

# ***PBL hybrid: An exploration of the concept of hybrid learning in a resource-constrained university context.***

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## **Abstract**

In this paper, we explore the concept of hybrid learning in the context of a project aiming to transform the master programmes at Gulu University in Uganda by incorporating problem- and project-based learning (PBL) and the use of digital technologies to prepare graduates to lead community transformation and improve employability. Teachers are experimenting and piloting PBL and digital technologies. Based on the teachers' experiences this paper provides insights into how PBL and hybrid learning are being enacted by teachers and learners in the context of a resource-constrained university environment. What are the challenges of bringing these principles of hybrid learning and PBL together in a resource-constrained environment? The paper understands hybrid learning as the development of a new quality of learning environments that goes beyond a mere mixture of elements, e.g. digital and analogue, on-site and off-site. In this paper we are particularly concerned with exploring how the new PBL hybrid practices are developing, with a interest in how digital tools are integrated into teaching and learning. This paper is based on the results of a co-construction workshop with teachers and researchers based on their experiences from the first pilot phase. The results of the study suggest that flexibility is a core concept in relation to PBL-hybrid. Hybrid learning involves flexibility in terms of how learners carry out educational activities, how PBL is implemented, the use of many different technologies and the use of both analogue and digital learning tools and spaces. Moreover, to achieve hybrid learning, the types of flexibility and technologies, as well as the mix of digital and analogue tools, depend on the specific context of the educational activities, as well as on the competences of learners and teachers. As such, hybrid learning needs to be seen as a concept in relation to the contexts in which it unfolds. This insight is important for networked learning, which cuts across contexts, actors, materials/spaces and digital/analogue modalities.

## **Keywords**

Hybrid Learning; Problem-based learning; Transforming education; networked learning; resource constraint settings.

## **Introduction**

The overall aim of this paper is to explore how PBL, and hybrid learning can contribute to transforming learning practices to enhance employability and foster entrepreneurial skills in a resource-constrained university setting. The setting is Gulu University, Uganda, and our study, which is part of a research project (PBL-hybrid), concerns the transformation of teaching and learning practices in Master programmes in the Faculty of Business and Development Studies. The project is based on a long-term collaboration within the Building Stronger Universities (BSU), a research capacity project supported by DANIDA. Challenges faced by universities in resource-constrained environments include inadequate financial resources, a large influx of students and a shortage of well-trained academic staff, and inadequate physical and digital infrastructure (Tan et al 2021). A challenge and an incentive for transforming learning practices is also that graduates face challenges in terms of employability. There seems to be a disconnect between the skills demanded by the labour market and those provided by higher

education graduates (Babyetsiza 2019). This is not just a problem for Gulu University, or Uganda, but applies for the East African region as a whole and is partly due to the growing number of graduates, changes in the labour market, and changing technologies. We present here a study in which teachers are experimenting with problem- and project-based learning (PBL) and the use of digital technologies to strengthen community engagement and entrepreneurial skills. During the project teachers are experimenting with PBL and hybrid learning through two pilot projects. In the following we present and discuss our understanding of hybrid learning and PBL, present the case and data from the workshop, and the findings. Finally, we discuss the specific implementation of PBL hybrid learning practices in a resource-constrained setting.

## **Conceptual framework: Hybrid learning and PBL**

There is a growing use of the term 'hybrid' to describe learning approaches. The term is rooted in biology and refers to the crossing or merging of separate parts of a species into a new one (Nørgaard, 2021). Hybrids are not just a mixture of two things, but something completely new. Hybridity refers to the blending of different parts into a new need, form or culture (e.g. mules, grapefruit or Bollywood) (Hilli, et.al 2019). The notion of hybrid learning gained traction during the COVID-19 pandemic to capture the diverse and sometimes chaotic experiences of using digital technologies to mediate teaching and learning during this period.

