

REIMAGINING HIGHER EDUCATION

Case Studies on Designing for Inclusion,
Equity, and Access in the BUKA Project

Edited by Hanna Teräs and James Brunton

Hanna Teräs · James Brunton

Editors

Reimagining Higher Education:

**Case Studies on Designing for
Inclusion, Equity, and Access
in the BUKA Project**

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of the European Union



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Dedication



Professor Dr. Zoraini Wati Abas - 1957 - 2023

The BUKA project handbook is dedicated to our friend and colleague Professor Dr Zoraini Wati Abas, who sadly passed away on the 5th January 2023. Zoraini was a leader in Open and Distance Learning and without her leadership and support the BUKA project would not have existed. We hope that she would have been proud of the work accomplished by the BUKA team in improving inclusion, equity, and access in higher education.

Foreword

The Industrial Revolution 4.0 has had a tremendous impact on changing the landscape of the business world and the industrial world. The automation and digitization of various production processes and product marketing change the order of HR competency needs tremendously. Various types of work that are usually done by humans are replaced by machines, so that various HR competencies and skills that are usually 'capital' to work become irrelevant. Those rapid changes were accelerated by the COVID-19 pandemic which significantly changed the behaviour of economic actors so that it has nourished various online-based business models. As a result, the World Economic Forum (2017) predicts that by 2025 alone around 50% of the global workforce will now have to be reskilling in order for them to do their 'new' jobs well. It is anticipated that these changes will continue to take place as technology and business models develop and advance in synchrony. Therefore, it will be necessary to consistently improve human capital without interfering with their ability to perform their jobs effectively.

The conventional face-to-face education and training system for upskilling and reskilling human resources will not be able to catch up with the speed of change that occurs in the world of work or the business world. If we want to improve the equity and accessibility of this prospect for lifelong human resource development, we must take advantage of the options provided by the online education and training system. During the COVID-19 pandemic, the practice of online education has grown dramatically. Governments all around the world have adopted policies to close schools, college campuses, and physical education and

learning facilities as a result of physical mobility limits and recommendations for physical distance. Our higher education system has gained a great deal of knowledge from the COVID-19 pandemic experience. The abrupt transition from the in-person learning system to the online and remote learning systems demonstrates how fragile and rigid our conventional higher education institutions have been. Many universities hesitate and are unprepared to implement online learning.

In this context, the relevance of this book increases. The book was created by the BUKA project, whose goals include enhancing the quality of online and hybrid learning opportunities in higher education and fostering equity and accessibility. The book places an emphasis on the importance of thorough planning, pedagogical design, and staff capacity building for implementing online learning. The book explores successful approaches to learning design and case studies from The BUKA's partner universities, presenting ideas and experiences to help educators and organisations in building institutional capacity for adopting and implementing online and hybrid learning.

Jakarta, 20 September 2023

Prof. Tian Belawati, Ph.D.

Universitas Terbuka, Indonesia





The importance of Open and Distance Learning (ODL) has become increasingly pronounced in recent years, thanks to technological advancements in education, and changing educational needs, such as continuous, lifelong learning. While ODL and digital learning have been a global trend for some time already, the COVID-19 pandemic brought them into sharp focus and made them a priority in higher education institutions throughout the world. Different online and hybrid approaches to teaching and learning have become more widespread, including in ‘traditional’ universities. Therefore, the pedagogical methods and technologies associated with ODL are relevant and beneficial in a wide range of educational contexts, not just those with a longer history of ODL.

The benefits of ODL and other online and hybrid study modes are numerous. They make education accessible to a much wider range of learners, including learners in geographically remote or underserved areas, learners juggling with family and other commitments, working professionals, learners with disabilities, and others for whom it would be inconvenient, or downright impossible, to attend on-campus. ODL can be more flexible, and also more cost-effective for students, as it eliminates or reduces the need for commuting or relocating.

However, ODL or any type of online or hybrid learning is not a magic solution, and they will not automatically produce benefits and desired outcomes. There are also well-known challenges associated with such learning approaches. The learners can feel isolated, as there is more limited social interaction with peers and lecturers. There may be technological difficulties, network and bandwidth issues, or lack of access to the kinds of tools and devices required. The study materials, instructions, assessment, and learning tasks may be hard to find, the structure and requirements may be difficult to interpret. The online learning resources and materials may not be accessible for learners with special needs. Off-campus study requires a high level of self-discipline and self-directed learning skills. It may be that the scaffolding provided is not sufficient. All of the above may result in poor retention, or student underachievement.

Designing and implementing quality online and hybrid learning experiences, such that the issues discussed in the paragraph above are minimised or eliminated, requires careful planning, pedagogically meaningful learning design, justified choices of tools and technologies, and online facilitation skills. From the perspective of the educational institution, this often means staff capacity building, mentoring and support, and close collaboration between teaching academics, learning designers, and educational technologists. Accessibility and equity in high quality higher education is more than simply providing programmes and modules in online or hybrid mode, it is also very much about making pedagogical and technological design choices that scaffold the learner through the learning path, enhance learning, and make the learning environments and tools user-friendly for learners with different needs.

The aim of the international, Erasmus+ funded BUKA project was to facilitate advances in designing and implementing high quality online and hybrid learning in order to increase access and equity in higher education. Partner Higher Education Institutions (HEIs) in Indonesia, Malaysia, the Philippines, Finland and Ireland worked together to design, develop, implement, and evaluate pilot interventions that sought to help build institutional capacity in providing impactful, high quality online and hybrid study programmes in different higher education contexts. The examples shared in the chapters below are based on

research, experience, and best practices learned through the pilot interventions at the partner HEIs, written up here as case studies.

The book consists of two main parts. The first part introduces research-based approaches to learning design and capacity building that have been found useful in the design and implementation of the pilot interventions in the BUKA project. In the second part, project partners discuss their local pilot interventions. The reader is offered an open and transparent view behind the scenes as the authors share the different phases of the development work, including challenges and unforeseen hindrances as well as the successes and results of their work. The sincere hope of the authors is that these experiences and insights will be helpful for other educators and organisations wishing to undertake similar developments.

Acknowledgements

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Part I

Institutional capacity building to increase inclusion, equity, and access

Introduction

Capacity building in partner HEIs was a specific objective of the BUKA project, focusing on areas such as the engagement of teaching, technical, and instructional design staff in inclusive learning design or the development of central institutional support teams who then support capacity building in academic colleagues. The need for associated capacity building as part of partner HEI efforts to increase equity and access was called out in the details of each partner project, for example Wawasan Open University (WOU), in Malaysia, highlighted a need for staff capacity

building in key competencies around design and facilitation of inclusive online learning programmes.

The pandemic impacted both on the type of capacity building support partner HEIs needed, as staff required immediate support in the pivot to fully online, emergency remote teaching, and how capacity building activities occurred, i.e. in the main they were delivered through online lecturers, symposia, and workshops. The capacity building events held as part of the project covered a range of useful topics, with the majority being categorised under three key headings: online learning design, inclusive learning design, and supporting staff to ‘move online’. Capacity-building events supported partner HEIs in successfully completing their projects and so became part of the underpinning structures facilitating equity, inclusion, and access in higher education.

The following subsections capture some of the key areas on which capacity building focused. Reflecting the nature of the events, there is both a discussion of key theory and examples of contextualised, institutional practice.



