ignoring the idea to “use what we have”, some teachers put in more effort to serve the VEP learners. Unfortunately, this extra effort sometimes created teacher expectations that remained unfulfilled. For example, teachers who recorded extra sessions, livestreamed laboratory sessions, or translated their course for VEP learners expected higher student enrolments than they actually received.

Furthermore, for exams, extra effort is often required because some partners consider online assessment to be unsafe or existing online exams to fall short of meeting academic standards. Thus, new exams are created, often in the form of on-campus written exams. To minimize teacher load, usually one exam session per course is offered to all participating students, thus requiring organization of a synchronous exam session. This implies sending exam material back and forth, organizing and communicating about an exam location, finding proctors, and finding an appropriate timeslot to serve different time zones. And all this effort may be in vain when no VEP student shows up for the exam.

To lighten the load in organizing exams in the future, we hope that teachers will embrace technologies to offer online and ondemand assessments that are accepted as safe, secure and high-quality solutions. On top of that, we stress that the principle of “small extra effort” remains a vital one in any virtual exchange. When coupled with adequate management of the expectations of all stakeholders involved, it can prevent disappointment and inefficient use of time.

Selection and Admission of Students

The agreement further stipulates the process and the responsibilities of stakeholders involved in the selection and admission of the VEP students for a course:

- *Students [...] apply at their home institution.*
- *Students will be selected by their home institution on the basis of their previous academic merit, scholarly interests [...], and required prior knowledge.*
- *The home institution will supply the host institution with a list of students willing to follow the online course [...] prior to the registration deadline [...].*
- *The host institution will select and admit the exchange students [...] as non-degree, credit-earning students [...].*
- *A maximum capacity will be set by the host institution [...] available places will be distributed over the institutions.*
- *It is the parties' desire that there will be a balance in the number of students exchanged [...] by the end of the agreement.*

This process closely resembles the regular international student exchange process, with at least two approvals by both home and host institution. Nevertheless, the virtual aspect poses unique challenges. The fact that the VEP students will not be physically located at the host institution means that they may not possess the host country visa, insurance, or proof of residence that may normally be required for registration. They will be unable to come and show their photo ID, provide physical copies of tuition fee payments, collect their student ID, or activate their student account at the host institution campus. And as many of the online courses made available to VEP are in English, the VEP students are not required to speak the host language, and therefore they may struggle with the Learning Management System (LMS) in the host language.

Hence, not only registration but also course enrolment of all VEP students is managed by VEP administrators at the host institution. This lengthy process may be justified in the case of semester exchanges, but is a lot of administrative work for just a single course.

Furthermore, having different academic calendars and different regulations with respect to course selection and registration leads to loss of opportunity. Some of the institutions have one course registration period per academic year, whereas others have two or three course registration periods per year – one per semester, per trimester, or even just before the exam. This difference in registration periods decreases the number of available courses at any one time for our students: when students at the home institution must decide on their courses, not all course information may be available, or the course at the host institution may not yet be open for registration.

Currently, some participating home and host institutions have already made the administrative decision to include a VEP student as a new type of student, for whom certain administrative requirements are remitted. At the same time, we

are designing a centralized student admin system for VEP that would provide students with a webbased portal where they can apply and track their application through the different approvals until their enrolment in the course. We expect this system to enhance the speed and transparency of the process and lessen the administrative burden for both home and host institutions. The challenges posed by different academic calendars will not be solved directly, but by improving our admin processes, we think we can accommodate more partners and hence include more courses in the VEP portfolio. This would then counteract the strain on the number of available courses caused by different and limited registration periods.

Parties' Responsibilities and Expenses

Regarding the responsibilities of home and host institutions, the agreement states:

- *The host institutions*
 - *will agree to accept the agreed-upon number of exchange students [...],*
 - *will enroll them as non-degree, credit-earning students [...],*
 - *shall have the option of terminating the student's exchange, should the exchange student breach any academic requirement [...],*
 - *will provide [...] academic achievement reports for all exchange students, in the form of official transcripts, to the home institutions.*
- *The home institution will facilitate the administrative processes with regard to its students. This entails [...] proctoring the necessary exams.*

Today, two years in VEP implementation, we realize that while we anticipated each party's administrative and financial responsibilities, we overlooked the pedagogical responsibility: who is responsible for the VEP students after the course has started?

VEP students find it difficult to identify and interact with their fellow host institution students among all the other online learners on the platform. Similarly, they are often not identified as for-credit VEP students in need of specific support or information. VEP students also report being unaware, except by way of the massive forums, of how to contact the teacher in case of academic difficulty.

Because of the academic stakes in online courses for VEP students, they often need extra information on exams, specific homework deadlines, etc. This extra information may be provided during class activities that VEP students are not privy to or may be sent through host LMS or email. But even the latter two channels are inefficient means of communication with VEP students.

VEP students miss the teacher's in-class reminders to check the LMS. When they do receive information, they may not properly understand it because of language problems or because they are unfamiliar with the academic culture of the host institution. Or the teacher may suddenly change a deadline already listed on the host institution calendar, forgetting that the VEP students may not follow the same calendar.

VEP students may also miss information that is sent to their host institution email account. Some of them report not even being aware that they have such an account or confess not to check it on a regular basis. They also report being overwhelmed by irrelevant messages about local activities, sporting events, parking alerts, etc., especially if written in the local language they don't understand. All this leads to VEP students feeling unconnected to the course and the host institution. In case of questions, they prefer to contact their home institution rather than the course teacher. And as a result, they miss important deadlines or exams and thus fail the course, or they drop out of the course without notifying home or host institutions.

Course teachers should be responsible for creating the optimal conditions for VEP students, but this may require extra effort. And teachers may be not aware, willing, or able to take care of special needs of VEP students. Thus, we see some VEP administrators offer extra support themselves: tracking students, checking enrolments, checking students' learning activities, etc. If a VEP administrator is concerned about a student, they can intervene by contacting the individual student. This extra support may be relevant to help tackle the challenges of the VEP learning experience; however, it breaks the "small extra effort" principle of the initial agreement, as administrators usually do not monitor student progress and reach out to individual students.

Finally, among the responsibilities shared by all stakeholders in a virtual exchange, pedagogical support for VEP students must be explicitly addressed, including consideration of how that support affects teaching load, administrative effort, and student learning experiences.

Assessment and Transfer of Credits

The agreement reads:

- *The host institution is responsible for the assessment and grading of exams [...].*
- *In case of a written exam, the host institution will send the exam in a secure way to the home institution. In case of an oral exam this will be organized via a safe online communication tool. The home institution will organize the exam [...].*
- *The home institution may grant credit for courses and assessments completed at the host institution in accordance with the home institution's policies and procedures.*
- *The host institution's rules and procedures for complaint and appeal by students [...] are applicable.*

This passage refers to the idea that the VEP student is subject to the Education and Examination Regulations (EER) of the host. Sometimes, however, such regulations may be incompatible with those of the home institution. This can create dilemmas, such as in organizing host institution exams at the home institution campus. For example, differences may exist in whether online proctoring is

allowed, or whether one or two exam opportunities per course may be provided. These institutional differences result in uncertainty for VEP students and extra effort for administrative offices, which must tackle these problems on a case-by-case basis. Inclusion of a VEP annex in the EER of the participating institutions, and thus recognizing the special status of VEP courses and assessments, could provide a solution.

After completing the course, students receive a transcript of records from the host institution enabling them to include the credits in their home study program. However, the credit validation by academic committees has suffered from confusion about the level of the courses and from conversion difficulties between different academic systems. The confusion about course level stems from the different qualification systems in use at different institutions and at online course platforms (e.g., EdX). To solve this problem, we have developed a uniform course information system using a uniform language providing a breadth of information on each course. This enables academic committees to properly evaluate the content and level of the courses in the VEP portfolio.

However, credit validation processes also exposed differences in how online courses are perceived relative to on-campus courses. Some of the VEP courses are equivalent to on-campus course in terms of learning outcomes and assessments. Yet, academic committees sometimes value the VEP courses of lower quality and often allot the online courses fewer credits because they involve fewer lecture hours. Not only does a focus on the number of lecture hours ignore that course credits are also connected to the course's learning outcomes, it also fails to recognize that video lectures are more concise than on-campus lectures. Thus, (video) lecture hours as such may not reflect a student's actual study load, given that online content may be watched multiple times if a student wants to master the content.

When within the ECTS system, home institution academic committees usually accept the ECTS allocated by the host. But when having to convert credits from a different system, academic committees often feel compelled to look closely at lecture hours and course level instead of using conversion tables. We experienced situations in which students from different EU home institutions completed the same course from an Australian host institution, receiving different amount of ECTS for it. Different academic committees converted the Australian credits (units) differently, in spite of clear Bologna guidelines. Hence, we feel that new (Bologna) guidelines that consider the nature of online learning are necessary, and should include tables for credit conversion.

Coordination

At the start of the VEP program, details of the structure and procedure of the pilot project were formalized in the agreement:

- *The parties will have at least two general meetings per year to discuss course offerings and administrative procedures.*
- *Each institution will designate one representative as liaison officer to facilitate student exchanges under this Agreement.*

Although the VEP pilot was initially thought of as a rather simple feasibility study to investigate the exchange of online courses for credits, it quickly became clear that we had no adequate procedures or infrastructure in place to exchange course information, register students, synchronize exams, etc. As we describe earlier in this paper, existing procedures and infrastructure were inappropriate for handling the specifics of virtual exchange. Thus, management of the VEP required a lot more coordination between partners than initially planned. In 2017, the operational group conducted an inventory of participating institutions to estimate each university's capacity and effort involved in setting up all procedures and infrastructure to run the VEP. This showed that universities required between 0.8 and 1.2 FTE (Full Time Equivalent) to set up the VEP. However, now that the VEP is up and running, the necessary capacity per participating university – acting as host and home – is estimated at 0.2 to 0.5 FTE for day-to-day operation and maintenance of the VEP organization.

As we approach the final phase of the pilot test of the VEP, many participating universities are looking into ways of embedding the VEP into existing university infrastructure. The procedures involved in day-to-day business include course publication, student registration, course enrolment; remote exam management and sending transcripts; and maintenance of the infrastructure and tools, including website, course portfolio, marketing materials, and exam exchange platform. In many universities, these tasks are allocated to different departments or people. In addition, the processes involved in the VEP are truly different from the processes for regular exchange or regular student registration. Many participating universities may therefore choose to allocate the VEP to a specific coordinator.

Discussion and Conclusion

At the start of the VEP, participating universities aimed to experiment with the implementation of an idea that seemed easy and natural: as we all had MOOCs running worldwide, we thought to offer them to each other's students for credits. We agreed on four principles that, at the same time, framed and expressed our expectations for this pilot: 1) We decide to trust **each other** as valuable partners since we choose to collaborate on this experiment; 2) We use what we have so the **extra effort should be small**; 3) We **accept the different academic calendars** and even expect that this issue will be eased by the flexibility of online courses; 4) Because credits are at stake, we agree to **provide the same exam**, at the same moment and under the same conditions, to all students taking a particular course. Almost three years after articulating those leading principles, where are we?

Of course, the **mutual trust** presupposed between partners had to be actively built. Allowing students to validate credits for a single course taken online from partner's portfolio met with more academic scrutiny than allowing them to validate several courses during a full semester abroad. Is it that our academic leadership does not trust the quality of courses from other participating universities, or is the culprit here the online character of the courses? We experienced more reluctance and hesitation than expected from our local communities. This led to greater effort than expected to bring the project to life.

Indeed, the small effort principle was quick to appear unrealistic: the VEP experiment has been requiring a **significant extra effort from different parties (teachers, VEP offices, international and administrative offices, etc.)**. On the one hand, even if we all have available online courses often running autonomously and open to any learner in the world, offering them to partners' students for credit is another story. VEP students need and expect more guidance and support than worldwide online learners. At the same time, most of the usual (exchange) administrative procedures don't fit a single virtual exchange course. Therefore, we had to adapt to the situation and experiment with new procedures. And we discovered that even exchanging single online courses require significant effort in communication and coordination between partners.

We did face **issues with dealing with different academic calendars**. These issues were related to course registration deadlines, exams dates, and transcript availability. Most of the partners still have an on-campus mindset even when offering online courses: the course timing may be flexible but the registration dates and exams are organized according to the regular academic calendar. Allowing some flexibility for exam organization would ease the whole problem.

The **same exam** principle stems from the desire to create equal opportunities for all learners and maintain a high-quality academic standard for assessments. However, both can be attained while allowing for some flexibility. Currently, teachers may fear that asynchronous exam sessions instigate cheating through uncontrolled dissemination of their exam questions. Creating several exams for different sessions would, however, defy the principle of modest effort. Online technologies can provide flexibility while guaranteeing safe assessment, and thus align flexibility, modest effort, and high academic standards. However, implementation of such technologies may require a shift in mentality.

In conclusion, we feel **trust** to be key for the future of our VEP, or any virtual exchange network. More trust in online learning as a valuable education system, more trust in online and flexible assessment systems, more trust in the quality and support that the partners will give to our VEP students, and more trust in our students' capacity and integrity to engage efficiently in online courses. It takes more, when credits are at stake, than just organizing a Massive Open Online Course.

A Framework to Boost Virtual Exchange through International Virtual Collaborative Learning: The German-Iranian Example

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This article presents a transferable framework of an innovative formal learning setting for the implementation of virtual exchange: Virtual Collaborative Learning (VCL). It uses the example of the DAAD-funded German-Iranian project to discuss the concrete implementation of the framework and its design dimensions.

Gaining Teamwork Competencies

The ability to work in decentralised, international groups based on collaborative information and communication technology (ICT) is quickly gaining importance as a globally required key competence. Both the European Union and the Organisation for Economic Cooperation and Development (OECD) highlight collaboration skills, virtual communication, problem solving, the purposeful use of networked online tools, the development of social skills, and the creation of digital content as central key competencies for the 21st century (OECD, 2018; Rampelt, Orr, & Knoth, 2019; Trilling & Fadel, 2009).

The acquisition of intercultural skills during a study period abroad is associated with high costs for travel and the local costs of living. Academic exchange mobility is highly dependent on external conditions. As a result, this type of mobility is not accessible to the vast majority of students; only a few privileged students have been able to acquire international teamwork skills in the past (van Schaik, 2019). ICT-supported collaborative learning settings using affordable, flexible technologies allow local students and students abroad to connect virtually. This enables students to experience intercultural exchange adapted to their study content and integrated into their regular local studies without the need to invest additional time or money (Tawileh, 2016). It opens new opportunities for students who are economically or socially excluded from the physical mobility traditionally needed to gain international and intercultural experience (Otto, 2018).

Two key concepts addressing these issues are virtual mobility and virtual exchange. Virtual mobility is defined as “the use of information and communication technologies (ICT) to obtain the same benefits as one would have with physical mobility but without the need to travel” (Bijnens, Boussemaere, & Rajagopal, 2006,

p. 5) and focuses on the cooperation of educational institutions as well as the recognition of achievements. Virtual exchange as a related concept is centred on the interaction and communication of geographically separated participants (Virtual Exchange Coalition, 2019). Instead of access to educational offers of cross-border universities, the focus is clearly on exchange, competence building, and interaction in small groups (European Commission, 2018). Administrators implementing these concepts in higher education are confronted with a variety of organisational, didactic, and administrative challenges.

VCL Framework

A transferrable framework for formal learning that utilises the potential of virtual mobility and virtual exchange is Virtual Collaborative Learning (VCL). It is a best practice framework, based on 18 years of scientific research at the Chair of Information Management at the Technical University Dresden (TU Dresden) (Balázs, 2005; Rietze, 2019; Tawileh, 2016). VCL is a formal learning setting that aims to transfer traditional classroom group learning into a virtual environment. Through the communal solving of complex problems based on authentic business cases in a time span of usually six weeks, students develop intercultural awareness, interdisciplinarity, collaborative skills, and media competences, besides deepening virtual expertise and adding soft skills such as project management.

VCL scenarios represent a best of both worlds approach: On the one hand, credits achieved in the formal setting can be transferred between different universities in the sense of virtual mobility. On the other hand, the group work character of VCL scenarios clearly focuses on the exchange in small groups and the development of intercultural collaboration skills in virtual environments, fulfilling the criteria for virtual exchange.

For their communication and process documentation, participants use social software and digital tools. A high level of self-organisation is required within the groups, as all members of the group are jointly responsible for their work results. During their collaboration students are supported by qualified E-Tutors to maximise both individual and group learning outcomes. As it focuses mainly on fostering communication and collaboration between students, the VCL framework is content-independent. It can be used for a wide range of formal education topics, e.g. knowledge management, intercultural communication, digital learning or human resources management. Successful students from all participating locations achieve ECTS (European Credit Transfer System) credits and grades based on formative and summative evaluation. Regarding its structure, VCL is a hybrid learning arrangement that combines elements of blended learning (Seuferth & Mayr, 2002), flipped classroom (Bishop & Verleger, 2013), and a fully online experience. It includes a phase of self-directed preparation for the acquisition of basic knowledge, followed by a virtual group work project, which ends with a joint presentation of the results and concluding individual reflection:

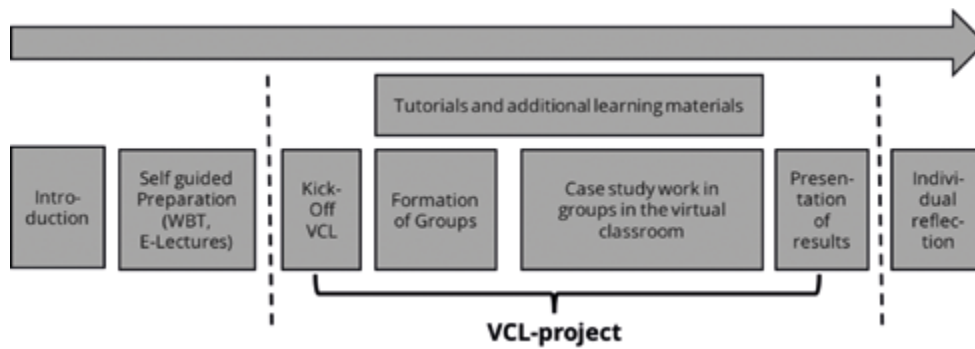


Figure 1: Structure of a VCL scenario

Organising an international VCL project to promote virtual mobility requires a complex, step-by-step implementation process, in which a variety of organisational challenges have to be addressed. This preparation process is presented only schematically here. (See figure 2). Clauss, Lenk, and Schoop (2019) offer a detailed description of the challenges to be addressed in the preparation process, based on an earlier version by Balázs and Schoop (2004, p. 75).