Eyal and Gill (2022) suggested that hybrid learning could refer to at least three different approaches to organising learning and learning spaces. The first approach is 'hybrid as blended'. Different authors use the two terms interchangeably when referring to some form of combination of face-to-face (f2f) and online learning activities. The hybrid as blended approach focuses on the location of the learning activities as either online or in a classroom. The second meaning of hybrid learning (Eyal & Gill, 2022) refers to 'hybrid as a space of blended interactions', where the starting point is connected to mobile devices and the state of being 'always on', making the difference between online and f2f irrelevant, or at least less important. This approach focuses on how the environment can facilitate the learning process. Hybrid as fluid, the third approach to hybrid learning mentioned by Eyal and Gill (2022), refers to the autonomous identity of the learner. Whereas the other two meanings of hybrid are rooted in an understanding of learning as part of a formal framework where institutions provide learners with qualifications, the hybrid as fluid approach can be seen as a form of self-regulated learning driven by the motivation of the learner. The perspective has shifted, so to speak, from the institutional level to the learner(s), and the role of educational institutions is then to meet the needs of learners in a lifelong process. This presentation of different meanings of hybrid learning shows an evolution of the concept in which technology plays an important role and is discussed in relation to different educational and pedagogical problems. Our focus in this project is to link PBL and hybrid learning. PBL is a transformative pedagogy adopted in the transition from teacher-centred to student-centred approaches. However, PBL is adopted by institutions in different ways; it serves different purposes, is based on different learning philosophies, and core pedagogical principles have different priorities (Awacorach et al 2021). In the case of Gulu University, the approach is pragmatic. In particular, it follows the PBL principles that guide the pedagogical transformation: dealing with 'real' problems and engaging with communities, driven by learner motivation (learner agency) and linking theory and practice.

## **Research Design**

The PBL hybrid is an informative case study (Flyvbjerg, 2006) aimed at transforming teaching and learning practices in the Masters programmes at Gulu University to promote the development of employability and entrepreneurial skills. The case has its own specific history of a long-term collaboration and partnership on transforming education. During the preparatory phase (first half of the year), issues addressed were PBL principles and practices, possible technologies and teachers as designers. Emphasis was placed on the importance of understanding and addressing contextual factors, and on preparing and delivering the first iteration of pilot courses. Eight courses in three different postgraduate programmes in the Faculty of Business Studies were involved: Public Administration, Development Studies and Monitoring and Evaluation. Three of the courses are small, with <20 students; two are medium, with <70 students; and two are large, with more than 70 students (<150). Most of the students have jobs. The courses are held at Gulu University on weekends, starting on Saturdays at 7am and finishing on Sundays at 6pm. Students come from all over the region, with many traveling up to 12 hours to attend classes.

## Data and analysis

The analysis is based on the results of the co-construction workshop with teachers and researchers and their experiences from the first pilot phase. The data collected contains: Verbal presentations of written user stories of good experiences; thematically organised critical statements on challenges, and co-construction of the concept of hybrid learning based on examples brought forward by the teachers, and their explanations of how digital tools had been used. The data was recorded and transcribed using Otter.ai, an AI software application. The analysis is inspired by a thematic analysis (Braun & Clarke, 2023) with an inductive approach, working from the bottom up to identify the meaning.

## Findings

The findings are presented following the format of the workshop: 1) good experiences in planning and teaching the PBL hybrid; 2) challenges in relation to PBL and technologies; and 3) the use of technologies and digital tools.

### **Good experiences: Student course leaders; Know your students; The need for flexibility**

In general, teachers were satisfied with their pilots and felt that the coursework with PBL elements was a success. The following experiences stand out: 1. the use of student course leaders, 2. getting to know your students, and 3. flexibility.

Student Course Leaders are elected by the students to communicate with the teachers and disseminate information to the rest of the class. In most cases, the student course leaders were responsible for setting up the WhatsApp group for the class. Some of the teachers only communicated with the student course leaders, while others communicated with both the course leaders and the whole group. Getting to know your students is an important part of PBL as an experiential pedagogy. In preparation for the pilots, teachers were introduced to various tools (surveys, personas, class discussions) that provided insights into students' work experience, educational background, family situation, distance to university, motivation for choosing the programme and course, as well as information about their digital literacy and access to digital tools. The findings were shared in class and teachers emphasised that students learned a lot from each other. Flexibility means different things. It could refer to flexibility in the use of tools and media when presenting in class using PowerPoint or Word, uploading materials to WhatsApp, extending class discussions to the WhatsApp group, but also the ability to move fluently between digital and offline, for example during power cuts. It could also refer to flexibility with time. The postgraduate students attending the courses are generally pressed for time and have to juggle their jobs, academic commitments and other responsibilities. Some of the teachers have organised extra classes during the week to ease the pressure at weekends.