The main theme of the capacity building activity with the BUKA project was focused on learning design, with a number of events focusing on topics such as ‘learning design for authentic learning’ and ‘how to design an online course’. In this first subsection, some of the core knowledge and best practice on learning design that was shared between partner HEIs in capacity building lectures and workshops is presented.

Background

The concept of *instructional design (ID)* has roots in the fields of cognitive and behavioural psychology (e.g. Skinner, 1954) and later constructivism. However, it has only been used in education from the 21st century onwards with the advent of online learning and teaching, and the term *learning design (LD)* has often been preferred to ID in the context of education, as it shifts the perspective from teaching to learning. Even though the concept of LD has only been used actively for

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a couple of decades, the fundamental idea behind it has, of course, been around for as long as education has existed.

In online education, LD has a critical role, as it takes up a larger proportion of teachers' working hours compared to classroom-based education. The work online educators need to do shifts from running the classes to preparing the environments, designing for student interaction, and scaffolding the learning process. In addition to taking a great deal of time, LD directly affects the learning outcomes as well: if the learning environment is built clearly and logically so that it caters for different kinds of students and supports them in reaching the learning goals, then the achievement of learning outcomes will be facilitated. The opposite is also true, unfortunately. According to Means et al. (2009), if we compare how students learn online and in the classroom, their performance does not so much depend on the delivery method, but more on the course content, structure and online educator. Taking all this into account, it is fair to say that LD needs to be an integral part of capacity building for teachers, especially those teaching online.

Learning Design Models

There are a great number of LD models, and each of them focuses on slightly different aspects of teaching and learning practice. Consequently, attempts to choose an appropriate LD model may feel overwhelming. However, it is important to realise that many of the benefits of following an LD model can be reached regardless of the model – the important thing is to use one (or even several). Following an LD model when designing online learning facilitates perceiving the overall structure and logic of the programme and enables seeing how different topics, modules, activities, and assessments are connected more easily. It also helps with noticing gaps in an LD, i.e. what is still missing, as well as identifying superfluous design elements that should be left out of the design. Additionally, it is useful in ensuring the consistency and quality of different elements in the programme. A useful technique to support any LD process is *storyboarding* (for an example, see Colman, 2022), which essentially means visually representing the various elements in a module plan (e.g. topics, tasks, assessments, meetings, etc.).

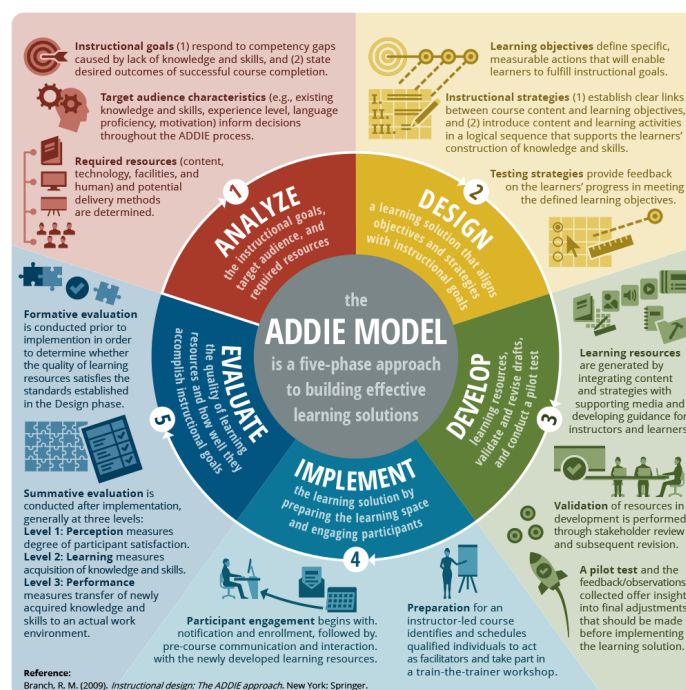
Next, a number of popular LD models are discussed briefly to offer some practical examples.

A good example of a popular LD model is ADDIE (Analysis, Design, Development, Implementation, and Evaluation), which provides a clear and well-thought-out process for setting up an online programme (Branch, 2009). It was originally created for the U.S. military in the 1970s, but later adopted to be used in education more widely. In the analysis phase, the programme or module creator needs to carefully analyse all the factors affecting the development of the programme, such as the goals of the organisation, the students' prior knowledge and skills, and potential barriers to using digital technologies. In the design phase, module objectives, topics, and evaluation are specified. The development phase focuses on the further development of the output of the design phase: producing the actual materials and content, and also testing out the module to an extent. The implementation phase is the phase where the module is launched for the first time with real students. Finally, the evaluation phase consists of obtaining feedback from the students and editing the module accordingly.

Figure 1

The ADDIE Learning Design Model, (Obsidian Learning, 2017, based on Branch, 2009)

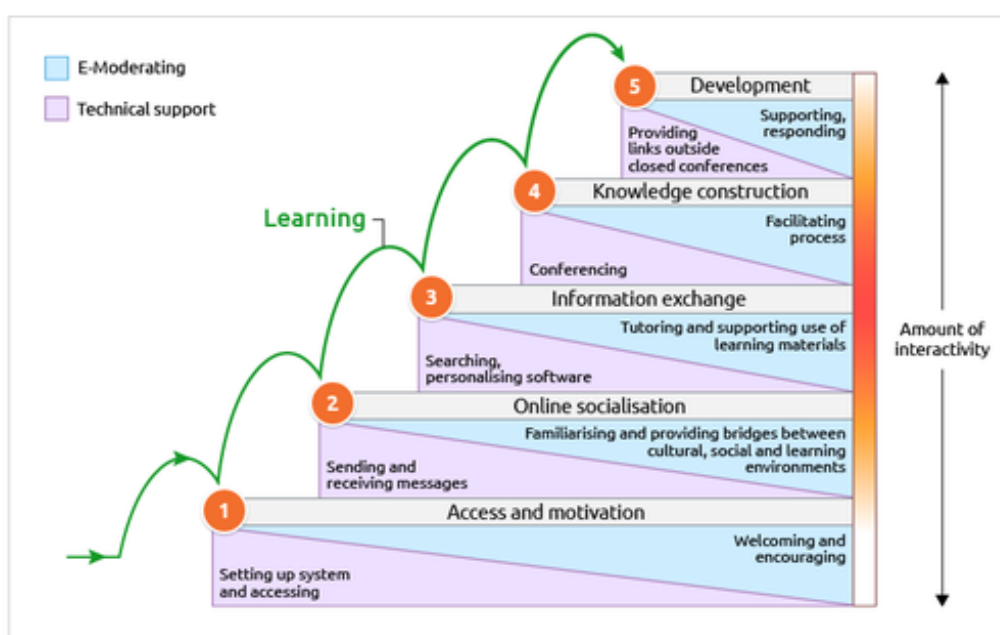
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Another, slightly different example of an LD model would be the five-stage model of teaching and learning (Salmon, 2011), a well-established and widely adopted evidence-based framework to scaffold online teaching and learning that has been found very useful by many educators around the world. In the five-stage model, the focus is on supporting the learner in the online environment by gradually guiding them through the various phases of learning, and the educator is acting both as an ‘e-moderator’ and a technical support. The key concept here is scaffolding, which refers to a variety of instructional techniques used to move the learner progressively toward greater understanding and independence in the learning process. Scaffolding as a concept is of course not a new one, and Lev Vygotsky's theory of Zone of Proximal Development (ZPD) (1978; 1986) is often considered to be a parallel concept. However, there is far too much design work that has failed to take these aspects into account, and the results are unfortunately often visible in the form of poor learning outcomes and low student success rates. Figure 2 illustrates the five-stage model (please note the dual role of the facilitator):