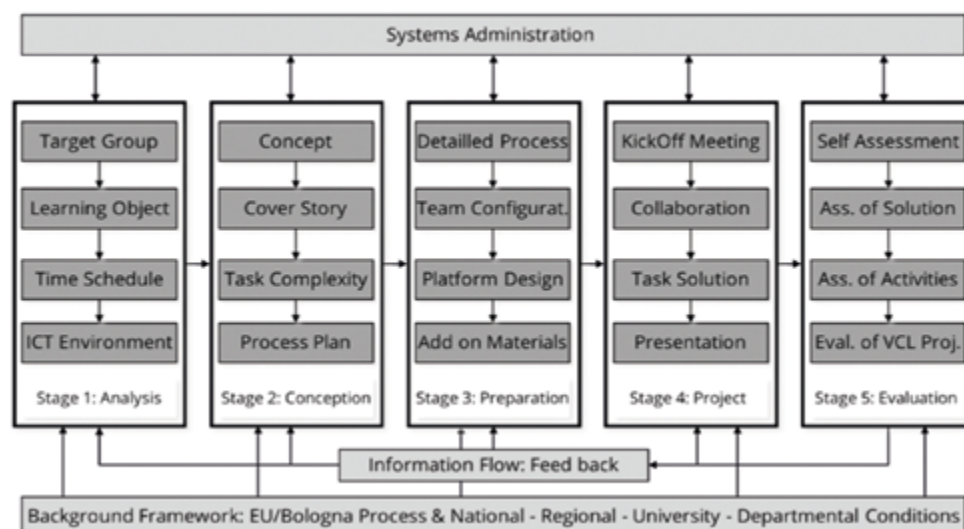


Figure 2: Complex preparation and organisation process of a VCL scenario

In the planning of VCL scenarios, various design dimensions must be included. These dimensions are presented in the following chapter.

Design Dimensions of VCL Projects

VCL is based on four pivotal points to create and adjust a situation-oriented solution: “Professionalised pedagogical support” by specially qualified E-Tutors; “realistic cases and working tasks” to reach a maximum of interaction between team members; a “technical platform” providing necessary features for collaborative work; and a “learning analytics & information visualisation”. Together, these four fields produce multiple insights into learning processes for a partly automated support through social learning analytics visualised in a dashboard.

■ Professionalised Pedagogical Support Concepts

In VCL scenarios learning processes are supported by E-Tutors. Although the E-Tutors are within the groups, they do not directly contribute to the groups' results as co-workers. Rather, they operate as learning facilitators accompanying groups and perform the following tasks:

Functional assistance: To avoid ambiguities and misunderstandings, E-Tutors answer task- and content-related questions in case of problems with understanding. In addition, they provide helpful recommendations on additional literature, materials, working techniques, and methods. If necessary, they give further explanations of the tasks and support the students by giving feedback on their work processes and the formal quality of their current output.

Individual personal and group assistance: As the development of virtual collaborative skills is a central learning objective, E-Tutors support the organisation of learning activities by providing feedback to participants on their collaborative behaviour. They support the groups in case of conflicts and focus, at an early stage, on the identification of learning problems of individuals and the group.

Technical assistance: E-Tutors support the selection of suitable collaboration tools, give recommendations, and are available in case of technical difficulties.

Evaluation assistance: In their daily support of the groups' activities and analysis of their communication, the E-Tutors fill observation sheets. These can be considered by administrators to support their formative evaluation of individual and group performance.

Organisational assistance: To reduce the organisational workload, E-Tutors monitor adherence to deadlines and filter and summarise students' questions before forwarding them to administrators. This makes it easier for participants in international settings, as they have only one contact person independent of all participating institutions.

This broad spectrum of tasks and competencies demands that E-Tutors have a professional qualification. This is provided in a specially developed, one-semester qualification module for master students, which is designed as a blended learning arrangement with a subsequent practical phase based on a complex case study (Jödicke, Jung, Kruse, Tawileh, Rudzok, Schoop & Sonntag, 2012).

■ Realistic Cases and Working Tasks

In the virtual classroom environment, the participants work on didactically designed, realistic case studies. Their design seeks to maximise interaction between team members, thus fostering the development of international collaborative skills (Tawileh, Bukvova, & Schoop, 2013). The following table shows three main criteria which have to be considered for the design of case studies.

Realistic	<ul style="list-style-type: none"> • Provide vocation-oriented knowledge • Close connection to possible corporate problems as well as future job tasks • Characterised by open solutions that need in-depth explanation, tasks should focus on gaining new, practical, usable knowledge through discussion and exchange
Collaborative	<ul style="list-style-type: none"> • Tasks must be solved in groups and need a multi-perspective input • Learners learn from each other • Active virtual communication is a must
Self-organised	<ul style="list-style-type: none"> • Self-determined scheduling and distribution of roles and tasks • Learning supporters accompany learners instead of leading them

Table 1: Main criteria for case study design

To facilitate a multi-perspective analysis of the case, participants must choose predefined roles and follow them. The roles determine the participants' function and responsibility. The roles should be split up among the participants in a democratic way, based on a self-assessment of individual strengths and abilities and on previous work and learning experiences.

■ Technical Platform

During the virtual project phase participants work on a central social learning platform. Tawileh, Bukvova, and Schoop (2013) summarised the characteristics of the required features for collaborative work, as follows:

Communication: Asynchronous tools enable structured and documented group discussions and synchronous tools allow realtime discussions and virtual group meetings, which are required for instant communication, ad-hoc agreements, and urgent decisions, realised by text and voice/video chat and conferencing tools.

Work on tasks and deliverables: Groupware tools that save the history of changes are necessary to work collaboratively on a document or structured web page. A shared file storage enables the group to host, organise, and access files, which can be accessed location-independent by all group members.

Coordination: Personal coordination tools allow students to build personal networks with group members and display personal skills, professional experiences and study background, as well as more informal details like hobbies, thus building up trust. Task coordination tools are required to plan, assign, and display deliverables and to chart their progress.

The example VCL project presented below was based on the open source solution elgg (www.elgg.com) as learning platform and social network. The technically open platform allows participants to work inside closed groups and provides a diverse selection of features for collaborative work:

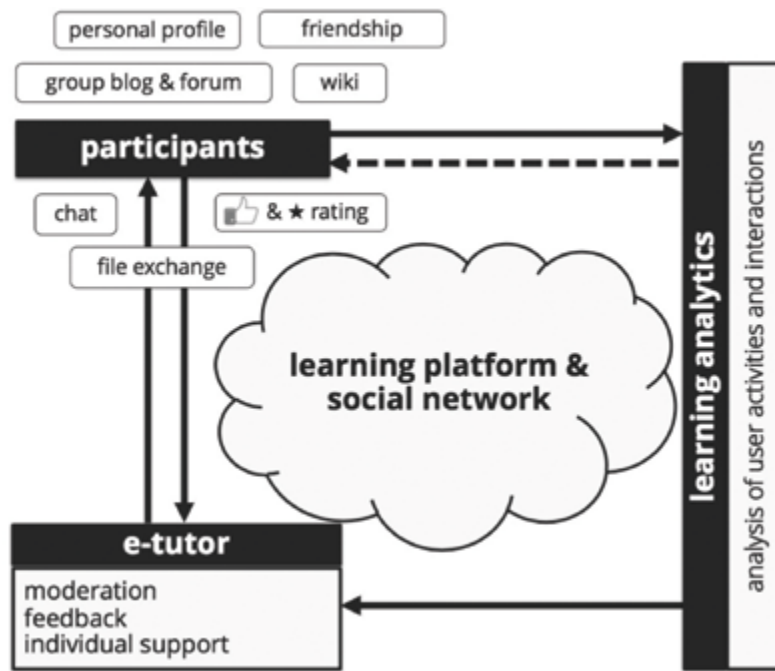


Figure 3: Features and data streams on the central social learning platform

■ Learning Analytics and Information Visualisation

Social Learning Analytics (SLA) focuses on the semi-automated analysis of social behaviour within virtual groups and recurring interaction patterns that characterise effective learning and collaboration processes (Shum & Ferguson, 2012). SLA aim to improve learning and support processes by systematically measuring data output and learners' traces. Each activity of the participants on the platform can be evaluated by viewing their data traces using SLA tools specifically developed for VCL supervision. In this way, user-activity related data traces can be preaggregated and visualised for the E-Tutors and administrators to facilitate formative evaluation. The students are informed in detail about the analysis, storage, and further use of the data. To participate, they confirm that their data traces can be analysed and used for teaching and research purposes. Figure 4 shows a screenshot of the dashboard used by the E-Tutors:

Communication:



Discussions and comments:



Figure 4: Information visualisation for E-Tutors and teaching staff

Implementation in a German-Iranian Project

As an example for boosting virtual exchange by the application of our VCL framework, we present our latest international collaborative learning project, number 61 since 2001. In the summer term 2019, this VCL project was organised by the Chair of Information Management, Faculty of Business and Economics, at TU Dresden. Students from TU Dresden and from Shiraz University, Iran, participated in mixed international and interdisciplinary groups.

■ Background

The basis of this cooperative teaching project is a knowledge transfer partnership between the participating universities, already established with a memorandum of understanding in 2016, renewed in 2018. The focus of the partnership is on common research and teaching projects. Shiraz University has advanced e-Learning experience since 2000. In 2004, the first e-University program was conducted in one university discipline with about 200 students. Today, about 2,000 students are simultaneously studying in Shiraz University's e-Learning programs. The programs include 14 degree programs, such as Bachelor and Master Programs in Electrical

Engineering, Computer Science and Engineering, Information Technology, Law, Management, etc. (Safavi, 2008). In recent years, its special focus has been the design and integration of virtual laboratories in Engineering Sciences (Safavi & Kaveh Talavaki, 2013; Safavi & Veisi, 2013).

■ Project

The project organisation is described here, following the VCL organisation model shown in figure 2.¹

Stage 1 – Analysis: In December 2018 and January 2019, project partners in Shiraz were contacted, as a target group 30-40 students of business management, information systems, language, or engineering programs from TU Dresden and from Shiraz U. Learning objectives in intercultural understanding and collaboration competencies were agreed upon, a seven-week schedule between April and June, 2019, was settled upon, and the well-established elgg system was selected as platform. In addition, in January 2019, we applied successfully for DAAD funding for a group study visit of Iranian students to Dresden in July, 2019, supplemented by flexible funds of TU Dresden.²

Stage 2 – Conception: In February 2019, participating students were selected, providing background information for the cover story: a private German further education institution prepares to enter the Iranian market with specific, target-country focused qualification programs, and asks the international project groups to provide and evaluate background information necessary for decision making (for example, similarities and differences in German vs. Iranian learning cultures, education systems and programs, such as Germany's dual study approach, the role of higher and further education and specific requirements and structures, etc.).

Stage 3 – Preparation: In March 2019, the concept was refined with the cover story, and developed weekly tasks addressing adequate tools of the elgg platform, extended by critical incidents; the groups were then configured, roles and activities were allocated, and the social platform and the E-Tutors' information dashboard, based on social learning analytics, was designed and enhanced by additional tutorials and learning materials. Also, qualified E-Tutors were trained in the specific case and allocated to the different student groups.

Stage 4 – Project: The VCL project, with 38 participating students (including 23 from TU Dresden and from 15 Shiraz U.), was launched on April 5, 2019, with a joint video conference between TU Dresden and Shiraz U., lasting until May 20, 2019. After a break of five weeks, 12 of the participating Iranian students and their supervising lecturer arrived in Dresden for 10 days. They took part in three workshops with most of the German students, extending their professional knowledge, and deepening their personal knowledge of Dresden and Germany through local excursions and joint events together with their German VCL-teammates.

1. For details on the specific tasks of the VCL project and the workshops, see Altmann, Clauss, Jantos, Lenk, Reeb, Safavi, and Schoop, 2019.

2. DAAD program "study seminars & practicals for groups of foreign students to Germany, 2019/2020" & Program "Flexibler Fördertopf Internationalisierung" of TU Dresden, 2019.

Stage 5 – Evaluation: In the virtual phase, a lively synchronous and asynchronous collaboration was observed by the E-Tutors and was subject to evaluation (for students' ECTS credits and individual grades). This VCL evaluation was complemented by quantitative data analysis (social learning analytics & information dashboard) and peer2peer evaluation in the groups and reflective self-assessments. The VCL case was further developed not only in the workshops in Dresden, but also the processes and results of the VCL collaboration were critically reflected upon and evaluated. Finally, suggestions for improvement and future development were documented.

Conclusions and Outlook

Due to the generous funding by DAAD and TU Dresden, for which we are very grateful, we had rather a unique situation in which the international VCL students could also experience physical mobility following the virtual exchange, with the chance to meet virtual collaborators personally and deepen their already well developed mutual trust and team spirit. Following many reports from both German and Iranian students in the months after the group study visit, many of the connections developed in Dresden were continued via WhatsApp, Instagram, or similar private platforms. More than six months after the event, several students remain in regular contact and some German students are motivated to visit Shiraz. In our eyes, the project's initial targets were exceeded by far.

Regarding the VCL framework, we received valuable praise, constructive critique, and helpful suggestions for the improvement of the framework. In the coming summer term, the VCL project will be shifted to a professional IT platform, providing up to date functionality and user interface, especially mobile access. The information generated by learning analytics shall be shared with the student groups to contribute gamification elements, such as competitive indicators and formative assessment, and to support personalised feedback from the E-Tutors to students and groups. Based on iterative research, following the Design Science Research principle (Hevner, March, Park, & Ram, 2004), we are continuously refining the VCL framework, improving the learning arrangements, and documenting our experience in the digitalisation of Higher Education. Our goal is to foster internationalisation in forms of didactical patterns and technical templates.

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Building Expertise and Capacity

What New Skills and Competence Challenges Arise for Higher Education Students, Teachers, and Staff?



- ***Online Collaboration Among European, African and US Students: Building Bridges Across Continents Project***

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Regina C. Brautlacht, MA, Hochschule Bonn-Rhein-Sieg (University of Applied Sciences), Germany
Dr Joseph Owino, University of Nairobi, Kenya
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- ***How to Overcome #Technophobia in Academia? The PlayDate – Invitation to Play, a “No fear but fun” Approach***

Bettina Pfändner, MA, Swinburne University of Technology, Melbourne, Australia

- ***COIL4COIL: Building Expertise and Capacity in Faculty at Durban University of Technology, South Africa***

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Online Collaboration Among European, African and US Students: Building Bridges Across Continents Project

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Society is undergoing social, economic, and environmental challenges accelerated by rapid digital transformation and globalization. To cope with this uncertainty, higher education institutions are faced with a debate on what and how to teach in order to meet demand for the skills and competencies needed in the 21st century. The OECD Learning Framework 2030 emphasizes the central role of education and the need to develop knowledge, skills, and values, such as “learning to form clear and purposeful goals, work[ing] with others with different perspectives; [and] equip[ing] students with the skills they need to become active, responsible and engaged citizens” (Howells, 2018, p. 4). More than just the acquisition of knowledge and skills, higher education institutions should make sure students are offered opportunities to mobilize knowledge, skills, attitudes, and values through online intercultural collaboration projects focused on practical problem-solving. To meet the complex demands of the contemporary society, apart from specialized disciplinary knowledge, students need a myriad of skills, including life and career skills. The Partnership for 21st Century Learning (P21) developed a framework that describes these needs, such as the ability to adapt to change, flexibility, social and cross-cultural leadership and responsibility, and managing goals and time, among other skills. The framework also described the need for students to develop learning and innovation skills, commonly known as the 4 Cs: creativity and innovation, critical thinking and problem solving, communication, and collaboration. Given that we live in a technology and media-driven environment, information, media, and technology skills are also of paramount importance. So is the ability to apply technology effectively. In this regard, virtual exchange projects offer an opportunity for building and developing 21st century skills and cognitive and metacognitive knowledge, together with attitudes and values such as respect for diversity, motivation, and trust. Virtual mobility can be defined as

a practice, supported by research, that consists of sustained, technology-enabled, people-to-people education programmes or activities in which con-

structive communication and interaction takes place between individuals or groups who are geographically separated and/or from different cultural backgrounds, with the support of educators or facilitators. Virtual Exchange combines the deep impact of intercultural dialogue and exchange with the broad reach of digital technology. (Jager, Nissen, Helm, Baroni, & Rousset, 2019, p. 7)

Furthermore, virtual mobility is seen as a way to foster the development of job skills such as digital competence, foreign language competence, communication savvy, media literacy, and working in culturally diverse contexts.