### **Challenges: Content; Collaboration; Infrastructure**

The challenges are grouped under three themes: 1) course content and access to materials; 2) student collaboration; and 3) infrastructure, including internet access and assessment challenges.

All students carried out fieldwork and worked with stakeholders on their projects. This was valuable and an important authentic learning experience for the students. However, the fieldwork could have been more informed by theory and literature. Many students did not work with the literature properly due to lack of time and difficulties in accessing the literature. The use of Moodle, in principle, provides access to course literature but some students had problems accessing Moodle due to registration or password problems.

The student-centred approach used meant that there was an emphasis on active student participation in class through brainstorming, student presentations and peer feedback. Regardless of the size of the class, students formed their own groups to carry out the fieldwork. Students were encouraged to distribute roles among themselves: student group leader, note-taker, stakeholder responsible, communicator, etc. Students combined cooperative and collaborative ways of working, i.e. sharing work and roles, as well as communication and dialogue to reach mutual understanding and develop common possible solutions. The collaborative part seemed to be the most challenging for the students.

Internet access and frequent power cuts were mentioned as infrastructural challenges for both students and teachers. To use online materials, attend online sessions or participate in online group meetings during the week, students had to stay at their workplaces and use the internet there, as they did not have access at home. Using Moodle was also difficult for both teachers and students. As mentioned above, there were problems with enrolling students into the system, and there was a lack of clarity about whether this should be done by the teachers or by IT Services. Another infrastructural challenge was the tension between the requirements of the study regulations

for assessment (time and activities) and the PBL pedagogical approach, which meant that the learning activities had to be "translated to fit the formal regulations.

### **Use of technology and digital tools**

WhatsApp is used by students and teachers during the course to organize class and project group work. WhatsApp groups were usually set up and organized by the students' course coordinators or student group leaders, but sometimes teachers also set up groups. No teachers reported difficulties in getting students to join the WhatsApp groups. Emails and email lists were also used, particularly to hand in assignments. Google Meet was often used for online meetings. Zoom could also be used, but Zoom required a stronger WIFI signal to run. Also, Google Meet has no time limits on its use. WhatsApp calls between the teacher and the course leader/students were also widely used to get everyone on board. Finally, Moodle was used by the teachers to communicate the overall design of the course, descriptions of course sessions and activities, links to relevant literature, etc. Moodle was not used much by the students in this first pilot due to access problems.

## **Discussion**

The aim of this project is to explore a concept of hybrid PBL and how it unfolds in a resource-constrained environment with unstable power supply, low bandwidth and additional costs for students and teachers when using data. Our analysis shows that hybrid learning is not characterized by specific technologies, pedagogies or educational settings, but rather by the demand for *flexibility* in how teaching and learning takes place, how learners access and carry out different educational activities, and the use of many different technologies. We also propose that hybridity should be understood as a context-specific unfolding under specific conditions. Furthermore, hybridity is closely related to digital, pedagogical and organizational/administrative competences. In terms of flexibility, the analysis has identified different types of flexibility in relation to the PBL hybrid e.g. the use of students as course leaders, and the tools to 'get to know your students'; this also depends on the number of students in the class. Other forms of flexibility include the ability to switch from a digital to an analogue mode of communication, for example if there is a power cut. It was also interesting to see how WhatsApp acted as a time-space extension of the physical seminar, for example when teachers asked students to continue discussions and peer reviews in their WhatsApp groups, or when both teachers and students decided to reduce the pressure of attending physical seminars by organizing online seminars. This kind of flexibility is interesting and worth exploring further, as it seems to be a pragmatic way of dealing with the time/space/materiality issues of the course. Finally, flexibility is also related to the differences in students' and teachers' knowledge and competence of the different digital tools and the course topic.

## **Conclusion**

The concept of hybrid learning provides a new framework for dealing with teaching and learning and the use of technology. The concept encompasses different types of digital learning such as blended, flipped and e-learning. Our analysis suggest that hybrid learning is not characterized by specific technologies, pedagogies or educational settings, but rather by the demand for flexibility in how teaching and learning takes place, how learners access and carry out different educational activities, the extension of time and space, and the competent - and context-specific - use of different technologies and modalities. In PBL-hybrid, flexibility becomes a means of adapting practice to the specific conditions of a given context.

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