Figure 2

The five-stage model (Salmon, 2022) © Gilly Salmon CC-BY-NC-ND



Capacity Building Cases in Learning Design

Building staff capacity in LD can be accomplished in different ways, but it is often a sensible approach to familiarise oneself with some practical examples to assess whether they can be utilised in one's own context. Tampere University of Applied Sciences (TAMK), the coordinating institution in the BUKA project, has a long history in staff capacity building, and they have, for example, offered training and support for educators wishing to start teaching online for at least the past 20 years. In 2015, there was a strong need to develop a model at TAMK to better support the implementation of high quality online teaching practices, and to tackle that challenge the Digimentor Network was created. Later in 2019, the network was extended to also cover Tampere University (Junes, 2020), with which TAMK collaborates very closely. The Digimentors were selected from among educators already working with the Tampere Universities Community who were enthusiastic about digital and online teaching.

The Digimentors were selected so that there was at least one in each school or faculty, and their tasks included offering peer support in using digital tools (both one-on-one help and team workshops), encouraging and empowering educators to utilise digitalisation, and disseminating best practices within their unit. Because no one knows everything, the Digimentor Network also acted as a meta-level peer support network, with each member offering support to all the others according to their respective areas of expertise. It became clear very quickly that the network was a beneficial initiative, and it is still operational in both institutions. The network proved to be especially valuable at the outset of the COVID-19 pandemic, as the Tampere Universities Community had an efficient support network already in place, unlike many other organisations. The concept was successful for two reasons: firstly, the Digimentors were educators, not IT professionals, and therefore they had pedagogical understanding and could effectively help other educators; and secondly, they were trusted members of their work communities, which made it easier for their colleagues to ask them for help.

Another very practical LD capacity building example from TAMK is a staff training programme called How to Design an Online Course, which began as an

initiative for TAMK teachers in 2016 (Pihlajarinne, Haapakangas & Annala, 2017), and later extended to cover Tampere University staff members as well. At times, it was also offered as a paid-for course for external participants from around the world. The idea of the course is to capacitate educators to teach online through an online programme that will support them step by step in the process of designing their own online modules. At the same time, the programme offers the participants a hands-on example of what well-designed online learning is like. Everyone who joins the programme has their own design ideas that they will work on as the programme progresses. The programme has been run now altogether nine times, and it has naturally evolved a great deal over the years based on the feedback and experiences. Because of this evolution, the completion rate of the programme has, for instance, risen from 31% to 91%, and the feedback has been very positive. The main LD-related takeaways from running the programme are:

- **Authenticity:** A programme that focuses on designing online learning should be an online programme itself, because it puts the participants in the students' shoes and it gives a practical example of what good online learning could look like;
- **Beginning:** To facilitate student success, it is key to focus on the first few weeks by establishing an active facilitator presence and a sense of community through frequent interaction and collaboration;
- **Collaboration:** One of the fundamental concepts in successful online learning, but requires careful planning because of different skill sets, interests, and schedules;
- **Flexibility:** Educators are busy and it is hard to commit to a training course that has a lot of deadlines and requires hard work. Offering flexibility within the deadlines is therefore important;
- **Incentive:** Most educators have been eager to participate because they feel the course is useful to them, but some educators might benefit from a more top-down incentive (specifically allocated resources).

- **Relevance:** The programme should meet the pre-existing needs of the participants. It is a good idea to survey their needs before the programme starts.
- **Quality:** It is important to give the participants different angles to view their courses from through ample feedback and resources.

Conclusion

In conclusion, choosing and using LD in module creation might be time consuming for the instructor when planning a module. However, it will save them time later during the module as the students are able to progress more smoothly, and as a result, need to ask fewer questions while gaining better learning outcomes.

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As part of the early capacity building activity in the area of learning design (LD), the ABC Learning design (ABC LD) approach was identified by several partner HEIs as an approach that would be useful to them in their design work. Therefore, a number of events were arranged to examine and explore the ABC LD approach both generally and specifically how it had been adapted during the pandemic to aid academics and programme teams to pivot to emergency remote teaching. In order to provide insights into what has been shared with BUKA partners during the project, this subsection outlines the ABC LD approach and how it was utilised with programme teams in Dublin City University (DCU) as a form of rapid LD. The following includes the steps that were taken by the Teaching Enhancement Unit (TEU) team in DCU to adopt and adapt the ABC material to improve programme teams' confidence, and continued engagement with best LD practices.

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An Introduction To Learning Design

A learning design is a representation of what happens in a teaching and learning session to help learners achieve specified learning outcomes. It is often structured as a sequence of learning activities that can be shared with others. For online and blended learning, this approach is able to show, not only what is happening when the teacher is with the learners, but also what learners should be doing when the teacher is absent and they are being supported by technology.

(Laurillard et al., 2018, p.1046)

The aim of LD is to create a learning environment that is effective and allows students to engage in meaningful learning experiences. LD approaches have derived from the parent concept of instructional design (ID). While these approaches are similar, LD prioritises the learning experience whereas ID is mostly concerned with improving the curriculum content. One of the main distinctions is that ID predates the digital revolution while LD has developed in response to technological advances in education (Sims, 2006). There are many LD frameworks, models, and approaches and all can be used for any mode of teaching and learning, including online learning.

From Instructional Design to Learning Design: The ABC LD Approach

The ABC LD (Arena, Blended, Connected Learning Design) approach focuses specifically on the ‘analyse’ and ‘design’ elements of the ADDIE ID model. It is a curriculum development model suited to blended/online learning and builds on the six learning activity types (see Figure 3) proposed in Laurillard’s (2012) Conversational Framework of how students learn, which are as follows:

- Acquisition – Listening or reading (passive)
- Investigation – Research and discovery (active, purposeful, evaluation)
- Practice – Responding to a task (achieving a goal)
- Discussion – Listening and responding (group work)

- Collaboration – Produce a shared output (group work, challenge, peer feedback)
- Production – Create an artefact (presentation and receive feedback)

The [ABC LD website](#) provides further information on these activities.

Figure 3

The six learning activity types as proposed by Laurillard’s (2012) and explored in the ABC LD approach



As the ABC LD approach focuses primarily on the ‘analyse’ and ‘design’ elements of the ADDIE model, the aim of adopting this approach is to improve the design of blended/online modules and programmes. As described on the homepage of the ABC LD website:

ABC enables programme and module teams rapidly to develop a storyboard visualising the learner journey based on their activities through the course of study. The method is non-prescriptive and builds from the participants’ existing practice but can be used to identify opportunities for blended learning, to review assessment and feedback and align the programme to wider institutional priorities.