Building Bridges Across Continents – Project Background Information

Building Bridges Across Continents (BBAC) is an ongoing virtual mobility project which started in 2013 with only two countries, and has now expanded to include five higher education institutions on three different continents. Designing and implementing virtual mobility projects across continents goes far beyond decisions on the tasks and tools needed to facilitate students' dialogues. It requires changes in pedagogy and didactical models, embracing competency-based and learner-led learning and guided independent self-study, where students take greater responsibility for their own learning, but with support and feedback from faculty coordinators.

In addition, detailed planning, with a clear description of the different tasks and roles, is vital for success. This project has allowed students to think across the boundaries of disciplines and make use of knowledge and skills they have acquired, embracing challenges that require them to be curious, creative, open-minded, and flexible. One of the cornerstones of virtual exchange projects is pedagogical design. The BBAC project is underpinned by the Technological and Pedagogical Content Knowledge (TPACK) Framework, created by Koehler and Mishra (2009). The TPACK Framework involves more than simply having knowledge of all three domains (Content, Pedagogy, and Technology). Instead, the purposeful blending of the domains is key and constitutes a frame for teaching in a more integrated and meaningful way. According to Koehler and Mishra (2009), "Teaching successfully with technology requires continually creating, maintaining, and re-establishing a dynamic equilibrium among all components" (p. 67).

In terms of content, it is crucial to establish the learning outcomes expected from the project. Understanding cultural dynamics and differences, practicing digitally-enhanced collaboration and communication in an international environment, and practicing language are the main intended outcomes of the BBAC Project. To achieve them, relevant global topics have been selected, such as cultural diversity.

Concerning pedagogy, socio-constructivism is the learning theory that best relates to this virtual exchange project approach. According to socio-constructivism, learning should involve social negotiation and dialogues, and students should be placed at the forefront of the learning process. The role of the teacher is crucial and involves creating an environment suitable for engaging in meaningful interactions.

The technological domain involves identifying the pedagogical uses and limits of different technological tools and deciding which specific technologies are best suited to address selected contents. In the BBAC Project, various social media tools have been utilized, most of which were familiar to the students and, thus, easy to use. Students were required to generate their own content, specifically a cultural video, in order to find common ground with their virtual exchange partners.

Table 1 gives a contextualization of the project, providing background information about the four countries that participated in the 2019 winter term. Students are enrolled in different degree programs, though all are connected to the field of management or business administration. The number of students enrolled in each program varies among the participating countries, but the number of students who took part in the BBAC project ranged from 11 to 15 students per country. Participants are between 18 and 27 years old and some of the them are also employed. Selecting students for the project is the responsibility of each faculty coordinator, and selection criteria can vary. It should be mentioned that selected students are free to decide whether to participate.

	Germany	Ghana	Kenya	Portugal
Name of the institution	Hochschule Bonn-Rhein-Sieg, Sankt Augustin Campus	University of Cape Coast	University of Nairobi	Polytechnic Institute of Viseu
Field of study	Bachelor of Science in Business	Bachelor of Commerce	Bachelor of Commerce	Bachelor of Tourism
Department	Management Sciences	Marketing and Supply Chain Management	Business Administration	Management
Title of the course	Business English: A simulation course in Entrepreneurship	Fundamentals of Business	2 courses: Applications of Marketing research and Business Values and Ethics	English 3: English for the hospitality industry
No. of credits	6 ECTS credit course	2.21 out of 136 total credits	45 out of 2,160 total credits	5 ECTS credit course
No. of students in the program	120 (6 classes)	400 (1 class)	230 (2 different courses)	72 (2 classes)
No. of students in BBAC	13	12	11	15
Selection process	Coordinator invites students to this class; students usually have a high level of English (C1), but not necessarily.	Students are made to compete for a slot to participate in the project by sending an initial email to the coordinator. The first 12-15 students are selected.	Voluntary participation. Students are requested to express interest through email.	Students join the project on a voluntary basis. The level of English can vary from B1 to C1. Language level may be a criterion for selection.
Project assessment	20% of students do not write a research paper.	20%	20%	15% of Students do not participate in a job interview role-play.

Table 1: Background information about BBAC Project 2019 – Winter Term

Given that in Germany and Portugal the BBAC project is developed in a language-related course, language level may be used as a selection criterion. Coordinators are also responsible for integrating the project in the course assessment, aligning it with the course goals and outcomes. The table above shows that the BBAC project accounts for 15 to 20% of the total assessment in each country.

Student Tasks: Approach and Design

Since 2013 the virtual exchange has developed through different cycles of action research (Stringer, 2007). Students and faculty coordinators reflect on the different tasks assigned, which are continually adjusted in light of technical, institutional, national as well as behavioral change in all member countries.

Planning Stage: The planning process begins eight weeks before the start of the project itself. The initial stage of planning the virtual exchange is to write down tasks in the form of student guidelines based on overall learning goals and the 21st century skills framework described earlier. Each country is involved in the writing process to monitor whether the described tasks can be executed on an institutional, course, and student level. In this phase, students' evaluations from the previous project are examined by all country coordinators to ensure that processes are optimized. Support structures vary among the countries and before the tasks are finalized and approved by all country members, the guidelines are composed and often revised to provide clear, step-by-step instructions for technical, cultural, or administrative assignments. This document includes templates, including instructions on how to use technical tools or how to describe learner outcomes for each task.

Implementation Stage: In this phase, the tasks defined are implemented by the students in each country. Students work online, but converse in class face-to-face through a number of reflection talks, and finally compose a reflection report on the tasks they have completed. In this phase, faculty, to see if adjustments are needed during the project itself or for future projects, note down some of the issues students are having. Throughout the six-year period, the tasks in this process have changed.

Final Stage: In the final phase, we evaluate the students' surveys of each project and adjust the project for the next year.

For this paper, we selected the past two project phases from 2019, which focused on cultural diversity, and could be implemented in a shorter time frame of nine or ten weeks, being normally offered in the winter term. The past project began in September and ended in November 2019. Overall, students needed to complete three tasks in an eight-week period.

Orientation Workshop (week 1-2): First, students are offered an orientation workshop in each country. Each country gives a short overview of the goals of the project and the competencies that the students will acquire. Students are provided with a printed version of the student guidelines and receive access to the project wiki. The project wiki is password protected and hosted by Germany. It offers one joint platform to access all written material, forms, and student information during the project. The participants get acquainted with the workspace and are

asked to familiarize themselves with the guidelines and tasks. Students who do not yet have a Skype or Zoom account are asked to create one. There are a few video tutorials that have been created and are available on YouTube. Furthermore, a student assistant (e-tutor) from Germany is assigned to support the country coordinators and the participants in each country.

Task 1: Learning about Cultures – Producing and Watching Cultural Videos (week 3-5): There are six cultural categories that students may choose from in order to learn about each culture, including their own. The categories are: 1) country, 2) education, 3) family, 4) religion, 5) sports, and 6) values and happiness. In groups of two or three from their class, students are asked to create a three to five-minute video with their smartphones. The student guidelines provide each task description as well as some relevant information on video production (recording, script writing, editing, and converting files). For this task, students have 20 days to produce and upload the video.

Task 2: Cultural Videos and Interviews – Differences and Similarities (week 6-7): Here the students watch and interview other students based on the cultural categories. First, the students watch the videos from all categories produced by their peers. In class, students explain how they approached their own video production. Students decide autonomously on their content and give their own direction. However, they can get support from the e-tutor on technical issues if they arise. Most students have never created their own video before, but find the task challenging and rewarding. There are often differences in how students execute the task. The cultural videos give a very good introduction to each cultural interview that is arranged by the students themselves.

Now, the students are paired by the country coordinators. In the ensuing 12 days, students meet one-to-one online on either Zoom or Skype. Each student must organize a meeting with students assigned from three countries. Furthermore, the student is interviewed by three additional students from other countries. Thus, each student has around five or six interviews within this short time frame. Students contact their interview partners via email to agree on a time to meet, weighing the time differences and the schedules of each student. The students are asked to record the interviews and keep notes. The assignment is to conduct a professional interview. Afterwards, the students share their experiences in class by reflecting on different aspects of the process, such as information provided, similarities, and differences between one's own culture and another's, technical issues and differences in time management, and accomplishing a task. As a range of examples and problem-solving techniques are expressed, the students learn from each other through guided reflection conversations. This is an important pedagogical approach, as the teacher is there not to provide the students with a solution, but to guide the students in the process of working autonomously.

Task 3: Overall Reflection Report and Final Compendium (week 8): In the last phase of the project, students reflect on their overall contributions, considering experiences gathered from the cultural interviews, reflection talks in class, and the videos. The reflection reports are compiled and published in a final compendium.

Evaluation (week 9): At the end of the project each student is asked to evaluate the project and analyze specific learning outcomes. This data is used for the on-going action research.

Findings and Discussion

In order to evaluate the BBAC Project, we used both quantitative and qualitative data. On the one side, students' final reflections were used to answer questions related to students' experience and the impact of the project on the development of their intercultural and digital competences. On the other hand, an end of project evaluation was carried out using a structured questionnaire, which rated students' perceptions based on broad intended learning outcomes, including intercultural communication, intercultural knowledge, interpersonal communication, digital media literacy, and research skills.

In total, of the 51 students who participated in the BBAC in 2019 – Winter term, 50 completed the survey. Results demonstrate more possibilities of virtual collaboration with other people globally using digital tools. Although pronunciation of English words varies across countries, it did not constrain communication. Students reported that meeting deadlines and dealing with different communication styles were the main challenges with intercultural communication during the project. Results also show that during virtual meetings, internet connectivity and network stability issues in Africa affected the quality of communication. In extreme cases, network disruptions rendered virtual meetings with Africa ineffective. For example, two virtual meetings were disrupted due to poor internet connectivity in Ghana and Kenya.

Arranging meetings was a challenge for some students, as many factors are involved in arranging a meeting time and then conducting an interview. Some students were unfamiliar with negotiating a suitable time and found it difficult to consider the perspectives of other students from different time zones. The challenges encountered were often not the interviews themselves, but failing to read or respond to emails in an efficient manner (48 hours), neglecting to consider the time differences involved, showing little or no flexibility in considering the interviewee's availability for meeting, changing the interview time slot spontaneously after it had been agreed to, or skipping an interview without giving prior notice. The evaluations show that students spent around one hour for each interview. The students, for the most part, had never conducted an interview before, either online or face-to-face.

Results also confirm that after engaging in the virtual collaboration project, students' confidence and knowledge using digital media significantly increased. The students learned how to use digital tools for purposes of research and communication. Content knowledge of country-specific issues increased among students, leading to better global awareness. Most students also emphasized that they became more confident in communicating with people from other countries. Watching a video about another country before engaging in an interview with a person from that country dispelled fears of the unknown about foreign cultures. Analysis of final reports indicates that students tended to be sceptical about virtual collaboration at the beginning of the project. However, the difficulties encountered at the beginning fizzled out as students' confidence improved. Virtual collaboration projects provide international exposure and help correct misconceptions about other cultures. This is captured in the following sentiment of one of the students: "Although I was not able to be there physically, I met new people virtually and broadened my horizons".

Survey results also revealed that students improved their negotiation skills, intercultural awareness, analytical abilities, and problem-solving skills during the project (Brautlacht, Agyapong & Owino, 2018). Negotiation skills were evidenced by the ability of students to agree on time for meetings despite different time zones. Problem-solving skills were demonstrated by recording proceedings of meetings to assist African students with poor network connections in watching and following through after the meeting.

The most significant learning outcomes were increased consciousness of cultural differences between the countries involved in the project. For example, one European student noted, "Although Ghana is not a well-developed country, they have very important social values such as integrity, respect, and honesty. Of course, these values exist in other countries; they do not have the same appreciation as the case in Ghana". With regard to Germany, one African student demystified the perception of unfriendly appearance by stating, "Germans are cheerful and artistic". Regarding Portugal, one student noted, "Strong connection between individuals and their family members is highly important to the Portuguese people, including the young generation". The students were able to learn about cultural similarities and differences. With respect to cultural differences, one German student noted, "There is a big difference between European states. I thought that Europeans have the same character, but Germans are straighter than the Portuguese".

Conclusion

Virtual exchange allows participants to collaborate and communicate in a global setting, affording them opportunities to engage in meaningful intercultural learning experience through learner-centered pedagogy. It should be noted that virtual exchange is more effective when students work on shared tasks for which results are expected within a specified time period and effort is rewarded. Whereas student support from faculty coordinators is crucial, commitment by students and effective communication are essential to the success of the intended learning outcomes. It is also paramount to include virtual tasks aimed at establishing empathy and rapport. This helps students to overcome personal fears and encourages in-depth dialogue. Although students in developed countries may be more digitally literate than African students, in the BBAC Project all students improved their digital skills. Since countries differ in terms of access to internet, resources, and digital competencies, country-specific scaffolding is, thus, necessary. We have also concluded that student guidelines are a cornerstone to the successful execution of the project. In equal measure, when guidelines for coordinators are developed that address diverse issues such as assessment, responsibility, and support, higher learning outcomes can be achieved.

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How to Overcome #Technophobia in Academia?

The PlayDate – Invitation to Play, a “No fear but fun” Approach

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This article showcases the workshop concept “The PlayDate – Invitation to Play” to acquaint university educators in a playful and creative way to gain parity with students in digital literacy. The authors’ assumption, that the diverse student cohort of the 21st century is extremely clever and knows more than we as educators, holds true here. Having grown up with technology, being constantly connected to it and willing to attempt new things, the students by definition will be more advanced in digital literacy than their lecturers. So, in the realm of technology, academics at universities will forever be playing catch up. This role reversal from the traditional belief that academics know “things” and help lead students to learn “things” might be challenged with a “co-creation” concept of learning and teaching and thus we could have a fresh approach in university teaching.

I think we will need to have more than one skype call. You need to know I know nothing about technology – I don't have a smartphone, don't text, don't twitter, don't know how to use powerpoint, and so on, none of which impacts my teaching to judge from various awards I've won including a national one over here! (Professor for Ancient History, email, 2017)

In an ever changing accelerating world we as educators need to ask ourselves how we would like to facilitate modern learning when technology takes over our life: “The digitalisation of the workplace, society and communications is undeniable”, states the recently published Digital Literacy skills and learning report, arguing that graduate teachers will not only need to be digitally literate but also capable of helping their future students move from being consumers of digital products to producers of digital solutions (NESA, NSW Education Standards Authority, 2017).

Even before the millennials started attending universities the trend of consuming entertainment and acquiring knowledge shifted from passive consumerism into active prosumerism. The word “prosumer” (Valenti, 2015) derives from the two words Producer and Consumer, which combine the dynamic act of producing with the rather passive act of consuming.

Constructivism learning theory prompts the modern lecturer to invite all learners to construct their knowledge (Hunt & Chalmers, 2013). They become active prosumers, hence they are producers of their own knowledge. Learning activities

are created in collaboration with the student, learning materials are developed with the student as co-creator, aligned with personally meaningful and educational worthwhile learning outcomes (Hunt & Chalmers, 2013, p. 120).

In the tradition of the Bologna process to improve learning and teaching on a massive scale (Biggs & Tang, 2011, p. 8), James Dalziel (2016, p. 286) asserts there is a shift from a content focused to an activity focused learning design. Whilst the teacher role takes a turn from being a knowledge narrator to both a knowledge curator and student mentor, the student role shifts from a consumer of pre-packaged information into a producer and sharer of dynamic knowledge, building on collective prior knowledge of a team (Dalziel, 2016, p. 216).

Content is not king anymore, context is. The university lecturer today is well advised to put both his own and the students' knowledge in the right context to master today's learning and teaching demands. As a result of this development we as educators have to ask ourselves: Is the one-man teaching act in front of the students still the optimum? How do we transform our long survived one-way teacher-to-student communication from a monologue into a dialogue? And, do we even speak the same language?

Dialogue vs. Monologue

If we define the new teacher-student relationship as a process of co-creation of learning, where "co-creation is a learning journey in which two or more parties have to adopt new practices and processes in place of the established routines and habits", (Akhilesh, 2017, p. 43) we as educators should indeed be able to speak the same language as our co-creating students.

What is the vocabulary of the students of the 21st century? In April 2016 the European Broadcasting Union conducted a survey about what drives the 'Generation What', a profile analyses of the European youth. We are dealing with Generation I-NTERNET, moulded from a young age by the widely spread use of the Internet. As a result, we do have to strategize effective solutions to foster the shift to digital teaching.

At most universities, technology is still mostly used to replicate traditional learning and teaching practices (Dalziel, 2016, p.98). If it were used for delivery as well as design within integrated pedagogical purpose it could impact students' learning much more effectively. Then, academia, the gatekeeper of knowledge, would need to overcome its technophobia. Educators also need to be willing to enjoy and to play with technology in a flexible way, shaped along learning outcomes, exploring alternative learning and teaching activities, as well as sometimes be open for unconventional assessment and feedback tools.

In recent years, several universities have adapted their educational approaches to encourage and support the use of technologies in both classroom and online learning courses. Some programs combine both models into the blended learning approach of flipping the classroom (Ferreira, 2017) to deliver the content before the tutorial as video or online resource. James Dalziel (2016, p.286) goes even further in stating that the rise of mobile devices and blended learning approaches demonstrates how technology can be a useful part of the classroom experience,

not just something for before and after class. The continuing evolution of learning technologies gives educators and learners incomparable opportunities “to access, create, organize, share, critique and aggregate knowledge” (Dalziel, 2016, p. 98).