Utilising the ABC LD Approach with Programmes Teams in DCU

In recent years, the ABC LD approach has grown in popularity and is becoming a commonly used model for blended LD. As such, the TEU team in DCU have adopted this method as a means of overcoming some of the potential barriers to successful online learning design. The TEU were first introduced to the ABC framework in 2017 and in 2018 became partners in the ABC to VLE project. As a partner in this project, the project leads in the TEU team leads have run and evaluated multiple LD sessions at DCU, which has developed their expertise in the method while learning what works well in different circumstances. Describing the process of the ABC LD approach [in a blog post](#) (Gormley, 2019) for the National Institute of Digital Learning (NIDL), the project lead noted:

ABC offers a rapid-fire, hands-on workshop approach where in just 90 minutes academic teams work together to design or redesign modules and programmes. By the end of the process, teams have discussed, debated, and discovered a range of potential activities and technologies, communicated their overall vision of their course, and ultimately created a storyboard of an intended learning experience.

To implement these workshops, the TEU team created a 3-step process.

- **Step 1** included creating a pre-ABC process and associated resources. This involved using expertise in curriculum design and assessment to design and develop resources and workshops to help participants think through programme and module level learning outcomes in advance of an ABC Workshop. This stage was intended to identify and reflect on the unique selling point(s) of their module or programme and the learning outcomes. Additionally, an interactive online pre-ABC activity was developed with a similar workshop preparation goal, following the COVID-19 pandemic lockdowns. This resource can now be offered as a self-directed alternative to the in-person pre-ABC workshops.

- **Step 2** was the creation of the DCU-tailored version of the classic ABC materials and the delivery of the workshops with the programme teams. The most significant changes to the original materials were:
 - the adaptation of the six Learning Type Activity cards to include DCU-oriented VLE and tools, creating [DCU Localised Learning Types Cards](#). To enhance this, reference to the '[ABC to VLE+](#) App Wheel' was added to introduce the DCU-oriented tools available for each learning type activity and their functionality, and to provide a resource for later practice.
 - the addition of Universal Design for Learning (UDL) prompts. These prompts were added to the cards to raise awareness of UDL and inclusive learning practices potentially relevant to each learning type. The prompts were drawn from the [CAST UDL guidelines](#), as well as from the related literature and discussions with academics with experience in UDL practices.

In the workshops themselves, each team created a storyboard of the intended student learning experience. The process raised ideas about potential new pedagogical and technological approaches while also highlighting the related challenges/debates. While these workshops have been undertaken by many different teams, short summaries and reflections of the workshops were recorded in two case studies. [Case Study 1](#) focused on a team approach to designing a Sport Science-related course while [Case Study 2](#) focused on the experience of the #OpenTeach team in designing a course on online teaching. Details of results and specific impacts on teaching and learning are described in more depth in the hyperlinks included.

The ABC LD workshops facilitated by the TEU team received positive feedback in terms of their effectiveness and impact. Due to the success of these workshops, ABC has now become an integral component of the standard design framework in use at DCU for the design of new programmes and for those changing to an online or more blended format.

- **Step 3** was the creation of post-ABC workshop resources in the form of the DCU 'ABC to VLE+ App Wheel'. This interactive resource provides video- and text-based guidance on specific tools offered within DCU's VLE and beyond. The aim of the App Wheel was to showcase the tools available to staff and ensure that the ABC LD approach is a continued practice in the development of learning activities. The resource provides support and guidance through the easy-to-navigate videos and short text and is an open tool that is customisable by institutions outside of DCU.

The majority of academics who attended the ABC LD workshops had little prior engagement with the TEU and as a result were not aware of the various digital tools and resources available to them. During the workshops, staff also expressed areas of technical challenge. The App Wheel was therefore created to address these barriers. Given that the workshop participant profile is typical of a research-intensive university, it is assumed that other institutions would be interested in developing a similar post-ABC resource. To ensure others can use and build on the supports developed by the TEU team in DCU, a [package of resources and tools](#) has been created to allow others to customise the App Wheel to best suit the needs and available tools of other institutions.

Conclusion

The TEU team in DCU demonstrated how the ABC LD approach can be utilised in both in-person and online contexts. The case studies and positive feedback received highlight the success of the approach, and how this approach is both easy to use and powerful in its potential to facilitate high quality LD. Through the TEU team and colleagues from the wider university, expertise and experience was leveraged to build capacity in partner teams using a three-step process, which included the delivery of the rapid LD ABC workshops along with the provision of both pre- and post-ABC support and resources. Importantly, a further use of the ABC LD approach by the TEU team was the presentation of the information of this approach to a LD support unit. This in turn aided colleagues in their effort to create

the Digital Learning Design Unit (DLDU), the work of which will be discussed in the fourth subsection of this part of the handbook.

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Additional Resources

1. A summary and evaluation of the ABC LD approach by Clive Young and Nataša Perović, the ABC LD creators: [ABC LD - A new toolkit for rapid learning design](#)
2. ABC LD resources for online modules and programmes (developed in response to the Covid-19 pandemic): [Online ABC LD \(ABC LD website\)](#) and [Online ABC \(UCL website\)](#)
3. A learning designer tool to help visualise how the 6 learning activity types are implemented into current teaching content: [Learning Designer \(UCL website\)](#)



With the overall project focus on equity, inclusion, and access reflected in the aims of the Partner HEIs' projects, it was not enough to simply focus on LD more broadly, as an identified area of focus was how individuals and teams can engage in this work such that accessibility and inclusion is maximised. This subsection presents the core knowledge and best practice, focusing specifically on making the LD process as accessible and inclusive as possible, that was shared between partner HEIs in capacity building lectures and workshops.

What is Inclusive Learning Design?

Inclusive LD can mean many things, depending on the context. Some of the definitions are very wide, while others have a very limited focus. In some cases, inclusive LD only refers to the technical aspect of LD: is the course accessible by, for example, using screen readers? In other cases, the term also refers to the pedagogy used in the LD: is the course accessible for different types of learners? (University of Worcester, 2018).

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In the context of this article, inclusive LD primarily means two things: Pedagogical approaches that take into account different learners (socioeconomics, cultural considerations, disabilities etc.) and activity aiming at increasing participation in education. It applies the definitions by Hockings (2010, p. 1):

Inclusive learning and teaching in higher education refers to the ways in which pedagogy, curricula and assessment are designed to engage students in learning that is meaningful, relevant, and accessible to all

and Thomas & May (2010, p. 5):

Our inclusive approach does not focus on specific target groups or dimensions of diversity, but rather strives towards proactively making higher education accessible, relevant and engaging to all students.

As can be seen from the dates of the quotations above, inclusive LD is not a new aspect in education, but it has increased its importance in online learning, especially in the past few years as the number of online students grew significantly due to the COVID-19 pandemic. More students are studying online, their needs are more diverse than ever, and educators must take them into account when designing their online learning experiences.

Inclusive Pedagogy

Inclusive pedagogy has its roots in special education (e.g. Snyder 1999), but it benefits all students and often also the educators. One of the key aspects of inclusive pedagogy is an inclusive learning environment. This is also supported by Sousa and Tomlison (2011), who point out that the learning environment must invite learning. It must be safe, challenging, and supportive. It should be very clear to the students what constitutes essential knowledge, understanding, and skills in a content area, unit, and lesson. Some practical ways of inclusive learning environment include:

- Flexible course pace to accommodate students with diverse needs;
- Syllabus displayed and easy to understand;
- Ways for students to ask questions and give feedback, not only after the course but during it;
- Varied content (i.e., video, readings, photos, discussions, etc.);
- Accessible resources (i.e., alternatives for low bandwidth, mobile friendly, etc.);
- Considering alternative assessment methods.

(Teräs & Annala, 2021)

Inclusivity must also be considered when it comes to assessments. One method of assessing students' skills and knowledge might not suit everyone. Luckily, there are methods an educator can use to make their assessments more inclusive, such as:

- **Various ways to complete the assessment:** not all assignments need to be submitted as essays. Students can display their competences by giving a presentation, doing a video, creating a mind-map, writing a poster, etc. The options, naturally, depend quite largely on the topic being taught as well as the resources and time the educator has at their disposal;
- **Co-creation:** Creative and collaborative problem solving, which fosters a sense of community and promotes safety and support;
- **Autonomy:** Students can have an impact on determining the objective of the assessment. Instead of giving them educator-created objectives, the students can outline their own learning goals and tasks, within the limits of the programme/module learning goals and syllabus;
- **Inclusive scaffolding:** Provide a clear assessment brief, allow for time to discuss the task and develop ideas in class or online, and encourage peer group discussion and feedback (Magne, 2020).

Assessment and Feedback

Inclusive assessment is more than evaluating student performance at the end of a course. It is ongoing, allowing both students and educators to understand how learning is proceeding, and it facilitates student learning (Teräs & Annala, 2021). Inclusive assessment happens frequently and early and builds towards later assessment. The first assessments should be low-stakes and not have a great impact on the final grade. The methods used should be varied, and they should always be made transparent to the students, for example through the use of rubrics. Students must always know what the assessment criteria are and what is expected at different levels. If possible, alternative methods for assessment should be provided, for example, by offering students the opportunity to be assessed through group work, audio instead of writing, writing instead of presentation, etc.

Multiple means may also be used for providing feedback, in order to benefit students. Not all feedback has to be written as audio- and video-based feedback can also be used. While individual feedback is important, sometimes generalised feedback given to the whole group is also possible. When providing feedback, it is important to not only focus on those aspects of the student's work that need development, but also on those aspects of the work that are already good quality. Any feedback given should be detailed and constructive, as the student needs to know why something needs improvement or why something is already on a satisfactory level, and not just be on the receiving end of negative comments and/or praise.

Universal Design for Instruction (UDI)

One set of principles that can be used when planning inclusive education are those principles from the Universal Design for Instruction (UDI) (AHEAD, 2021). While it is not a learning design model as such, it offers good guidelines and a quick way of ensuring the maximum number of learners possible are reached in education. As the name implies, these nine principles can be used quite universally (see Table 1).

Table 1*Nine Principles of UDI (AHEAD, 2021)*

UDI Principle	Description
Equitable use	Accessing course information, such as syllabi, in a variety of formats, including print, disk, and online.
Flexibility in use	Varying instructional methods, including lecture, discussion, and individual and group activities
Simple and intuitive	Clearly describing course expectations for grading, in different formats, for example narrative and rubrics.
Perceptible information	Using videos that include subtitles, or captioning, for those who may not hear, for whom English is not a first language, or for those who have trouble processing verbal information.
Tolerance for error	Providing ongoing and continual feedback on coursework rather than at specified interim periods, such as midterm or final exams
Low physical effort	Providing lecture notes, so students who have difficulty taking notes do not need to take notes.
Size and space for approach and use	Making seating easily accessible, if possible, so everyone can see each other and communicate with one another directly. Circular seating may address this principle
Community of learners	Creating a variety of learning settings, for example, use of email groups, social networking sites, or chat rooms.
Instructional climate	Including a statement in the syllabus indicating the desire to meet the instructional needs of all students and for students to convey their needs to the instructor

Universal Design for Learning (UDL)

A further set of principles that can be used in inclusive learning design and teaching practice are the Universal Design for Learning (UDL) principles (AHEAD, 2023). UDL is a framework that guides the design of instructional materials and, similar to the UDI principles, is based on the idea that there is no such thing as an ‘average’ student. The three UDL principles encourage:

1. **Multiple Means of Engagement**, to sustain interest and motivation. This principle is about being very clear in communication to students, providing

various opportunities for collaboration, and offering a variety of tools and activities with which students can engage.

2. **Multiple Means of Representation**, or alternatives in how students access information. This can be achieved by offering content in a variety of accessible formats, providing documents in advance of synchronous teaching, using captions and alt texts for images, using multiple media to illustrate key concepts and breaking content into chunks.
3. **Multiple Means of Action/Expression**, by supporting multiple media for communication, and alternatives for completing work and submitting assessments.

It can be seen how these three principles of UDL map onto the nine principles of UDI, and both should be considered together to create an accessible and inclusive learning environment for all learners.

The accessibility and inclusion project (Brunton et al., 2022), which was conducted in DCU, is an example of how these principles were implemented in an online higher education psychology programme. The accessibility and inclusion project was prompted by the evaluation data from students on the programme with specific conditions, impairments, or difficulties, which called for the improvement of accessible practices in the online programme. Following the universal design principles, the project sought to improve four main areas of the programme using an action research design with stakeholders included as co-designers of online learning; where research was done with, rather than on, those in minority groups. The write up of this project and its preliminary findings can be found in its 'lessons learned' guide (Brunton et al., 2022), which also provides a discussion on inclusive learning design guidelines for learning designers and educators of online/blended modules of programmes.

Conclusion

One of the main points of discussion in this subsection is that while inclusive learning design may seem like a daunting task at first, it does not overly burden the educator. Instead, making the materials and course design inclusive may even

lighten the workload, since the students will, most likely, be progressing more efficiently and have fewer questions about the course content, structure, and learning materials. The goal of inclusive learning design is to create a learning environment where education is accessible to all learners, and where the diverse needs of learners are recognised. By doing so, inclusive learning design ensures that educators provide everyone with the opportunity for meaningful engagement in the learning environment.

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Supporting Digital Learning Design at an Institutional Level

James Brunton and
Chloé Beatty⁴

The focus of some BUKA partner HEIs often extended to establishing or improving systems and structures for building staff capacity, and so a number of the capacity building events focused on that broader topic of how to support staff to engage in digital/online learning design. This final subsection, within the first part of the handbook, discusses the support provided to staff moving their teaching practices online by the Digital Learning Design Unit (DLDU) in DCU, which was one example provided to partner HEIs in a capacity building event. The creation and work of the DLDU was initially spurred by the declaration of the COVID-19 pandemic, but can be taken as an example of a proactive rather than reactive approach to the pivot to online teaching and learning.

Online Teaching In The Context Of The COVID-19 Pandemic

The COVID-19 pandemic resulted in a global migration to online learning that impacted 1.5 billion students worldwide (Bozkurt et al., 2020). However, this also

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had an impact on educators as most moved their practices online despite having little to no experience with online teaching pedagogy (Farrell et al., 2021). As effective online teaching pedagogically differs from traditional teaching, it is necessary to provide professional development and learning design support to online educators (Ní Shé et al., 2019). This, in turn, can support online student engagement and success (Coker, 2018), and highlights the necessity of a university-level support unit to aid educators with digital learning design approaches.