In search of the productive use of modern technologies it is unquestioned in the current learning and teaching climate that both lecturers and students need to familiarize themselves with those technologies. The lecturer and tutor at a contemporary university is asked to be able to operate a learning management system (LMS) as well as to facilitate and moderate online learning. “In particular, the emphasis has been on learning management systems (LMSs) and associated collaboration tools to provide opportunities for sharing knowledge, building a community of learners, and supporting higher order learning and critical thinking through conversation and collaboration” (Zanjani, Edwards, Nykvist & Geva, 2017, p. 19).

But beyond the threshold of the digital era some of us are still rooted in the old school of teaching and indeed are questioning how to deliver best content in a university context to a diverse, 21st century student cohort. Digital literacy becomes a critical factor in every curriculum, elevating digital skills as a fundamental competence “on par with oral skills, reading, writing, and doing arithmetic”, as the Digital Literacy and Learning report 2017 states (NESA, 2017, p. 21).

Given the demands of the workforce, any skills taught need to include digital literacy. The NMC Horizon Report: 2016 Higher Education Edition links to a digital literacy guide for both students and faculties from Deakin University for a definition of digital literacy: “Digital literacy involves finding, using and disseminating information in a digital world. Digital literacy underpins teaching and research, regardless of discipline, and is an essential graduate skill for effective participation in employment and all aspects of life” (De Fazio, 2017, p. 2).

If the goal is for students to learn critical, analytical and integrative thinking as graduate capabilities, then digital literacy is a catalyst in the academic’s tool kit.

Shall we wait till the students teach us? No! The Digital Literacy and Learning report demands, among other things, the initial teacher education program outcomes as follows: “Ability to safely and effectively use ICT (Information and Communication Technology) in online collaborative environments” (NESA, 2017, p. 43).

Two of the key findings in the student and faculty technology research studies from 2014 (Dahlstrom et al., 2014) show the gap in faculties regarding technology knowledge: The majority of faculties are using basic features and functions of LMSs, but recognize that these systems have much more potential to enhance teaching and learning. Faculty think they could be more effective instructors if they were better skilled at integrating various kinds of technology into their courses. How can university lecturers best help their students attain digital literacy?

Johnson et al. (2016) examine one possible answer: “Around the world, digital curation, defined by the Higher Education Academy as ‘the act of finding and selecting, grouping and contextualizing, preserving, maintaining, archiving, and sharing digital content’, is viewed as a way to help students develop their digital literacy” (Johnson et al. 2016, p. 24), in other words, students are engaging in the digital world as a means of becoming literate in it.

Walker and Kerrigan (2016, p. 99) ask rightly if teachers and students possess equal critical digital literacy ability? They demonstrate three scenarios: “1. Staff and students have an equal critical digital literacy, 2. Students have greater critical digital literacy than staff, 3. Staff has greater critical digital literacy than students”.

In any case, only as collaborators will both parties win, and yes, students could work as agents or partners of change, which could offer staff enrichment in their professional development (Walker & Kerrigan, 2016, p. 105). Teaching digital literacy does not mean teaching digital skills in a vacuum, but doing so in an authentic context that makes sense to students. It means teaching progressively rather than sequentially, which helps learners understand better and more clearly over time (Bali, 2016). O’Byrne (2016) argues that the Web is this generation’s defining technology for literacy. The question remains, how and to what degree do university institutions and teachers need to alter existing practices regarding ongoing changes in communication environments in the practise of learning and teaching (Brown & Cinque, 2015, p. 1). Certainly, a prerequisite is to improve the capability of staff to teach in a technological world they did not grow up in (Walker & Kerrigan, 2016, p. 114).

But what if the fear of technology takes over? Fear of something new? Educators are not alone with this challenge. Illuminating this problem is the 2015 Rasmussen College study Digital Literacy, which reports that one in four millennials want to improve their digital literacy, but 37% find the Internet “scary”, more so than respondents aged 35 and over (Johnson et al., 2016, p. 24). If students and education will “never be the same again” (Brown & Cinque, 2015, p. 1), it is well time for academia to team up with students, let go of its fear of technology and jump into the unknown to meet each other, online.

Workshop “The PlayDate – How to Reduce #Technophobia in Academia”

Background: Hunt and Chalmers (2013, p. 120) call the teacher a co-learner. To teach this co-learner the skill of addressing a new challenge in life with fun and Internet tools has been the aim of the PlayDate workshop: to minimise #Technophobia in Academia. We designed a workshop for teacher educators and science teachers to develop co-creation skills through online tools in the framework of the Reconceptualising Maths and Science Teacher Education Program (ReMSTEP) project. ReMSTEP’s project activities were centred around developing new teacher education practices that align contemporary approaches to STEM with engaging teaching and learning. As a result of the limitless engagement of four major Melbourne universities with two departments each in science and teacher education, the ReMSTEP outcome has been 23 major activities. Seven innovations were identified to focus the project’s activities over the three-year period of the initiative.

There is no doubt that facilitating learning is a complex undertaking, and each lecturer deserves society’s greatest respect and support. Furthermore, there is no doubt that the issue causing the greatest amount of angst is the handling of online tools for educational purpose. This issue we address with our workshop “The PlayDate – Invitation to play”.

The preparation: In preparation for the workshop, we conducted well-crafted interviews with all participating academics. We applied the design thinking concept, a human centred approach to innovation, and listened actively with empathy to the real needs of the participants, their thoughts, their ideas and their visions. Before we started the workshops, the participants were already on our side and showed a diligent emotional willingness for change. With this interview approach, we modelled the co-creation process, to always be aware of “walking our talk”: as role models we provided and created learning environments to enable the students to co-create their own learning.

In addition, we used a readiness test to determine the level of digital competence of the participants, the DigCompEdu Check-In: “This self-assessment tool is based on the European Digital Competence Framework for Educators (DigCompEdu). The focus of the framework is to support and encourage teachers in using digital tools to enhance and innovate education. The participants can learn more about their personal strengths and the areas where they can enhance the ways in which you use digital technologies for teaching and learning”.

The workshop: The PlayDate workshop follows Brabazon (2016, p. 2) with her statement that play is a theory of learning; it is an ideology that not only circumscribes behaviour and identity, but first and foremost a way of thinking. It is common knowledge that toddlers learn through trial and error, with curiosity and fun. The game as an educational tool gains more and more significance. “By freeing Play from cliché and childhood, a new mode of learning emerges ... Children play. This is a positive, optimistic and joyous phrase that embraces a series of activities. Through teenage years, life and learning become serious” (Brabazon, 2016, p. 1). Maybe too serious? We decided for a guided play methodology, following the action-learning model. Learning by doing is a widely followed educational approach. For adults, it emphasizes personal reflection on the learner's experiences. Schön (1983), for example, describes the significance of reflection-in-action and reflection-on-action for learning. And as “self-discovery serves as a catalyst for people to grow intellectually” (Akhilesh, 2017, p. 49), we decided to shape the PlayDate workshop around lively activities in both the three-dimensional as well as in the two-dimensional space. In the context of this article, the authors define the 3D space as the physical space we inhabit and the 2D space the current digital space.

The PlayDate is constructed around the concept of play, following Eberle's elements of play (Eberle, 2014, p. 221), such as anticipation, surprise, pleasure, understanding, strength, and poise. We drafted intriguing interactions with materials, problems, creations, ideas and issues and as a result a “greater understanding of concepts and skills was noted ... as well as a strengthening or sharpening of skills and abilities as a result of play” (Brabazon, 2016, p. 68). We drew on the nature of the human being, on curiosity and readiness to explore when we invited the academics to the ReMSTEP PlayDate. Let's play!

Putting into Practise: The PlayDate – Invitation to Play made it easy for the participants to accept this invitation for a full day workshop. They had nothing to fear whilst playing in a safe environment. We as educators constantly ask our student to learn something new. The fundamental question arises, why can we be so reluctant to learn something new ourselves? Can we reconceptualise teachers as designers of the process by which students learn? This was one of the questions the workshop initiators asked themselves before they designed the concept.

The Aim: The participants were asked to create a personal, visual appealing story with the Adobe Spark website tool¹ about their journey and experience with the RemSTEP project. Furthermore, the goal of this workshop was multi-faceted: On a rather theoretical level the goal was to:

1. Overcome resistance against learning something new;
2. Promote co-creating learning and teaching; and
3. Train a more effective use of technology for learning and teaching.

On a more outcome-oriented level the goal was to:

1. Let academics experience with the 'fun no fear' approach how to acquire a new skill;
2. Encourage academics to let go of their fear of technology by discovering how easy it is to work with online tools; and
3. Encourage to personalise their RemSTEP story.

The participants were academics from all four RemSTEP partner universities, science lecturers and teacher educators. From Monash University nine academics attended, 12 from the University of Melbourne, five from La Trobe University and nine from Deakin University.

The Method: The workshop's overarching research question was to investigate the perceptions and uses of the Internet and its learning tools as learning and teaching design tools for teachers. The purpose of this workshop was to pinpoint those aspects and to draw a direct connecting line from losing the fear of learning a new skill to losing the fear of engaging with online tools.

We asked the academics to bring openness of mind to learn, readiness to play and engage, emotional willingness to take opportunities to change. The workshop description, inclusive all online activities, can be found in the authors' PlayDate booklet².

The Morning – playing in the 3rd dimension: This session consisted of a number of activities selected to challenge participants intellectually, physically and emotionally. Tapping into the notion of learning new and not easily acquired motor skills the participants were asked to integrate this experience into team problem solving and cooperation, in a fun and no risk environment. Cooperative fine and gross motor activities such as juggling, rhythm exercises with video stimulus, and lateral thinking puzzles required movement and interaction with other team members.

According to the feedback from the participants the activities were "enjoyable and engaging". In addition, understanding the debrief with its education structure, intent and process, added value to the experience. Each of the activities was

1. <https://spark.adobe.com/de-DE>

2. The PlayDate booklet can be found on the authors' side on the following address: <https://bit.ly/3daUx4l>

structured so that the setup and context directed the experience in a particular direction and thus allowed for specific learning outcomes, insight and discussion during the debrief. The sessions were based on the Experiential Learning Theory (ELT) process outlined by David Kolb (1984): Concrete Experience and Abstract Conceptualization, Reflective Observation and Active Experimentation, used to generate real time behavioural data, reflect on any insight that may lead to generalise the insight and then test it in the next activity. Kolb defines learning as “the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 41). The overall intent of the morning session was to prime the participants in a non-threatening environment to more easily engage in what has been identified for this cohort as more threatening activities such as engaging in the digital world. We used the notion of self-efficacy (Bandura, 1997) to move from success in one area to generalise success in another. The activities of the playful morning served as catalysts for the pedagogical debrief. By engaging in a series of increasingly difficult challenges and with appropriate facilitated guidance the level of difficulty was increased. Accepting challenges became the norm. Rather than being challenged by things that may seem overwhelming, and as a consequence reinforcing the fear of trying new things that “I might fail at”, like the digital world, the participants gained trust in themselves to be able to persevere.

The Afternoon – playing in the 2nd dimension: Do you love the web? Your computer? Your phone? Is your phone smarter than you? These were some of the opening provocative questions on creating the ReMSTEP story with online tools. The playful swing of the morning’s 3rd dimensional play echoed into the afternoon. From a huge variety of online tools, we chose those that foster aspects of fun and creativity to initiate online collaboration for teachers with students and students with students. The participants were asked to prepare several accounts and log ins. The next step was to create a basket, a folder on the desktop or a cloud-based file. As a result, they were invited to follow through on nine activities in a non-sequential order and to collect the results of those activities into their basket, and tell their story with the RemStep activities.

Additional material such as example stories, detailed survey results and the PlayDate activities in detail can be found in the authors’ cloud storage.³

Conclusion

As the PlayDate aim has been twofold, we look at each outcome separately. Firstly, the participants were encouraged to create their own personal RemSTEP story, reflecting on their gains, their mind shifts, their experiences, the process. In terms of the level of success for creating a personal ReMSTEP story by science lectures and teacher educators, the authors would like to call the PlayDate workshop a success. More than 50% of the attending academics finished their stories in an appealing and creative style, sharing their personal three-year journey with the ReMSTEP project in an original, imaginative and playful way.⁴

3. The authors’ cloud storage is accessible at <http://bit.ly/2vvfExa>

4. The authors’ cloud storage is accessible at <http://bit.ly/2vvfExa>

Secondly, we wanted to get academics engaged with digital tools. At the end of the workshops, more than 80% of the participating academics engaged with on-line tools. The author concludes that conceptualising learning a new skill with “fun no fear” is breaking down resistance in academics to consider using online tools in the context of co-creating content. Playing, reflecting, establishing a frame of reference in the familiar learning and teaching context, enjoying the process of discovery and implementing the discovery creatively left the participants with a feeling of fulfillment after completing the workshop.

In their set of practice suggestions Walker and Kerrigan (2016) recommend for a successful integration of critical digital literacy within a learning design, a very practicable and fair approach for academics’ lifelong learning: “CPD provision is in place to develop staff critical digital literacy and staff are never asked to teach above their critical digital literacy level” (Walker & Kerrigan, 2016, p. 114).

The author would like to suggest that this roadmap be adopted for future development at universities when it comes to educating educators in digital literacy. We cannot neglect to note that the mental and emotional obstacle of technology hinders good practise and interferes with teachers’ excellence. If academics, who are talented and engaging teachers in a face-to-face situation, are forced without an adaption phase to teach with technology, all effort of learning designers are foredoomed. But if the obstacle is rooted in our emotions, we are able to address that challenge of fear with fun. The PlayDate workshop might be able to diagnose the level of digital literacy knowledge, and also offers a starting point for change in academia’s mindset towards using online tools for co-creating learning and teaching.

This series of workshops led to the creation of the DigitalCompetencyStart-erKit, a free online course with facilitation on request.

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COIL4COIL: Building Expertise and Capacity in Faculty at Durban University of Technology, South Africa

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South Africa has a diversified post school education landscape which includes three different types of higher education institutions (HEI): traditional universities; comprehensive universities, which offer traditional degree programmes and vocational programmes; and the universities of technology, which offer vocational diplomas and degrees. Durban University of Technology (DUT) is this third type of HEI.

DUT has identified internationalisation of the curriculum and integration of e-learning as two of its key strategic objectives for innovation in teaching and learning. Furthermore, DUT has developed a set of graduate attributes that every student is expected to attain by the time they graduate. These attributes include the following: critical and creative thinking, both independently and collaboratively; putting knowledge into practise; effective communication; cultural, environmental and social awareness within local and global contexts; and active and reflective learning. In pursuit of the two strategic objectives, and to promote the achievement of these attributes among graduates, DUT became, in 2016, the first African university to join the State University of New York (SUNY) Collaborative Online International Learning (COIL) global network. The design, development and implementation of COIL projects offer innovative and authentic opportunities for students to develop the graduate attributes and to enhance and embed soft skills necessary for graduates to contribute effectively in the workplace.

Internationalisation of Higher Education

Internationalisation of higher education (HE) has developed over the last 25 years from being marginal and minor to global and mainstream. Conceptually, internationalisation has grown from a narrow focus on scholarships for foreign students and international development projects, to a broad approach that includes branding, international programmes, mobility, global citizenship, internationalisation at home, global rankings, knowledge diplomacy, cultural homogenisation, franchising, and joint and double degree programmes (Knight & De Wit, 2018, p. 2).

One facet of internationalisation is the provision of opportunities for mobility that enables both staff and students to travel to partner institutions to engage in teaching, study, or research. However, low numbers of students participate in mobility programmes. Yin and Yeakey (2019, p. 50) reported that in 2016, approximately 5 million students, which is about 2 % of global enrolment in tertiary education, studied abroad. Marshall (2013, n.p) reported that, in 2010, African students represented about 10 % of all international students world-wide and 6% of African students. Zhang and Pearlman (2018, p.2) note that the National Association of Foreign Student Advisors: Association of International Educators (2018) reported that only 1.6 % of all students enrolled in higher education institutions in the United States take part in study abroad programmes. This low uptake of mobility opportunities is further illustrated by Villar-Onrubia and Rajpal (2015, p. 75), Custer and Tuominen (2017, p.348), and Hyett, Lee, Knevel, Fortune, Yau and Borkovic (2019, p.391).

Wimpenny, Beelen, and King (2019, p.1–2) draw on several authors to show that whilst HEI's around the globe embraced the strategic demands for internationalisation to prepare graduates to function well in complex multicultural environments, there was a tendency to over-emphasise the revenue generation facets of internationalisation. Three conceptual approaches that HEI's adopt have been identified as follows:

- economic rationalist, whereby the student is viewed as a customer
- integrative, where academics incorporate intercultural references into an existing curriculum
- transformative, whereby staff and students embrace cultural difference and knowledge as well as ethical challenges, ambiguity, and risk. (Joseph, 2011, cited in Wimpenny et al., 2019, p. 2)

Within the broad conceptualisation of internationalisation in HE lies the critical area of internationalisation of the curriculum. Curriculum in this context is defined broadly as encompassing all aspects of learning and teaching, the formal curriculum (content and planned activities), the informal curriculum (extra-curricular activities), and the hidden curriculum (incidental/unplanned outcomes of learning). There are many different complex influences on, and interpretations of, internationalisation of the curriculum (Leask, 2012, p. 1). A conceptual framework of internationalisation of the curriculum was developed by Leask (2012, p. 2) that connects, for example, curriculum design and knowledge in and across disciplines with institutional, local, regional, and global contexts.