This resulted in the creation of the Digital Learning Design Unit (DLDU) in DCU, which was particularly necessary as learning designers became the ‘first responders’ to ‘emergency remote teaching’ resulting from the rapid move to online teaching during the pandemic (Farrell, 2022).

Supporting Staff through the Pandemic: The Benefits of a Digital Learning Design Unit

The role of the DLDU was to provide this digital learning design support to DCU academics by providing technical skills and knowledge through consultations and workshop sessions. These supports aimed to improve the design, development, and delivery of online or blended modules. By focusing on learning design rather than instructional design, a student-first approach is taken where focus is placed on a positive learning experience rather than being curriculum-focused. The methodology of these supports is informed by:

- **The DCU Hybrid Learning Policy**, which focuses on ensuring that some core principles across modules and programmes, for example: having the VLE as a one-stop-shop for assessments, learning content, and learning activity; clear and consistent design of VLE courses; self-directed engagement; clear communication; accessibility; collaboration and community;
- **The ABC LD approach**, which has been described in a subsection above. This approach was taken to help staff identify opportunities for online/blended learning, and to reflect on their module/programme design and delivery

through the use of storyboarding and the development of learner personas in the workshop sessions;

- **UDL principles for inclusive learning**, which has also been described in a subsection above. These principles guided the inclusive and accessible design of both module content and content delivery to provide equity of access to learning for a diverse student body.

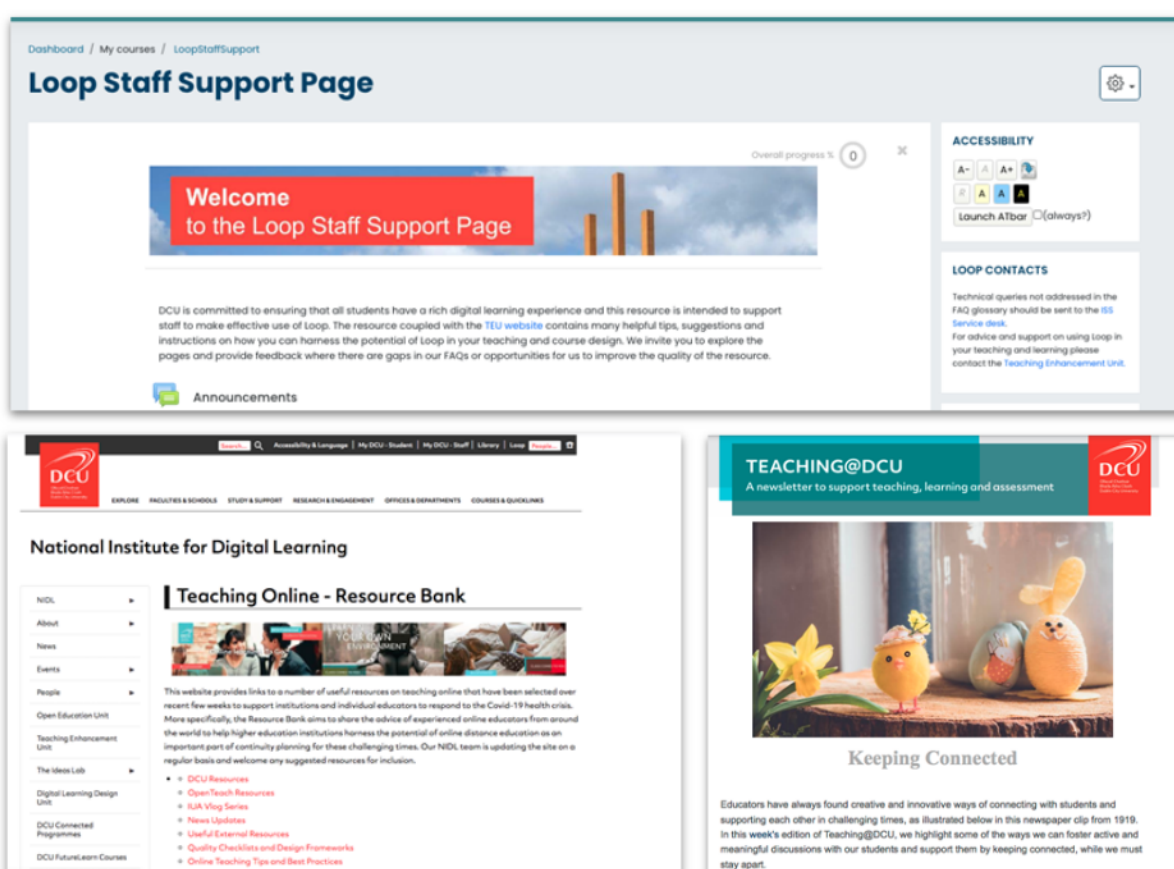
At the onset of the pandemic, an essential aspect of the DLDU's approach was the development of the DCU hybrid learning principles, which provided a simple framework to design and develop appropriate online/blended learning spaces and experiences. The summer of 2020 was then a time for reflection and planning, so that the work and support provided by the DLDU could pivot from reactive emergency response to proactive future planning. Consultations and workshop sessions could then be provided to academic staff for continued professional development purposes.

The aim of the workshop sessions was staff training and capacity building in online/blended teaching, with a focus on providing a theoretical background for learning design, and engaging staff in developing a learner persona(s) for their module/programme. Personas are fictional characters that embrace the needs and goals of a real user or group of students. They help generate an understanding of students and what their key attributes are that learning designers need to know for their designs.

Two day programme design sprints were offered by the DLDU. These sprints included: eight hours of tailored professional development for programme/module team; programme learning design plan; rapid enhancement of nominated modules by the DLDU team (where the team implemented 20 quick enhancements in line with the DCU hybrid learning policy); and up to six hours of additional support after the sprint. The sprint began with one to one design consultation to discuss learning design and aid the DLDU in co-creation of content and activities, along with tailored professional development to aid future learning design in the programme/module.

One of the many positive impacts and outputs from the DLDU workshops and consultations were new DCU-oriented teaching resources that were created. These included a staff support site on the VLE platform, a teaching online resource bank, weekly newsletters, and ongoing provision of professional learning communities (see Figure 4). These resources serve as important teaching conversation spaces for staff to share practices.

Figure 4
Screenshots of new DCU teaching resources



Conclusion

The DLCU in DCU is an example of how supporting digital learning design at an institutional level can benefit not only the professional development of staff but the levels of student engagement and success in online modules or programmes. Using a two pronged approach, the DLDU aided staff training and capacity building in online/blended learning through workshop sessions and consultations as part of

the 2-day programme design sprints. The lessons learned from this initiative shows that learning online is different and that institutional level support, and support structures, for educators who wish to move their teaching practices online is necessary. The implementation of such in both DCU has been shown to be beneficial for both academic staff and online/blended students.

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Additional Resources

1. A teaching online resource bank (as seen in Figure 4), created by the DLDU in DCU, which contains resources from the #OpenTeach project and useful external resources such as design checklists, frameworks, plan guides, best practice and teaching tips, and information on how to support online students: [Teaching Online - Resource Bank \(NIDL website\)](#)
2. This [blog post](#) on the Association for Learning Technology website provides further details the design approach of, and the challenges encountered during, the DLDU’s two day programme sprints.

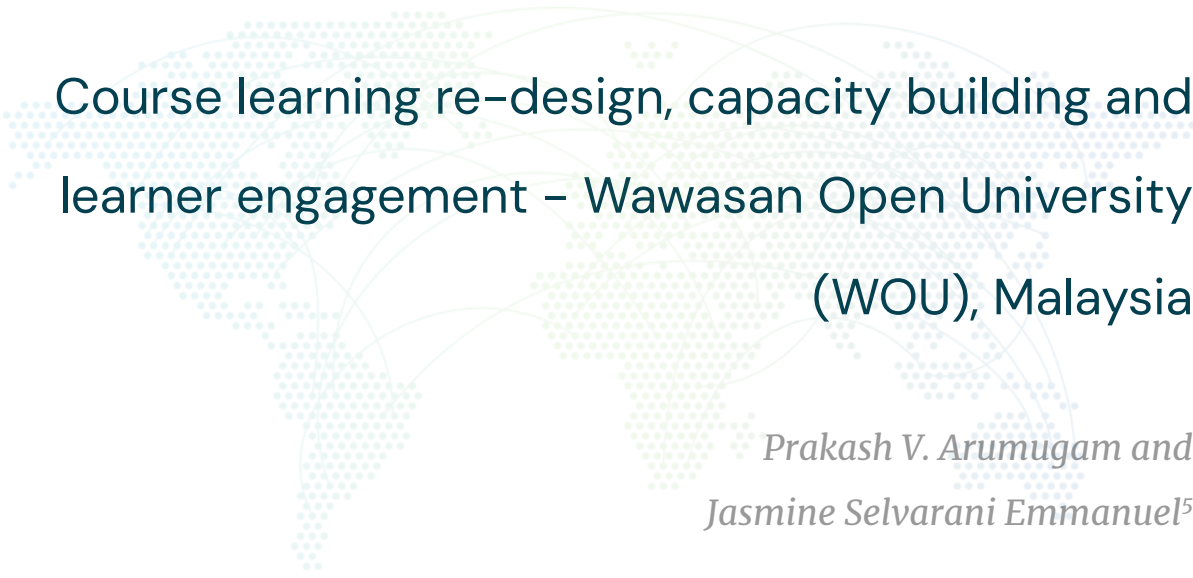
3. An quality standards rubric for online learning design that is designed to guide the design and evaluation of online modules or programmes: [Quality Matters' Standards Rubric](#)
4. This [YouTube video](#) provides an accessible summary of the role of developing learner personas in understanding target learners/students.

Part II

BUKA Partner Project Case Studies

Introduction

The BUKA project involved six institutions in Malaysia, The Philippines, and Indonesia carrying out their own, diverse institutional projects with the common goal of improving inclusion, equity, and access in higher education through the use of Open and Distance Learning (ODL). The following subsections present six case studies, presented by authors from the six project partners that engaged in this important work.



Course learning re-design, capacity building and learner engagement – Wawasan Open University (WOU), Malaysia

*Prakash V. Arumugam and
Jasmine Selvarani Emmanuel⁵*

Introduction

In late 2019, the world was introduced to the COVID-19 Coronavirus, causing a pandemic that reached its peak in early to mid-2020. In efforts to avoid the virus spreading from person to person, institutions of higher learning across the globe scrambled to move from traditional classroom teaching to an online learning environment. Most, if not all, conventional institutions were ill-prepared to manage an online learning setting, having done things the ‘normal’ way up to that point in time.

Though Wawasan Open University (WOU) was better prepared than most, being an ODL institution, there were areas that could have been improved. WOU utilises a hybrid learning environment where there are synchronous physical classes and online classes supported by an asynchronous learning system. The pandemic pushed the university to revisit this model and opt for a purely online learning ecosystem.

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To facilitate the transition, WOU needed to re-examine its methods of developing and delivering online learning materials. During the pre-pandemic years, learners had the option of physically meeting their instructors to get feedback regarding their assessments. This could not be done during the pandemic and when the institution shifted to full online delivery. Hence, there was a need to relook at the assessment feedback model.

Methodology

Here, the approach taken to move to a purely online learning ecosystem in WOU will be described with regard to: staff capacity building, module design/learning material development, and the pilot of a multimodal approach to providing assessment feedback to students.

Capacity Building

WOU implements the ADDIE framework in all its online learning material development and related staff capacity-building activities. ADDIE stands for analyse, design, develop, implement and evaluate. As such, we conducted a needs analysis on what the academics knew and what they wanted to learn. At the beginning of WOU's BUKA project, we had 61 full-time academic staff and approximately 450 part-time tutors. This has since dwindled to 54 and 270 respectively. The results of the needs analysis and the capacity-building activities put in place thereafter are described in the findings section below.

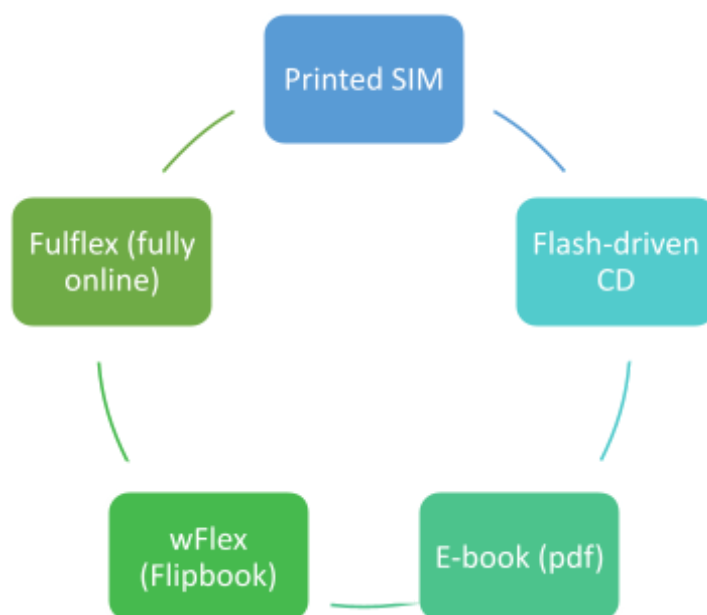
Module design/learning material development

WOU's learning materials have always been very wordy since this model of content development first began in 2006. We began with printed learning materials before moving to a softcopy PDF version of the same materials. Figure 5 below shows the evolution of the learning material development process in WOU since 2006. Starting with the traditional, text-based, printed, self-instructional material (SIM) first implemented in 2007. This earliest SIM had content that stretched over 400 pages making it a daunting task for students to read. In 2009, the University

decided to move to convert the printed material into a flash-driven SIM burnt onto compact discs (CDs). The flash-driven CDs proved to be rather costly.

Figure 5

Module Development Evolution in WOU



A year later, WOU removed the flash component, converted the SIM into portable document format (PDF), and posted them in the MOODLE-based learning management system (LMS). The PDF format approach worked well for about nine years, at which time we decided it was time for a review. As part of this review, we experimented with flipbooks, which give students a feel of reading ‘traditional books’ in a digital format. This experiment lasted about two years and in 2022, WOU moved to a fully online format whereby multimedia content is placed directly onto the LMS and students can access learning materials on all kinds of devices; desktops, laptops, tablets, and mobile phones. To fully utilise this model, we also migrated our LMS from MOODLE to D2L Brightspace.