As the academic debate around the values, purposes, and means of internationalisation have deepened, the concept of Internationalisation at Home (IaH), as a value-driven and socially responsible alternative to a market-driven agenda, has begun to emerge. IaH is arguably a more equitable approach to internationalisation, with the "goal of producing inclusive internationalized university experiences that benefit all students" (Almeida, Robson, Morosini, & Baranzeli, 2019, p.201). When coupled with the experiences relating to the low uptake in student mobility, IaH is a key strategy that opens up new opportunities for students to engage with their peers on an international platform. It is important to note that, whilst

there has been growing political and academic interest in more inclusive internationalisation practices, there is still a lack of conceptual clarity around IaH and its practical applications (Beelen & Jones, 2015, cited in Almeida et al., 2019, p. 201). Virtual mobility initiatives such as COIL are recognised as being flexible, versatile, and inclusive approaches that moderate the problem that only a few students take up mobility.

COIL and Internationalisation

Such increasing needs for students to experience global perspectives and to be prepared for the global world of work have led to initiatives such as COIL. Over 15 years ago, COIL was conceptualised, led, and managed by the State University of New York (SUNY) (www.coil.suny.edu). Students who engage in a COIL project do not incur the financial costs, the time commitment, or other social impacts of study abroad programmes (Fowler, Pearlman, LeSavoy, & Hemphill, 2014, n.p.). The foundation of COIL is an extensive network of partners, and initiatives developed by SUNY to build the capacity of academic staff (faculty). Implementation of a COIL project begins with the development of a partnership between two academic staff from different geographical regions of the world (drawn from the SUNY partners). The academic partners co-design a short (4–6 week) learning project to be implemented with their respective groups of students. Interestingly, the two partners do not have to be in the same field or discipline, or the students in the same level of study. The partners agree on clearly defined learning outcomes that jointly align with an area of the curriculum for which they are responsible. When the learning project is implemented, the students engage with each other virtually through technology mediation pre-selected by the academic partners. COIL therefore provides innovative international learning experiences, aligned with the philosophy of IaH, and virtual mobility for both groups of students.

COIL projects occur across the North-South global divide¹ and the EastWest global divide, and are couched in diverse cultural and linguistic backgrounds, which makes them challenging. According to Rogers (2003, as cited in Li and Haung, 2016, p. 50), there are, based on when they adopt innovation, five (5) types of individuals. Innovators, those who jump on board first, are approximately 2.5%; then the early adopters are approximately 13.5% and the early majority 34%; the late adopters are also 34%; and finally the laggards 16%. Furthermore, research indicates that academic staff suggest that a lot of effort is put into developing their technological skills, but there is a lack of pedagogical and instructional support for teaching with technology (Bailey & Card, 2009, p. 152). These dynamics are an indication of the capacity building that needs to be done to get academic staff to embrace the concept of COIL and introduce projects into the modules for which they are responsible. The capacity building initiative for COIL at DUT has been conceptualised by taking these factors into consideration.

1. For elaboration of this concept see, for example, Almeida et al 2019.

COIL/VE at Durban University of Technology

At DUT there is a broad conceptualisation of internationalisation which extends way beyond the narrow focus on mobility to include internationalisation of the curriculum and internationalisation at home. Participation in COIL has allowed students and academic staff from DUT to engage in collaborative learning experiences using technology. To date, approximately 20 projects across different departments, collaborating with programmes in New York state, Mexico, Brazil, and the Netherlands, have been implemented. The four years of experience with the implementation of COIL projects has enabled DUT to expand activities beyond the SUNY Global network. To signal this expansion, DUT has adopted the concept of virtual engagement (VE) in addition to COIL. This has enabled DUT to develop its own capacity building initiatives that draw on the experiences gained through COIL. Examples of these initiatives are discussed below.

A COIL Clinic is held every week which is a “drop in” opportunity where academic staff can come to chat about COIL/VE partnering, instructional design, ideas they may have, or just exploring the concept a little more. The notion of a clinic was carefully chosen on the basis of offering advice, treatment, prevention, and promotion without issuing a prescription for COIL. In practical terms, academic staff are encouraged to engage in discussions in areas such as pedagogy, the application of tools and technology, potential challenges and pitfalls, and sharing experiences with their peers. DUT comprises seven campuses across two cities (Durban and Pietermaritzburg) and six faculties. Endeavours have been made to take the COIL/VE Clinic to all the campuses.

A variety of workshops are held where the concept of COIL/VE is explained, some ideas of the use of technology are shared, and participants have time to discuss and conceptualise a project for themselves. In some workshops, academic staff who have had successful projects are invited to share their experience with participants. There are occasions where the COIL/VE project has resulted in in-bound mobility of an international partner and their expertise and experience are shared with DUT academic staff in a workshop.

As the programme of workshops has matured and responded to the needs of the academic staff, the conceptual TPACK model (Drummond & Sweeney, 2017, p. 928–930) has been introduced. The TPACK model is a framework to encourage staff to think about a COIL/VE project. It is important that academic staff understand the pedagogy and content knowledge in order to choose appropriate technology – not to let technology come before the task, but rather the task before the technology. The TPACK framework assists academic staff to achieve this but they need to practice the application of the framework when conceptualising their COIL/VE project. The operationalisation of the COIL/VE project is best realised through the application of the SUNY Task Development and Sequencing template (<http://coil.suny.edu>).

In order to develop academic staff capacity, a blended short course was developed to run for five weeks. A face-to-face session was held which was well attended, but subsequent participation in the online component was poor. This blended short course was not as successful as anticipated and needed to be reconsidered and redesigned. In this regard discussion with a European colleague culminated in an activity offered once between a European university, a United States universi-

ty, and DUT. Academic staff were invited to a virtual meeting on Zoom and they had a short introduction to COIL/VE and then went into “breakout rooms” to discuss ideas for possible projects with international colleagues. Following this, they all came back together and shared some of the discussions. From this exercise, academic staff were encouraging the formation of a community of practice that would meet regularly. This is becoming a reality supported by, for example, another Zoom webinar recently held for academic staff. During this webinar, partnering across disciplines, together with some of the cultural problems experienced in a collaboration, were discussed. One of the constraints with the North-South partnerships is the structure of the academic year. In the Northern hemisphere the 1st semester generally commences in September. In the Southern hemisphere the 1st semester is from February to June. This means that the first half of the year is a better time to collaborate North-South, with project development happening in the second half of the year for implementation in the following year. The period of time between June and September poses another constraint for collaboration due to the staggered vacation periods in the respective countries.

Recently, a journal club has been introduced to stimulate the scholarship on COIL/VE pedagogy, and to infuse pedagogical evidence into the practice of academic staff. Journal clubs are an important strategy for academic staff to engage in a meaningful way with the pedagogy of COIL/VE, internationalisation, and teaching with technology as part of continued professional development. Journal clubs encourage academic staff to improve their reading habits, increase their knowledge, and develop critical appraisal skills, all of which are necessary to engage in evidence-based teaching practice and help bridge the theory/practice divide. Research conducted, particularly in the health sciences, reports that journal clubs provide an effective learning environment that promotes the utilization of research and evidence-based practice (Turner & Mjolne, 2001, p. 158–159). This activity will contribute significantly to the development of scholarship opportunities through, for example, publications, emanating out of COIL/VE projects and strengthening evidence-based teaching practice and research. It will also open up new opportunities for deeper collaboration with international partners.

Conclusion

DUT is in the initial stages of its COIL/VE trajectory and has, so far, tapped into a group of individuals who are identified as innovators. There is now a need to move the initiative into developing the next level of academic staff, who could be considered to be early adopters. Technology enhanced COIL projects offer professional development opportunities to academic staff members through networking and collaboration (Zhang & Pearlman, 2018, p. 8). COIL/VE practice at DUT finds itself on a spectrum between the approaches described earlier, namely an integrative approach where academics incorporate intercultural references into an existing curriculum, and a transformative approach whereby staff and students embrace cultural difference and knowledge and ethical challenges, ambiguity, and risk (Joseph, 2011, cited in Wimpenny et al., 2019, p. 2). COIL/VE is a cost-effective way to internationalise the curriculum and an opportunity to develop new partnerships globally (Fowler, Pearlman, LeSavoy, & Hemphill, 2014, n.p.). DUT is striving to maximise these opportunities in alignment with the newly developed DUT Strategy 2020–2030. The further development of a community of practice and a community

of enquiry, to advance the use of models and frameworks to teach with technology and to develop the scholarship of teaching and learning in COIL/VE, will promote this alignment. Capacity building initiatives are ongoing and the programme of activities is dynamic and ever-changing as COIL/VE grows in scope, embracing the unique context of DUT and the needs of academic staff.

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Curriculum Development

How to Embed Virtual Exchange
Formats in Study Programs
to Create Networked, Cross-
Campus Study Programs and
Assure Quality?



- ***Schools of Education as Agents of Change – A Virtual Semester Abroad for Indian and German Education Students***

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- ***Curriculum Innovation for Intercultural Cross-Border Learning: The Double Degree Experience between UDS Ghana and HSD Germany***

Prof Agnes Atia Apusigah, PhD, University for Development Studies, Tamale, Ghana

- ***A Virtual Exchange Tool-Kit: From Micro-Credential Settings to Full Study Programs***

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In our paper we sketch out the general design of our project with our partner university in Delhi and discuss an evaluation of the learning scenarios. We show how this project utilizes blended learning scenarios and other digital media components in order to contribute to a) facilitation of international academic cooperation; b) virtual staff and student exchange; and c) supporting (short term) student mobility within an established curriculum frame-work. The core of our paper is a work-in-progress practical report on how a combination of co-taught, semester-length courses, blended learning activities based on a mutual platform, and a 15-day summer school with participants of both partner institutions works to integrate virtual and personal exchange experiences into local (Delhi and Ludwigsburg), national (India and Germany), and global learning environments.

Since winter term 2017/18, Ludwigsburg University of Education, Germany, and Dr B.R. Ambedkar of the University Delhi, India, have been cooperating in the creation of blended and online learning scenarios with the overall goal of creating a virtual semester abroad for their education students. As both universities have identified a significant number of students who – for various reasons – cannot manage a full semester abroad, a major focus of this joint project is on providing these students with a practical opportunity for gaining international experience and learning with and from international partner institutions, without necessarily having to spend a full semester abroad.

Diversification and digital information technologies have become integral features of societies and their educational systems all over the world. As a result of migration, globalization and digitalization, the world of learners and teachers is now highly diverse and interconnected. In this regard, the development of intercultural competence is one of the most important skills in teacher training (cf. Byram, 1997; Ilse & Keßler, 2017; Jäger & Keßler, 2019). These skills can best be acquired through collaboration among students in different cultural settings (cg.

Than, 2014). Blended learning approaches have shown particular relevance in intercultural environments and greatly support international collaborative work environments. They offer communication tools and allow for interaction by providing shared learning spaces for both students and university teachers in various countries (e.g., So & Curtis, 2010). In this respect, the shared project between Ludwigsburg University of Education and Dr B.R. Ambedkar of the University Delhi is not only a role model for COIL-projects, but also plays a crucial role in internationalisation@home efforts at both institutions. Additionally, it promotes the collaboration between our two universities beyond this particular project (e.g., by additional staff and student exchange).

Approaching the Virtual Semester: A Design of the Collaboration

The key question of the project is whether and how schools of education in India and Germany can perform as agents of change in diverse and digitally connected societies. Therefore, the partners have developed blended learning scenarios combining collaborative and interactive courses for students at both universities for virtual exchange. Additionally, to allow students from each university to gain more insight into the partner institution and its host country, two 15-day summer schools are a vital part of the project. The first summer school was conducted in Ludwigsburg in September/October 2019, focusing on “Diversity and Resilience in Educational and Social Contexts” in India and Germany.

About half of the blended learning scenario was taught rather traditionally in classroom settings, while the other half took place online in a mutual learning platform. Both universities use Moodle as their learning platform, and the international office in Ludwigsburg provided a joint workspace for all participants from Delhi and Ludwigsburg. Figure 1 shows an example of the Moodle platform:

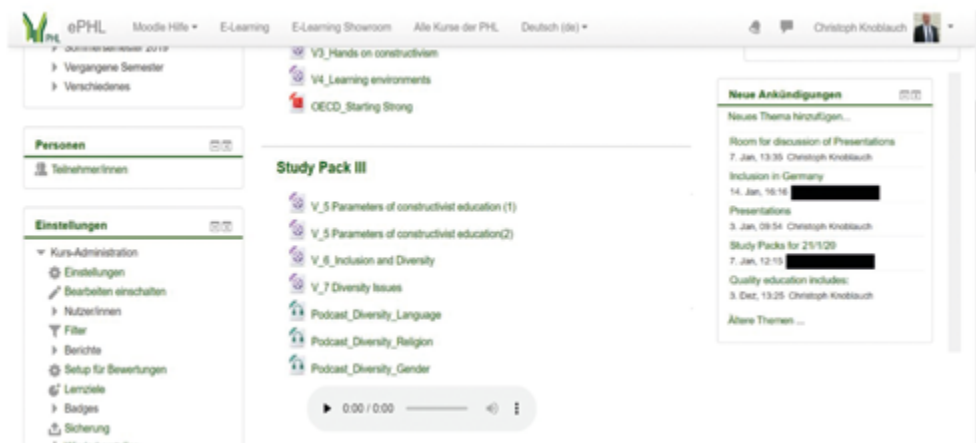


Figure 1: Example of the Moodle platform

Some of the blended learning assignments were tackled individually, but the majority were handled by teams of international students. The content provided for blended learning consisted of two pillars: 1) the presentation of course topics

from a national Indian perspective to German students and vice versa; and 2) input by experts from both universities. There are two main reasons for this approach and the selection of content and its presentation: 1) to foster the foundation of collaboration between the students at the two universities, by 2) encouraging the interaction between students from India and Germany on a personal as well as a professional level. In order to do this, videos of Indian and German professors teaching in teams were used, a podcast with experts was made available, common issues were presented through a selection of pertinent literature, and teams of Indian and German students were set up in order to develop joint projects. In a collaborative setting, students were asked to interact online, using communication tools of their own choice. Thus, the participating universities and professors established a common ground for discussion by providing contacts between the students in Delhi and Ludwigsburg and by offering them choices of communication tools and technology.

In the first summer school (September 30th to October 11th, 2019, in Ludwigsburg) eight students and three faculty members from Delhi collaborated as exchange visitors with seven faculty members and fourteen students from Ludwigsburg. The activities focused on developing students' capacities and intercultural understanding on the theme 'Resilience in Education'. Resilience was discussed as a multidimensional concept and explored in various sessions presented by scholars from different disciplines (e.g., political science, special education, general education, educational studies, and applied linguistics) and from various angles. In all interdisciplinary sessions, resilience was understood as the capacities and processes by which education students and their educators collectively negotiate everyday situations and dilemmas in educational contexts.

The students interacted in class sessions at the University of Education and joint projects at home. Additionally, the students also visited German schools in order to get a deeper insight into everyday school life and the connected educational structures and concepts.

The summer school design comprised various tasks such as preparatory assignments and pre-summer school interaction among the students and between the students and scholars, sessions held during the summer school, site visits, and post summer school tasks and discussion. The primary aims of these tasks and activities were to 1) engage with different theoretical and practice-based perspectives on resilience in education by drawing from intercultural beliefs, assumptions, and background knowledge of the German and Indian educational context; and 2) develop the participants' capacities to nurture resilience in their own future educational practices.

Evaluation and Discussion of the Blended Learning Approach to the Virtual Semester Abroad¹

The evaluation of the discussed approach uses a multi-method design in order to create a flexible research process and to produce a range of findings. In the context

1. For a more detailed discussion of the evaluation cf: Knoblauch, C., Keßler, J.-U., Jakobi, M. (in press): "Schools of Education as Agents of Change: Coping with Diversity in India and Germany through a Collaborative, Interactive and Blended-learning Environment – A Pre-Test Study."

of the complex research focus, a multi-method test, using quantitative and qualitative methods, was designed. It looks for both reliable quantitative data as well as individual, subjective feedback, which offers a more comprehensive view. Two collaborative, interactive, and blended courses and the first Summer School in Ludwigsburg have been evaluated with this process in order to gain insight into two foci:

- Focus 1: A balance of online and classroom learning, resulting learning strategies, and attitudes towards the blended learning setting in general.
- Focus 2: Online learning preferences, specific forms of digital collaboration and the concrete use of online tools, and perceptions of change within learning strategies and attitudes.

The quantitative evaluations were mainly used to gain general feedback about the courses, show trends in attitudes and preferences, and help develop items for the subsequent qualitative evaluation. The qualitative evaluations were used to gain deeper knowledge about the individual attitudes and preferences of the participating students, and to learn about the demands of a collaborative blended-learning environment in intercultural settings in general. By evaluating students' responses in different empirical settings, the multi-method evaluation notably helped to identify strengths and weaknesses in the courses. Below, the methods of evaluation are discussed, including the use of triangulation.

Results of the Quantitative Evaluation

The quantitative element of the evaluation consists of two surveys, which are completed by participants of two blended and collaborative courses ($n(1)=16/n(2)=13$) and the summer school ($n=11$).

The results show that the blended structure and the online content of the courses were generally well accepted by the participating students: 61 % strongly agree with the statement, "I would take a blended learning class with this structure again." The blending of online and classroom learning also resulted in very positive attitudes: 42 % strongly agree and 29 % agree with the statement, "The balance between online and classroom learning was good." The findings indicate that students exhibited a general satisfaction with the blended learning design.

The results also show that the students appreciated the various forms of collaboration offered in the courses: 23 % strongly agree and 54 % rather agree with the statement "The collaboration with others was very helpful for my learning." The results are even more pronounced when the sample was asked to rate collaboration with international peers: 76 % strongly agree and 24 % rather agree that "Collaboration with internationals was very helpful for their learning." The findings indicate that the students highly valued collaboration on a national and, particularly, an international level.

The results also indicate that a high number of students (54 % strongly agree/38 % rather agree) shared the opinion that they "learned new techniques of learning in the courses." 23 % strongly agreed and 61 % rather agreed with

the statement that “they developed their learning skills during the courses.” The participating students especially appreciated “the independent ways of learning” (61 % strongly agreed/31 % rather agreed) and the “flexibility of the blended design” in the courses (69 % strongly agreed/23 % rather agreed).

Results of the Qualitative Evaluation

The qualitative perspective consists of three surveys, which are completed by participants of two blended and collaborative courses (n(1)=8/n(2)=6) and the Summer School (n=6).

The qualitative evaluation shows that students seemed to value blended learning in general, mostly discussing the benefits of self-regulated learning, interaction, and the diversified working options. Students furthermore reported that they appreciated the clear structure and the tasks of the online content provided “... because they were very helpful as a kind of guidance through the content and stirred my attention to the central themes of the videos.” The reassessment and reconfiguration of one’s own opinions and ideas seemed to be highly appreciated: “... for me it was getting to know new numerous different points of views and insights on opinions of other students (...) because it required me to reassess my own ideas and enabled me to make additions and changes accordingly.” The interviews also showed that the online interaction mostly takes place via student-controlled tools like Skype and WhatsApp. This seems to be especially productive when it is prepared for and guided by online content and tasks discussing different perspectives: “... what do I think and then also to listen to the others’ answers. So ‘wow’ what did the others think about this question and how different it was.” In many interviews the independence and self-responsibility of the blended approach are emphasized: “...we had the chance to work on our own, completely independent of time and place, which was good. And afterwards we could share in class our solutions and our thoughts (...)” As a constructive impulse, some students criticized the courses’ use the online content only as preparation for classroom discussion and collaboration, but not as an option to develop new digital content. This is a new perspective, and it will be implemented in the following courses.

The evaluation also shows that face-to-face interaction is highly appreciated as a special benefit of the Summer School. Concentrated sessions seem to be helpful for the discussion of complex and personal issues: “When students from two diverse cultures brainstorm together, in concentrated, time-bound sessions towards a single goal, the process serves as an engine for a creation of meaning that is composite yet nuanced, a complexity of ideas that would perhaps be missing if the source came from a single context.” Some students also discussed the benefit of face-to-face communication as it fosters understanding and acceptance: “I especially appreciated the group tasks and intercultural communication tasks because it helped us know about the socio-cultural dynamics of each other’s country.”

General Findings of the Evaluation

1. In general, the participating students showed positive attitudes towards the blended learning design of the courses and the Summer

School. Within the blended setting of the courses, the participating students especially appreciated the opportunity for self-regulated learning. In relation to this, the students seemed to value the independence the blended design offers: The online content can be retrieved and reused whenever and wherever the students choose to; online interaction can take place at individually fixed dates; and the collaboration enables students to share perspectives outside the classroom with individually chosen partners.

2. In general, the findings indicate that students highly valued the collaborative and interactive approach of the courses and the face-to-face interaction of the Summer School. Students reported that they enjoy the blending of individual reflection via online contents, the interaction with other international students, and, finally, the collaboration – online and in class – in small groups. In this context, students greatly valued the international and intercultural approach of the courses, which enabled them to learn about other educational systems and concepts, and at the same time reflect on familiar ideas. In this context, students reported that consolidated positions have been challenged by alterity.²
3. In general, the findings indicate that students develop their learning skills and acquire new learning techniques in the blended and collaborative setting of the courses and the Summer School. Students reported that they use the provided online content and tasks in a flexible and largely independent manner. In addition to this, many students emphasised the fact that the digital and face-to-face interaction with international students is a means of collaboration that changed their learning habits.

Conclusion

Our experience so far has shown that blended learning and intercultural collaboration can function as links between students from different countries and cultural backgrounds. The cooperation between two universities that come from different educational and cultural contexts offers constructive learning opportunities on different levels. As students and teachers from India and Germany share and discuss their different experiences and perspectives, a systemic approach can be developed. By exchanging ideas, especially in an intercultural setting, students compare and discuss different perspectives in active and receptive self-other relations. These encounters, made possible by the collaborative and blended design of the courses, play a major role in collaborative and interactive blended learning environments in general. Our experience and the students' feedback also demonstrate that the concept of alterity is crucial to international collaboration because it fosters the construction of new knowledge: By gaining insight into different perspectives and by discussing common topics from different perspectives, students develop new knowledge, deflect predominant opinions, and may deconstruct stereotypes.

2. The idea of the pedagogy of alterity in this context focuses on the experience of "the other" (cf. Ruiz, 2013).

Consequently, such learning scenarios can connect educational systems of different countries, sharing different experiences, perspectives, and concepts. This again could be a good point of departure for the discussion and creation of joint modules that might lead into inter-institutional curriculum development, which would further enhance the internationalisation@home efforts and provide physically non-mobile students with the opportunity to gain international experience in a virtual learning environment or in a blended mobility design.

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Curriculum Innovation for Intercultural Cross-Border Learning: The Double Degree Experience between UDS Ghana and HSD Germany

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The growing understanding of the need for collaborative efforts in tackling global development issues has warranted the de-compartmentalization of learning, especially in higher education. Even as higher education institutions (HEIs) are increasingly adopting multidisciplinary, interdisciplinary, and trans-disciplinary approaches to learning, the push for intercultural or cross-cultural exchanges is compelling students to seek cross-border experiences. Especially for students in the humanities and development studies, embarking on cross-border learning exchanges has become a crucial part of the search for practical experiences in their learning journeys.

Intercultural cross-border learning in higher education is expected not only to provide students with critical practical training but also to equip them with the requisite knowledge, skills, and values for emotionally intelligent global citizenship. While globalization has focused largely on economic integration often underpinned with exploitative trade relations, cross-border learning enables students to learn and share knowledge in ways that leverage and promote intercultural competence.

Although drivers such as internationalization, globalization, technological advancements, democratic development, capacity development, economic opportunities, and cultural diplomacy are inspiring faculty and student mobility for cross-border learning in higher education (HE), challenges such as paucity of funds, conflicts and insecurity, quality assurance, institutional variabilities, and technological limitations have tended to impede progress (Chetros-Szivvos, 2010; de la Fuentes & Damian, 2010). Both the drivers and challenges have enormous implications for individuals and institutions seeking to cross borders. Recently, with advancements in smart technologies and improved understanding of partnership-building, collaborative initiatives have become important for leveraging and advancing mutual cross-border learning interests.

This paper discusses a cross-border collaborative initiative between the University for Development Studies (UDS), Tamale, Ghana, and the University of Applied

Sciences Düsseldorf (HSD). At the time of the initiative, the German partner was still known as Fachhochschule Dusseldorf (FHD), as appears in programme documents used here. This discussion shares the success story of how the use of a blended learning (virtual and physical) approach made it possible to foster intercultural cross-border learning between the two partner institutions. The paper covers issues on cross-border learning in HE, the nature and background of the collaboration, the virtual learning interface, and the effects of blending learning on collaboration.

Cross-Border Learning in Higher Education

Cross-border learning in higher education (HE) has a long history and, over time, has taken various forms, including shifts from the traditional model of extractive voyeurism and knowledge colonization, to more progressive and pragmatic efforts to promote collaborative partnerships with mutual benefits. In an ever-growing knowledge economy, the role of HE has included propelling various forms of exchanges to advance knowledge production and share. As the epitome for producing higher level thinking, generating knowledge, and sharing and applying knowledge, higher education institutions (HEIs) have become critical arenas for cross-border learning and education. Their role in technology advancement, social change, and human resource development position them to embrace intercultural education and learning as key to global peace, democratic participation, just societies, and ethical economics (Zaragoza, 2010; Egron-Polak, 2010). Cross-border learning advances this role, not merely creating knowledge and fostering understanding, but also promoting intercultural sensibilities.

As Chetro-Szivvos (2010:2) has noted, “Cross-border tertiary education is not a new phenomenon as there is a long history of exchange of students, professors and knowledge dating back centuries. However, in the last two decades, the world has witnessed significant growth in cross-border tertiary education in large part due to changes in physical and virtual models”. The exigencies of a globalization, internationalization, and technologies have propelled not only student and faculty mobilities, but also deeper and substantive curricular exchanges not before possible (de la Fuentes & Damian, 2010). The net effect has been generally institution-based in the sense that those participating from across the globe, students and faculty, seek to earn degrees, find employment, and conduct research. Lately, HEIs have created international studies programmes and offices and also embarked on recruitment drives abroad for students and faculty, resulting in increasing multi-culturalism on such campuses. Within the European Union Bologna Agreement and Process and African Union Quality Assurance frameworks, this drive has been extended beyond individual countries to regional/continental initiatives. The dividends of such cross-border efforts are to push HE beyond itself to society. In the context of intercultural learning, where sincere and mutual benefits underpin cross-border exchanges, actors are able to engage in more flexible and intensive interactions in collaborations that promote and nurture effective partnerships.

Nature and Background of the Collaborative Experience

The collaboration between the University for Development Studies (UDS) and the University for Applied Sciences of Hochschule Dusseldorf (HSD) was a double degree, four-year initiative based on two pre-existing, national, fully accredited, different yet related programmes: Development Education Studies (DES) at UDS and Empowerment Studies (ES) at HSD. The collaboration was possible because both programmes were advocacy-focused and aimed at empowering citizens for socio-economic transformation. While the DES centred on community and national development, ES targeted national and international development. A background analysis and institutional profiling following the initial establishment of the possibility of collaboration enabled the project teams, working on either side and together, to establish areas or levels of comparability regarding convergences and divergences in curriculum goals and objectives, structure, content, grading systems, and graduation requirements (see UDS/HSD, 2013). Given that process, the goal and objectives were to:

Foster inter-university partnership for institutional strengthening and the promotion of innovative teaching and learning in the field of development studies
1) strengthening of curriculum development and institutionalisation of joint curricula activities at the MA level, 2) strengthening teaching/learning activities: Qualify Ghanaian and German master's students in the field of development studies. (UDS/HSD, 2013: 1)

By design, the initiative sought to enlist 80 (40 from each side) already enrolled master's (MA) students to complete local institutional and national accreditation requirements regarding coursework, research, and practical experience in the form of community and organizational placements for the award of a co-joint degree. The coursework comprised a joint curriculum that required students to travel to partner countries during spring session for UDS students at HSD and Sandwich (summer) term for HSD students at UDS. In Dusseldorf and Tamale, the two groups of students attended lectures and workshops together in same classrooms, engaged in group projects, gave presentations, and took part in experiential programmes. Over the four-year period, the courses were facilitated largely by selected and trained facilitators of the two institutions, while on occasion, facilitators crossed the borders with the students.

Since the collaboration was between two institutions and two programmes, it was important to ensure that the two programmes were in tandem. Hence, a lot of time was spent on ensuring the right match. This included reviewing and synchronising the two programmes' curricula to determine shared possibilities for a joint curriculum without deviating from the framework of accreditation. (See Table 1 below.) In the end, eight courses that showed close similarities were identified to form the joint curriculum offered in Tamale and Dusseldorf, with four at each university. Once the courses were established, the lecturers for those courses were trained to review the course content to meet the learning needs of the two categories of students and facilitate them during the joint sessions. Together with the project management team, the teaching time tables of each side were reviewed to ensure a good fit for collaboration, to identify the most suitable onsite and offsite tools for the delivery of the joint course, and to draw on the experiences of both

academics and practitioners such as technology experts, NGO staffers, and public officials. Such experts helped design and backstop support for the delivery of the courses or served as guest lecturers and field experience coordinators. To make teaching and learning resources more accessible, an information bank was also created and opened for the use of both students and facilitators.

Time	Course	Remarks
Campus courses in Ghana (prepared by UDS, max. 10 FHD(HSD) students participate)		
July-August (Campus Wa)	MDE508* Human Rights and Development Education (3 CP)	Will be accepted at FHD as: MES 1.2 Human Rights in World Society / Part I (3 CP)
July-August (Campus Wa)	MDE512* Gender, Citizenship and Development (3 CP)	Will be accepted at FHD as: MES 1.2 Human Rights in World Society / Part II (3 CP)
July-August (Campus Wa)	MDE504 Methodologies for Community Education and Research (3 CP)	Will be accepted at FHD as: MES 7.2 Political Empowerment / Part II (3 CP)
Spring School in Germany (prepared by FHD(HSD), max. 10 students from UDS and FHD each)		
Jan-March	E-learning phase to prepare Spring School	
March (Spring School Germany)	MES 7.1 Theories and Approaches to Community Development (3 CP) (at FHD within teaching module MES 7 Political empowerment / Part I)	Will be accepted at UDS as: MDE 509* Theories and Approaches to Community Development (3 CP)
March (Spring School)	MES 8.1: International Development Policies and Strategies (3 CP) (at FHD within teaching module MES 8: Methods of Political Action / Part I)	Will be accepted at UDS as: MDE 506 International Development Policies and Strategies (3 CP)
March (Spring School)	MES 8.2 Democratic Governance and Development (3 CP) (at FHD within teaching module MES 8: Methods of political action / Part II)	Will be accepted at UDS as: MDE 515 Democratic Governance and Development (3 CP)
Thesis Work (writing of thesis jointly supervised by teaching staff members from both universities is intended, but not compulsory)		

Table 1: Joint Course Work UDS MA DE and FHD MA ES (Double Degree Programme)

Source: UDS/HSD (2008). Project Proposal.

Virtual Learning Interface

The virtual learning interface component of the collaboration was crucial for the offsite interactions of students and staff. 'Offsite' refers to periods when the students were back on their own campuses pursuing their local, institutionally required courses, research and practical experience components of their programmes. Due to the nature of the offsite sessions, it was natural for the virtual tools to be deployed to sustain interactions beyond the onsite periods. Thus, a blended learning approach was adopted. However, virtual learning tools were used whether onsite for joint curriculum or offsite for non-joint but required courses. The virtual learning sessions were designed taking into consideration access to technology, facilitator and student workloads, and time zone differences. The sessions took the form of plenaries that brought all students together with a facilitator, for group exercises and individual interactions.

The main virtual tools used were the Moodle platform, which was used to conduct webinars, share course materials, give presentations, and facilitate communications. These were then backed by Skype and Zoom meetings, email, and WhatsApp interactions. Basically, virtual tools were used for project development and management, participant and facilitator trainings, course presentations, student projects, project reviews, and resource sharing.

To be effective in the use of the virtual tools, trained dedicated technical support staff to assist facilitators and students were made available. This was especially useful for the Ghana partners, who at the start of the initiative were less familiar with many of the tools. In their case, it became necessary to provide a laboratory for plenary sessions during webinars and periodic training. They were also provided airtime and headsets to improve online access.

Effects of the Blended Intercultural Learning

Although virtual learning was not the crux of the collaboration, it was instrumental in driving and sustaining interactions throughout the project period. It offered various benefits, in spite of some challenges. Some the benefits included the following: The expansion of time-on-task for increased sharing and learning among students. This was especially so because the virtual tools made it possible to work together and independently at scheduled but also flexible times. Communications could be generated at any time and responded to in discussions at any time. It was possible to arrange time together quickly and reach agreements on schedules. Also, as noted by various studies (Chetro-Szivvo, 2010) on cross-border intercultural learning, the traditional mode of physically moving across borders for stay and learn was a costly exercise because students had to bear travel, accommodation, and food costs, among others. With the introduction of virtual tools and spaces, it has become possible to get together or initiate learning at hardly any cost beyond existing investments in information technology, personnel, and curriculum materials. Undoubtedly, such investments remain costly in developing countries and emerging economies, thus restricting access to virtual tools. It is for this very situation that blended learning becomes worthwhile.

Additionally, valuable cultural knowledge, technological skills, and ethical values were gained during the period of collaboration. While the course content taught disciplinary knowledge and skills, the interpersonal interactions, onsite field visits, and use of technological tools expanded and extended learning. For the Ghana students in particular, who joined the collaboration with basic IT skills in emailing, texting, and web search, by the end of their studies, they had become very conversant with the use of the virtual learning tools deployed. Another important benefit was the development of joint cohorts of students and facilitators from each country who supported one another during the project period and sometimes beyond. At times their individual learning was brought to the group and then from the group to the plenary (that is, the entire class). That cross-fertilization and fusion of ideas benefited not just the course learning, but also the intercultural experience.

Furthermore, through the blended learning initiative, students were prepared for internationally competitive worlds of work or study. The onsite sessions for the

joint curriculum courses enabled students from one side to visit and learn together with their local student counterparts, and provided them with first-hand learning experiences that were readily transferable in virtual spaces, especially in plenary and group sessions, and including the management of cultural sensibilities. As a facilitator, I learned to listen more and to read between the lines in order to effectively support the students. Above all, the co-joined degrees (diplomas) that were awarded, one from each university, became important testaments for students in their search for jobs or further qualifications. (See UDS-HSD, 2013.)

Conversely, there were some challenges that students, facilitators, and project management had to navigate in order to keep the initiative on track. One of these was the demand on time and finances. The designers understood from the start that huge investments were necessary to fulfill the set goal and objectives. Hence, it was important to give a clear indication to all participants right from the beginning. Commercial and infomercials advertising the initiative online and print made that clear for aspirants. Also, due to the understanding of the crucial role virtual exchanges were going to play in the overall achievement of the goal and objectives, steps were taken to ensure that all participants were computer literate and could use that tool for communicating and researching. In the specific case of students, it was important for them to have the basic skills and tools to build on during the initiative. For those in Ghana, additional provisions were made to request access to an institution-based laboratory, periodic trainings, and technical expertise to further support ongoing needs. In addition, HSD provided a stable and accessible platform and technical backstopping to the African partner, UDS. Since the initiative was multi-year, we also recognized the need for the constant kneading of differences through dialogue and mediation. Both onsite and offsite platforms such as planning meetings, review workshops, course evaluations, reflective exercises and peer reviews were built in for tracking progress and determining change actions. Such reflexive exercises enabled the project managers to embark on the necessary innovations to improve effects toward goal attainment.

Conclusion

Cross-border collaboration in higher education (HE) for intercultural learning delivers tremendous benefits to participating institutions and society. Its benefits to peace, ecological diversity, democratic participation, and social progress, due largely to intercultural competencies developed, have local, national, regional, and global effects. Yet, its success depends largely on effective planning and management based on teamwork, reflexive practice, monitoring, evaluation, and learning. There is no doubt that cross-border collaborations are costly and require significant investments in funds and time; however, with the use of innovations made available through technology, they can be manageable. The use of virtual tools and platforms helps ease the burdens, while increasing and sustaining learning toward intercultural competency. Of course, virtual tools by themselves can also be limiting. Blending the virtual and the physical becomes a critical model for minimizing challenges on both sides. Blending virtual and physical learning spaces helps optimize learning outcomes.

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A Virtual Exchange Tool-Kit: From Micro-Credential Settings to Full Study Programs

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The paper presents a perspective of online education with emphasis upon the European Educational Framework Level 7 (MSc), incorporating the full chain of Bloom's Taxonomy Levels (BTL), in an open-source repository structure that allows for a complete sharing and re-use of educational material from different sources. The paper illustrates how a significant number of teachers from different universities have started to develop small, individual, online digital learning units (modules), which thereafter are "stacked" together to create larger units (lessons). The basic units include automatically corrected assignments, whereas the more advanced (higher BTL) modules include peer discussions and instructor feedback. The paper illustrates how, through international collaboration, these "lessons" can be constructed into digital courses and "short programs", accessible to both university students and professionals. It presents how these short programs, built up by shareable material from a number of teachers from different countries, can then be used in university settings in countries with emerging economies. The programs would count for academic credit, first in a "micro-credentials setting", but also later in full two-year academic MSc degrees. The concept is based upon the UN Sustainability Goal Number 4 that Quality Education is a Human Right. It relies upon voluntarily sharing and re-using Open Educational Resources from many different stakeholders in a not-for-profit perspective as it simultaneously spreads knowledge to groups that otherwise might not find such open resources. It also demonstrates, in a pilot subject "energy", the contemporary possibility for "global but local" high-quality MSc-level education.

Introduction

Digital education has the potential to disrupt the educational landscape worldwide. It can enhance the development of emerging economies. It can modify the traditional university landscape, creating enormous opportunities for learners globally to access high-level education in as yet inaccessible forms.

This type of education is still in its infancy, and "traditional teachers" are normally unable to grasp its implications and unprepared to accept the widespread impact that machine-learning, augmented/virtual reality, and artificial intelligence

may have on the teaching profession. It is clear that a "one-to-one" education, including aspects of it such as hands-on laboratory work, travel for exploration of different cultures, and direct student-to-tutor interactions in the form of case studies, dialogues, and peer discussions, is exceptionally good and efficient. Such education is, however, also very expensive, and often environmentally unsustainable, as a lot of travel would be included, especially for international, common university programs. Today online education can offer a very realistic alternative, and with the progress of learning analytics, artificial intelligence, and virtual/augmented reality, online education can soon become a real alternative to a "physical, on-campus" presence. It will also offer a much-needed possibility for enhanced cooperation between educators from different cultures.

Background

Education is the key to development. The global world faces unprecedented societal, environmental, and other challenges. The significant majority of research-based university teachers are still in the "advanced economy" countries, whereas the largest number of potential students, and other types of learners, are in the "emerging economy" countries. To eradicate societal injustices there is a need to educate a significantly larger portion of the younger generation in emerging economy countries than the traditional university systems can assimilate, while retaining the nationally recognized quality these universities already have.

Open Educational Resources (OER) have been developed over many years. The first and most widespread example is, of course, the traditional textbook. Years ago, many institutes began to develop different kinds of learning materials, such as written text, radio- and TV-broadcasting. Such initiatives started to become "computerized" in the 1980's and 90's, began to catch on in the early 2000's (with the Massachusetts Institute of Technology, notably, offering all of its educational material online), and exploded online in the early 2010's as the Massive Online Open Course (MOOC-) platforms started to appear.

In the process there have been a number of "Open Universities" created (Open University UK being the first in 1969, with The Open University Sri Lanka the first such university in Asia, established in 1978). These open universities have delivered a great service to their countries and citizens by offering courses of different kinds, ranging from vocational training to 2nd, and in some cases, 3rd cycle (MSc resp PhD levels) education. Of course, the courses are often also offered in a life-long learning perspective.

However, "remote" or "distant" education has generally been looked upon as not offering the same quality as a traditional on-campus university can. This perception seems still to be the case, although the contemporary technical advantages related to fast, online, digital delivery have opened a lot of opportunities over the last few years. The pedagogical/didactical progress has clearly not followed the technical development and most "e-learning" done at universities (and far from all universities use such features) is still considered significantly less valuable than an on-campus degree, even if the exams and assignments the students take might be exactly the same in both environments.

The KTH Royal Institute of Technology in Stockholm started “Computerized Education in Heat and Power Technology” in the mid 1990’s (for example Leotard et al., 1998; Salomon et al., 2004) and an “online” MSc program “Sustainable Energy Engineering World” in 2004¹, with student intake until 2011. The content was, apart from some hands-on laboratory work, exactly the same as the corresponding successful international on-campus program. In 2007 The OUSL entered the program, and more than 130 students have since successfully graduated from the program in Sri Lanka (SEEWSL alumni²). Some of these graduates have become successful teachers at various educational institutes (traditional and vocational training universities) in Sri Lanka, some have successfully completed PhDs in countries around the world, and many more have successful private or governmental careers in Sri Lanka. This program clearly proved that although the teaching and contact hours, as well as the environment the learners work in, are extremely important, the “teacher/student environment” does not need to be “at one physical place” if other conditions are set up towards global, societal, and collaborative studies with motivating and inspiring education.

Over the years, KTH and The OUSL have also collaborated, to a much smaller but still highly significant extent, on smaller courses within the T.I.M.E. Association³ and the EIT⁴ InnoEnergy⁵. KTH has developed laboratory exercises in the energy sector that can be used remotely by students globally (for example Navarathna, Fedulov, Martin, Fransson, 2004; Monaco, Vogt, Bergmans, Fransson, 2014). These and many other educational online collaborations⁶, including also the KTH-coordinator role of three Erasmus-Mundus Joint Degree MSc and PhD programs, have led to the conclusion that it will today be possible to create full-level local, affordable, Master programs in emerging economies. This could be done with the use of globally available, small-scale learning modules from open educational resources, going through smaller “certificates”, “diploma courses”, etc. (depending on local regulations) and ending with, if the learners so seek, a full MSc degree. As such, the learners will have the possibility of “stacking” their learning and gradually enhancing their educational level even if the local university does not have teachers with all the skills needed for a fully valued degree in the subject area. Of course, similar to what is done in on-campus programs, to perform the proper “stacking” it is a matter of how the intended learning outcomes can be combined to move gradually from the low taxonomy levels of “remember” and “understand” to the higher levels of “analysis”, and eventually be able to use the skills and competencies to “create” values in the field of study. Along the road learners must also prove themselves to have the various “21st Century Skills” that today’s employers require employees to have to be fully effective in the energy world (including skills such as collaboration, communication, creativity, “pitching”, etc.).

1. www.kth.se/en/studies/master/sustainable-energy-engineering/description-1.8711

2. “Sustainable Energy Engineering World” Alumni. www.aseewsl.lk

3. A network of 57 worldwide universities, <https://timeassociation.org>

4. European Institute of Innovation and Technology, <https://eit.europa.eu>

5. www.innoenergy.com

6. For example: Abeyweera, Senanayake, Senaratne, Jayasuriya, Fransson, 2017; Abeyweera, Senanayake, Jayasuriya, Fransson 2018; Abeyweera, Guillerme, Senanayake, Peiris, Jayasuriya, Fransson, 2019; Kithsiri, Peiris, Wickramarathna, Amarawardhana, Abeyweera, Senanayake, Jayasuriya, Fransson, 2018.

Presently, MOOC-platforms like Coursera⁷ and FutureLearn⁸ work towards a similar concept in the sense that they aim to establish “micro-credentials” in various topics. However, although highly interesting and extremely well prepared for online learning, these are still fairly straightforward and often directed towards a large learner base. And although universities often are at the origin of the courses, these do not always carry academic credit. Furthermore, they are often general “one size fits all” courses, developed by western universities and, thus far, seldom adapted to local environments, such as in countries with emerging economies.

Methodology

With the goal of demonstrating the concept of building high-quality curriculum from different “small-scale learning units” in a “hard-core engineering” subject, a number of individual teachers in the energy area from different universities have over the last few years worked towards a “scalable and stackable” concept in which educational material from many sources can be shared and re-used among teachers. Teachers from mainly the T.I.M.E. Association, the EIT (EIT Climate, EIT Digital, EIT InnoEnergy) and other organizations participate. The keys to success in such a voluntary, global, and collaborative effort among these teachers have been identified as:

- Ensuring a broad base of teachers who (i) are willing to consider paradigm shifts in digital education, including developing student-centered and challenge-driven methods in a digital environment, who (ii) consider that affordable education is a necessity for citizens in emerging economies, who (iii) are willing to share their own material on a largely voluntarily basis and (iv) work together with other colleagues to improve it.
- Working on smaller learning modules (~0.5-5 Estimated Learning Hours [ELH]), including videos, reading material, and appropriate assignments, thus not burdening individual teachers with heavy workloads, and also realizing that teachers globally must have the possibility of putting their own “mark” on the modules they use in the extent they want (while of course always acknowledging where the material originally comes from).
- Accepting, with an open mind, individual modules from teachers, recognizing that it takes significant time to establish collaborations and that teachers will make needed adaptations and improvements when they have the time, and especially when they receive feedback from students.
- Having, for each individual small-scale learning module, clearly defined (but locally modifiable) intended learning outcomes and corresponding (for the lower taxonomy level automatically corrected) assignments, such that non-specialized teachers can re-use the complete module without having to be specialists in all sub-areas of a subject.

7. www.coursera.org/browse

8. www.futurelearn.com

- Working with a framework in which “Subject area lessons” and “Subject area courses” are built-up by the local “teacher-architect” into consequently larger units from the individually small “learning modules” by the collaborating teachers. Courses can be developed with or without the involvement of the original learning unit, depending upon how the collaboration is set-up between the colleagues and partners.
- Establishing this “framework” of “assembled modules” into an easy-to-use repository with links to learning material from all other open resources needed on “learning module” level, while also fully recognizing that the “teacher-architect” will need to assemble material from many places to create the local, individual courses, course “packages”, etc., as local regulations permit.
- And ensuring that the learning modules are accessible “the year round” so that any teacher can use them in any part of the academic cycle in their curriculum.

In these ways, university teachers who might not have the full resources for creating high-level specialized content in their country’s needed subject areas can (i) create their own local programs, in which they (ii) re-use as much as needed from common resources, and (iii) develop their own local perspective, (iv) adapted to the needs of the neighbouring communities and regions, while (v) they can also develop further global collaborations. Students in universities can similarly access, in well-designed learning pathways or as individual learning pieces, high-level material from a global consortium of specialized teachers, just as universities without such courses can establish capacity building and improve the competence of their own faculty.

However, a major factor missing from such a global collaboration is that many students, and also many organizations and industrial companies, highly (and often exclusively) valorize the “degree-paper” as the ultimate proof of the actual knowledge, skills, and competencies the graduates have achieved in the learning process. In today’s environment it is still difficult for people to find appropriate employment if they cannot also show a “signed and stamped degree-paper” from a recognized university (Dimon, 2020). As such it is essential to demonstrate the concept while ensuring an academic degree is obtainable from an established university (in either “advanced” or “emerging” economy countries).

The Open University Sri Lanka (OUSL) has been very positive towards this international trend as it recognizes the need for significantly extending the number of engineering graduates in the country. As an open university, it also has more possibilities than a traditional on-campus university for offering academic credit for isolated courses, short programs, “certification programs”, etc. As such, together with several teachers in Europe, The OUSL has worked towards demonstrating the workability, and scalability, of the methodology. This collaboration resulted in an EU-sponsored “Capacity Building in Higher Education” project which will allow the possibility to “scale-up”, fully demonstrate the concept, and start to award degrees based upon such shareable material. In the project “EUSL-Energy”⁹, four

9. EUSL-Energy: “Europe Sri Lanka Capacity Building in Energy Circular Economy”, EU project 610173-EPP-1-2019-1-LK-EPPKA2-CBHE-JP, www.euslenergy.com/index.html

universities in Sri Lanka¹⁰ have teamed up with three universities in Europe¹¹ and the companies Learnify¹² and FutureLearn with the aim of establishing the “stackable” concept in the energy sector in a nation-wide, combined academic environment, and also establish a (smaller) “micro-credential” program for a broader scale of learners within FutureLearn. The T.I.M.E. Association is an Associate Partner of this project, and some of its members will be voluntary contributors to different parts of the program.

In this project all the shareable “small-scale learning modules” will be stored in a repository (figure 1) so that different universities (not only those involved in the EUSL-Energy project but also others in a global perspective) can re-use the parts they need, and then also add (into the repository) the new learning modules these universities and individual teachers develop, given their local needs.

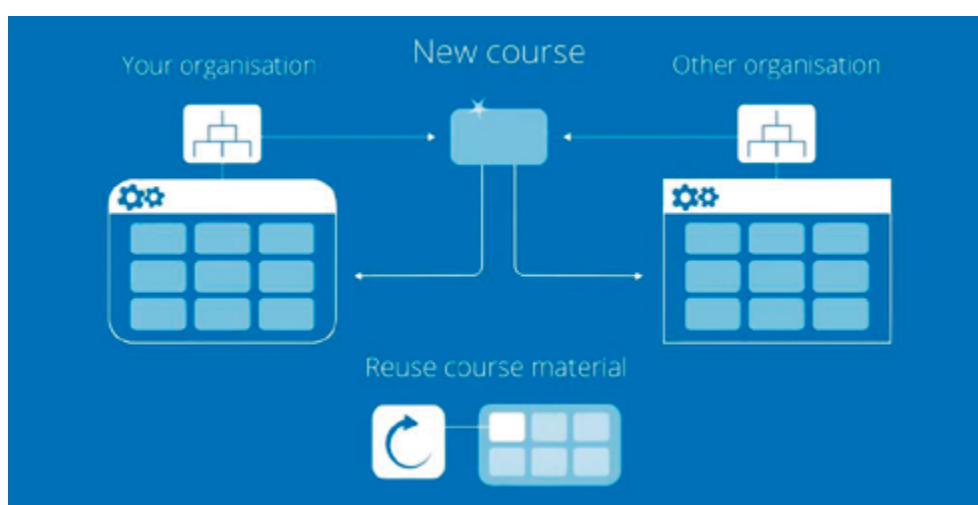


Figure 1: Concept of Learnify repository (<https://innoenergy.learnify.se>)

10. Open University Sri Lanka, University of Peradeynia, University of Moratowa, University of Ruhuna

11. CentraleSupélec, University of Twente, KTH

12. <https://learnify.se/en>

These new modules will be combined with already existing open resources from the earlier developments within the Learnify repository (see figures 2 and 3 as examples) and many other sites.

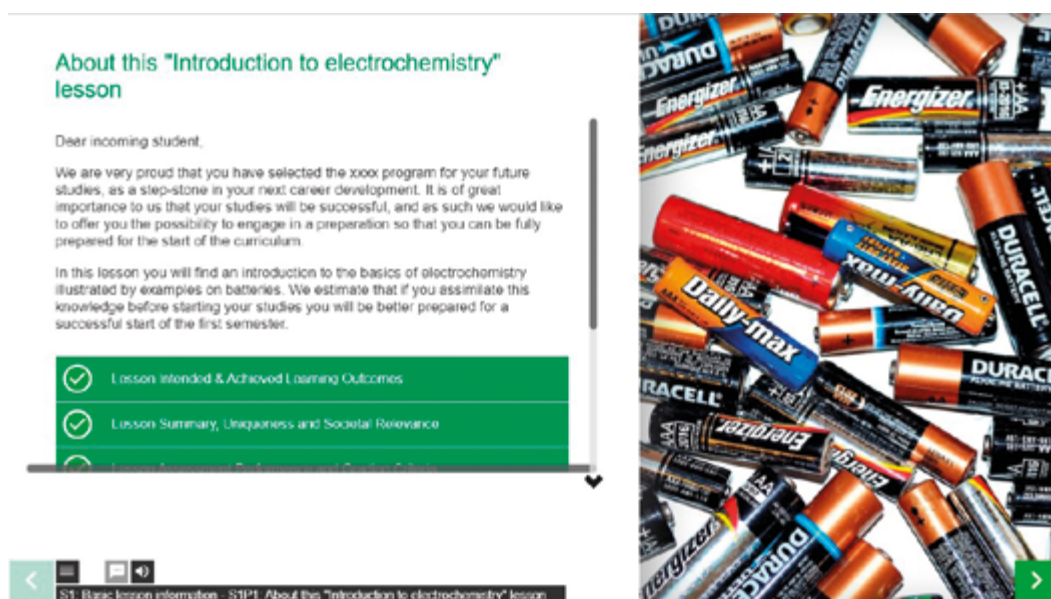


Figure 2: Construction of a "lesson"

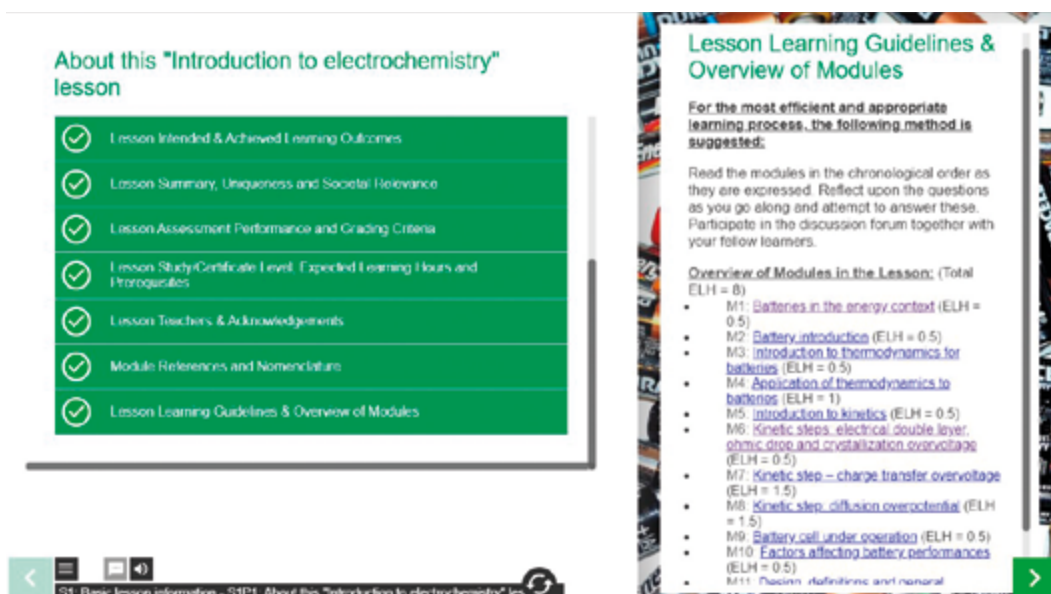


Figure 3: How to reach the individual learning "modules" from the "lesson-level"

The repository identified (Figure 1) is constructed in a way that it can be used as a "storage and distribution mechanism" as well as a basic Learning Management System (LMS), but it can also easily be coupled to a more advanced LMS platform a specific organization might use. Thus, any organization can easily re-use the repository material in their usual environment, and students and teachers do not need to learn any new "tools".

All the existing, and to be developed, material in the repository is based upon Creative Commons licenses. As such it can be used towards not-for-profit education at self-cost but also towards for-profit education after agreement with the corresponding contributors¹³. It can then be used both towards local academic and professional accreditation. Individual units as well as larger blocks of a subject can be re-used. This development is entirely up to the individual teachers, and a “local program director” has significant flexibility to design individual programs and to “package” the material so that it is adapted to the local environments, while re-using the general, global content in any appropriate way. The key to re-use of material in various local environments is that all the basic learning modules used are (i) small (0.5-max 5 ELH), in order to be accepted by other teachers, (ii) self-sustained (with appropriate ILOs and assessments), (iii) allowed to be copied and modified, and (iv) inclusive of clearly Intended Learning Outcomes, which (v) can be adapted by the local teacher. Such adaption can be done by the local university alone, or, preferably, in collaboration with the different teachers who originally developed the material.

The collection of individual, high-quality learning units from a large number of teachers is, of course, the most important factor in the concept, and it has taken considerable time to establish such a trustworthy collaboration among teachers. The second most important factor in the concept is the possibility of very easily combining basic learning modules into a set of larger subject areas (presently called “Lessons”, each lesson consisting of subject-blocks of around 10-40 Estimated Learning Hours) with the appropriate “Lesson-level” intended learning outcomes. All the learning content is in the individual learning “content modules”, and the “lessons” are just the framework of how the “teacher-architect/guide” establishes the learning environment locally. These lessons are collected, and thereafter easily reached by learners, within the Learnify repository, while the learning units can be available in any other digital way.

There is presently no external review performed on the material since the material presented, including assessments, corresponds to education that the teachers do at their home university and as such the quality is equivalent to what is accepted at that university. Nonetheless, within the EUSL-Energy project framework, a set of quality frameworks, based upon the EIT-Label Handbook¹⁴, is in the process of being established¹⁵.

Next Steps

Since its creation a few years ago, the concept is under constant expansion. Presently the following steps are planned:

- In 2020 The OUSL intends to deliver accreditation for an “OUSL Energy ABC Program Certification Series”, which is largely based upon already existing learning modules, assembled into “certification programs” of around 100-200 ELH each, and offer them to both academic and industry-based professional learners.

13. This is similar to the models used by music streaming services with a payment to the originator only in the case that a profit organization is initiated, but different as the repository contributors are willing to share their material for free as long as a not-for-profit system is employed.

14. <https://eit.europa.eu/library/eit-label-handbook-2018>

15. To be implemented in the 4th quarter 2020.

- Within the Asian Association of Open Universities, the Sri Lankan universities have plans to expand the concept towards a collaboration with two universities each (one open and one on-campus) in India and Indonesia, together with seven EU universities.
- Inside Sri Lanka one private university, which does not yet have an energy program, has shown interest in taking part in the overall concept.
- Within the T.I.M.E. Association a similar concept has been discussed with eight universities in Brazil, Bolivia, and Cuba, with essentially the same base of EU-universities.

The overall concept is, of course, fully open for other partners to join in, to share their own material, and to re-use already existing material, both for individual learning modules and for creating full-scale academic/professional programs based on the material available¹⁶.

Acknowledgements

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16. <http://time.learnify.se>

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Administration and Management

Developing Guidelines for Students and Faculties

4

- ***Virtual Exchanges: Developing Guidelines for Students and Faculty***

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Virtual Exchanges: Developing Guidelines for Students and Faculty

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Although the use of digital media has changed significantly over the years, global digital learning has only recently been in the limelight of higher education pedagogy. We would like to share our years of experience and the many lessons learned by providing a set of student and faculty guidelines for autonomous learning in different interdisciplinary online projects. These virtual exchanges promote collaboration among students from different higher education institutions in Europe, Africa, and North America.

Through faculty observations and data analysis of several virtual student exchange projects, this paper provides an overview of a set of the guidelines explained through a three-pillar model for virtual exchanges. Hochschule Bonn-Rhein-Sieg, University of Applied Sciences (H-BRS) in Germany initiated its first virtual exchange in 2010. Then, the European Dialogue Project (EDP) included four universities in Europe and focused mainly on communicating using English as a Lingua Franca (ELF) and teaching media literacy skills in different learning environments (Brautlacht, Poppi, Martins & Ducrocq, 2017). At the beginning, the focus was mainly on intercultural communication and language learning, but as other disciplines joined the virtual projects, more emphasis was placed on enhancing employability by designing learning spaces that promote 21st century skills and fostering cross-cultural and diversity training (Brautlacht, Agyapong, & Owino, 2018). In 2019, two well-established virtual exchanges, *Building Bridges Across Continents* (BBAC) and *Promoting the Global Exchange of Ideas on Sustainable Goals, Practices and Cultural Diversity* (ProGlobe), include universities in Europe, Africa, and North America. From our experience, we have identified three pillars (pedagogy, project management, and finance) that need to be addressed when implementing cross-cultural and interdisciplinary online projects for university students from different countries.

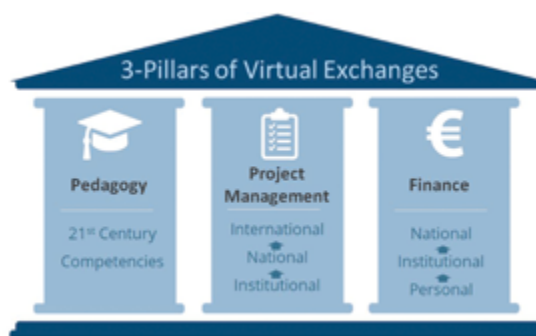


Figure 1: Brautlacht, Julian, & Hulme (2019). 3 Pillars of Virtual Exchanges – ProGlobe (own image)

Pillar 1 – Pedagogy

First, virtual exchanges among students should focus on building global and digital competencies needed in the 21st century as well as providing the opportunity to connect with students from different parts of the world without having to visit the region. Nowadays, it is unarguable that communication is increasingly digitally mediated and that for students to be competent communicators and get ahead in the workplace, they need to be digitally fluent as well as experienced in working in different cultural diverse settings. It also requires learners to build strategies to enable the use of a multitude of literacies and skills. 21st century competencies (Griffen, 2015) require learners to experience real-life tasks in authentic scenarios that are complex (Hallet, 2014). Virtual exchanges offer multiple opportunities to gain experience with problem-solving skills, decision-making, and critical thinking. Students communicate and collaborate with partners in other countries using different digital communication tools and discuss a number of global issues, such as environmental behaviour, with non-native and native speakers of English using ELF.

The teaching methodology is student-centered and different tasks are carried out autonomously, using various digital tools to communicate and collaborate across continents. Students learn to be aware of differences in use of language, cultural diversity, and approaches to global issues (e.g., waste management, water consumption, etc.) of the different countries and communities involved in the project.

Pillar 2 – Project Management

■ Administration

The administrative structure of a virtual exchange project is only as strong as the administrative support available and the commitment to the project made by the project coordinators (Abruquah, 2017). Administrative functions must be distributed among the coordinators from each country as a means of minimizing workload and increasing coordinator awareness of project progress and continued development. In addition, designated administrative support personnel are required for administrative maintenance.

Focused on clearly identified project goals and the pedagogical strategies to achieve them, administrative guidelines, as a project navigation tool, house the project's tasks, schedule, processes, expectations, and source references. The development and ongoing refinement of the guidelines includes the following criteria:

■ Standardized Forms and Legal Requirements

Standardized template forms for all project information resources and task submissions must be developed within the standards and requirements set by each institution and country without compromising the learning outcomes for each course involved in the project. To ensure consistent project delivery and outcomes, all students in all countries must receive the same information and direction, and must submit completed tasks in a standardized format. In addition, the standardized administrative procedures and legal requirements in each country or institution must be addressed. For example, in Germany, the Federal Data Protection Act required measures to be implemented to guarantee the protection of personalized data and its storage.

■ Approach to Assessment and Institutional Requirements

With or without a multi-disciplinary project component, assessments at the institutional level must be detached from the standardization of the project and from the assessment of project effectiveness by the coordinators. Although the project is focused on students' opportunity to gain 21st century skills, we have found that keeping the assessment criteria for project grades separate from the exchange allows coordinators to focus their assessment criteria independently on the learning outcomes of their course. The opportunity for faculty to maintain course and institutionally-mandated learning outcomes in a virtual exchange project improves inclusivity and the possibility of global growth in virtual exchange. Special consideration of different institutional requirements or approvals must be addressed as well. For example, in Canada and the U.S., the institution requires research proposals to be submitted to a Research Ethics Board for review and approval for any research project that involves human participants.

■ Evaluations

To analyze the pedagogical benefits and challenges that students face in these projects, it is important to continuously review them. At the end of each iteration of the project, students are required to complete an online survey that provides feedback about the student perceptions of the project and its impact on their 21st century skills. We can analyze this data to revise various elements of the project as needed for constant improvement. To date, Germany has hosted the evaluation process using the facilities and resources of the university evaluation department. Guidance and advice were provided to ensure the accuracy and quality of the evaluation responses. When required, revisions to survey questions have been made to improve the relevance of the survey and usefulness of the responses.

■ Administrative Support

Ongoing administrative tasks must be done throughout the cycle of these projects: prior to the start of the project to prepare project materials and student lists; during the project for maintenance, monitoring student progress and organizing presentations; and at the end of the project for project evaluations and pub-

lications. Regularly scheduled virtual meetings for country coordinators provide the opportunity to manage these administrative activities; however, additional administrative support is required. This additional work may be accommodated with release time for faculty teaching loads, student assistant(s), and designated administrative personnel.

■ Technology/Technical Support

Technical infrastructure and technical support vary among the different institutions. Training in the use of digital tools for teaching and learning is necessary not only for students but faculty as well. Media didactics training is often not available within the institution, thus experienced coordinators train in designing online learning scenarios. Whereas North American institutions may have a well-established support system, African countries or even Germany often lack the technical support infrastructure. Faculty are often left alone to support themselves and need to use digital equipment and tools that are easy to maintain to minimize technical challenges. Fortunately, many apps and mobile devices today offer opportunities to connect without necessarily using high tech facilities or expensive software programs. Nevertheless, each new country coordinator must be trained and supported technically through IT or digital learning centers within their respective institutions. Furthermore, a support mechanism between the countries has ensured that those less fortunate can benefit from those support systems already in place. Regular capacity-building workshops are an integral part of every virtual project and provide an example to the students that continuing education is a lifelong event in order to be competitive and competent. This may require both purchasing equipment and in-house or service plans for external technical support to ensure quality control. Software licensing should be installed, purchased, or upgraded before the virtual exchange begins. For example, in North America, current updated inventory of equipment is typically part of most accrediting-body requirements.

In order to conduct regular virtual conferences, it is important to identify the staff within the institution that can support the digital activities and to notify IT personnel when special digital events occur well in advance, preferably months prior to the event. This is critical in ensuring that required rooms are available and appropriately equipped. If IT is not contacted early in the process, they may not be available to assist. Furthermore, IT needs to be made aware that maintenance updates must not take place during a scheduled virtual conference that involves several countries and may need to be rescheduled to ensure that the international virtual event is not disrupted. Other considerations for the virtual event may include reserving or purchasing cameras, handheld or lapel microphones, and ceiling array microphones for student presentations, if possible. The additional convenience of an audio-visual control system provides a touch panel interface to replace what would normally require multiple remote controls. Audio and visual concerns are always a major consideration for each project and it can never be assumed that the equipment will be available or working the day of the event, so testing and IT support is always desired. For some countries, connectivity issues are an important consideration when planning an activity or task. The connection may not always be stable enough to organize a virtual conference. For example, in Ghana, we have experienced that Zoom can better offer a fairly stable connection.

It is important to document any technical issues or failures during the project as well as any new or added accreditation requirements, room reservation fees, and student internet bundle fees. This documentation provides administration and funding sources with reasons behind funding requests for added technology or staff support.

Pillar 3 – Finance

Finally, the aim of a long-lasting program is its sustainability, which should not depend entirely on short-term funding schemes; these often have restrictions and requirements that are not necessarily beneficial to the life of a program. In order to establish a long-lasting exchange, innovative solutions for joint funding should not be reliant on one single source. Although we have been able to commit our institutions to supporting our mission, we feel a need to work closely with various financial supporters that offer different options to ensure that our virtual exchanges continue to prosper in the future.

The sheer growth of the project that includes an increasing number of countries and students has increased the need for funding. In particular, countries in Africa cannot provide the same financial support as countries in Europe or North America. In fact, we have also seen that countries within Europe (e.g., Portugal) have had issues in financing their faculty to attend conferences or provide technical support. Another factor affecting funding is that the awareness of virtual mobility and its benefits are often not well established in most countries. When institutions have a more traditional approach to internationalization and are not aware of the benefits of using digital mobility, existing funds may not be allocated for these projects.

Funding should come from a variety of sources. National sources may include undergraduate research grants for education or virtual exchange, professional organization competitions, or industry involvement. Institutional sources may include faculty continuing education or training grants and student and faculty research grants. Personal sources may include homestay and faculty personal finances. However, these types of travel and research funding sources have strict deadlines or requirements and the deadlines may not be conducive to the project dates. The travel funding is set up to be reimbursable so that faculty and students are out-of-pocket with the upfront initial costs, which creates a hardship that may jeopardize the project and any presentation involvement.

The ongoing and increasing technology needs for the project due to project growth is a need beyond the capacity of the project coordinators. As a result, the coordinators are searching for a variety of sources and innovative solutions for joint funding that allow sustainability of these virtual exchanges.

Lessons Learned and Next Steps

Virtual collaboration is an opportunity to provide global exposure not only to language learners, but to all students and faculty through interdisciplinary projects. There is no need to develop a one solution fits all program or system, but diversity and inclusion are key. Collaborative teaching formats can be implemented without having to compromise country specific degree course or accreditation requirements.

Small and easy to manage virtual projects ensure a successful implementation. Free and easy to implement software, educational apps, and open education resource material are especially good for keeping costs down. Developing countries cannot provide extensive support for their teaching staff and require special funding for basic equipment and internet access. However, once this is provided, many students can benefit from the virtual exchange.

Global digital learning and virtual exchanges must be supported by university leadership through new and various initiatives. We see a lack of experience, expertise, or commitment from higher education institutions to address the digitalization process in teaching and learning, which reveals a great potential to expand global digital learning activities, as the benefits outweigh the challenges encountered.

Digital collaboration among higher education institutions worldwide should be supported by national educational policies that include digital global learning as one of their pedagogical and funding priorities. "Digital transformation is not so much an additional challenge, but an effective means to address key challenges for higher education in the 21st century" (Orr, 2018, p. 1). We can reach more students and offer more global discourse through the use of digital communication without compromising existing physical mobility and exchange. Finally, global learning networks need to be established to foster virtual or blended mobility in order to facilitate further growth of digital collaboration internationally.

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Conference Impressions



The papers presented in this publication were part of our conference in Berlin on December 11, 2019: "Virtual Exchange - Borderless Mobility between the European Higher Education Area and Regions Beyond". Higher education practitioners from all over the world gathered and discussed the potential of collaborative online learning and best practices.



Photos: Jan Kulke/DAAD