When WOU opened its doors to the first intake of students in 2007, it followed a blended learning model where students were allocated ten hours of tutorials per module: five tutorial sessions of two hours each. To facilitate the five sessions, the self-instructional materials in each module was divided into five

units. Each unit then aligned with a tutorial session. To put the scale of the learning materials into perspective, a typical textbook may have about twenty chapters. If one were to divide those twenty chapters into four-chapter groups, one would get five groups. These groups are known as units in WOU. Therefore, each unit in a WOU module is substantial and would typically have about two to four subunits.

Multimodal Assessment Feedback Pilot

Student Feedback is important, and it should always be given in a kind and constructive manner. Being mean or harsh can damage relationships and hinder the academic growth of students. Feedback is considered to be a main source of learning and a key aspect of teaching (Poulos & Mahony, 2008; Rowe & Wood, 2008). Studies show that there is a positive correlation between educator feedback and student performance (Bijami et al., 2016). It helps students to evaluate their own learning process and identify gaps relating to their learning (Cavalcanti et al., 2020), which results in better student achievement.

As it is common to provide written feedback on assessments, we decided to experiment with something less common, multimodal feedback. Especially in the context of ODL, providing good quality feedback becomes a challenge for educators (Cavalcanti et al., 2020), because the weaknesses of the more traditional format of written feedback seem to become more explicit and feedback in its ideal, as a continuing two-way communication (Dowden et al., 2013) is more likely to fail. Respectively, educators feel disappointed and angry (Yu et al., 2021), since giving feedback is often perceived as a demanding activity that is “difficult, tense, and time-consuming” (Mahfoodh, 2017, p. 53). Based on these remarks, feedback proves to be an area for continued focus.

Multimodal feedback is feedback provided in different modalities: text, audio, video, etc. For the purpose of this experiment, we asked tutors to provide written feedback on student assessments and run the text through the open-source speech synthesis system, FreeTTS. An MP3 file is generated, which is then uploaded together with the graded assignments. Students then receive both written and audio feedback on their assignments through the generation and upload of an MP3 file using FreeTTS. As many of our students access content on

their mobile phones, audio feedback will help quickly disseminate areas of improvement to the learners before they read the written comments.

Challenges

As cliché as it may sound, the main culprit impacting on the timely progression of the project was the COVID-19 pandemic. With the lockdown imposed by the Malaysian government on 18 March 2020, which took almost a year to lift, face-to-face engagement meetings with staff could not be held. This prevented higher-level, hands-on discussion from taking place, which was essential to the success of this project.

The second, devastating challenge was the loss of key members of the project team. Ultimately, the project lead was the only remaining member from the original WOU BUKA project team. During the life of the project, new members were added who also then left the institutions at various points, creating voids that need to be filled. The team also suffered from a lack of administrative support as staff who have left posts in recent years have not been replaced.

The disruptive influence of the pandemic and the staff retention/hiring issues also prevented equipment purchasing on required timelines, pushing the team to be more creative in actioning the desired initiatives around learning material development and provision of assessment feedback. The staffing issues reported here speaks to the importance of appropriate staffing, and stability in/resourcing of project teams, to the efficient and successful completion of project work.

Findings

Here, the findings relating to the needs analysis carried out, and related capacity-building activities, are presented.

Capacity Building

As explained in the methodology above, a survey was conducted to gauge academic staff needs in terms of the skill sets necessary for their growth as academics of the

future. The survey required respondents to assess the importance of the different areas of training on a scale of one to five; one being not important and five being the most important. A separate interview was conducted on areas that received low ratings.

Based on the survey conducted, the following results (see Table 2) were obtained:

Table 2

Survey Results of Academics

Areas	Mean
Capacity building activities on ODL	4.18
Video production	3.87
Online facilitation	4.02
E-lecturing	4.10
Assessment design	4.17

Capacity-building activities in the survey were defined as any training that provides a basic understanding of ODL to academics. Most of the academics in WOU come from conventional institutions of higher learning, and as such may lack practical knowledge in ODL. Capacity-building activities received the highest mean score of 4.18 in terms of their importance to academics. Video production received the lowest score of 3.87 as academics deemed it to be additional work to come.

Based on the results above, several capacity-building exercises were conducted as listed below in Table 3.

Table 3

Capacity Building Training and Attendance

No.	Activities	Attendance
1	Using the COI framework in ODL	55
2	Managing Online Classes using MsTeams	55

3	ODL in the 21st Century	36
4	Supporting and Engaging Students during Online/Synchronous Tutorials: Motivational Design Process Model	38
5	Online Forum Discussions for Post-Graduate Courses	32
6	Formulating Rubrics for ODL Assignments	36
7	Authentic Tasks in ODL Assignments	43
8	FlexLearn Clinic for Course Leads	58

All the training listed in Table 3 align well with the objectives of the WOU BUKA project as well as the main objectives of the BUKA project itself, with respect to academic staff capacity building.

Module Design/Learning Material Development

As described in the methodology above, WOU self-instructional materials contain five substantial units that are spread over the duration of the module and have five related tutorial sessions. In 2020, WOU transitioned from a twenty-week term to the current fourteen-week term system. Keeping with the decrease in the number of weeks in a term, the number of tutorial sessions was also reduced to three.

Fewer tutorial sessions within a shorter term led to issues concerning students' ability to manage the cognitive load for a specific term. To overcome that, WOU created a study schedule for all courses that divides the learning materials into ten weeks. This structured learning guide was expected to manage the anxiety that may come with the shorter-term system. The SIMs still followed a five-unit approach delivered in a three-tutorial session format, supported by a course schedule organised around a ten week period. This eventually resulted in confusion among the students and the experiment that was conducted here aimed to reduce the confusion.

As an experiment, one course (Economics for Business) was developed, following a ten-unit approach supported by a ten-week course schedule delivered within a three-tutorial session format. As the units and the course schedule matched, it was easier to communicate with students about the structure of the module. The units were bite-sized which made them more manageable. Keeping in

mind the cognitive load theory proposed by Sweller (1988), who argued that instructional design (ID) can be used to reduce cognitive load in learners, several chunks of text-based content were converted into videos.

Approximately ten videos were created to allow students to experience both text and video-based learning content. Each video was kept between three to five minutes in length to avoid any additional learning load on the learners. All the videos were created using artificial intelligence-assisted technology. Different platforms were used to create the video content, for example Canva, Synthesia, and InVideoAI. We also experimented with having learners access the revised structure and videos using desktops, laptops, and tablets.

Multimodal Assessment Feedback Pilot

A survey was conducted to gauge student perception of the multimodal feedback. The audio feedback was evaluated in absolute terms, that is, whether it was associated with the attributes: informative, timesaving, personal, and instructive on a five-point answer scale (“1” = do not agree, “5” = agree a lot) (see Table 4).

Table 4

Absolute Assessment of Audio Feedback

Feedback	Mean
Informative	4.18
Timesaving	4.03
Personal	4.32
Instructive	4.00

Based on Table 4, above, the respondents generally agreed that the audio feedback is informative, saves time, personal, and instructive. The evaluation also contained a more relative assessment, where audio feedback was compared to text-based feedback (“1” = text is better, “5” = audio feedback is better). The dimensions used here were: intelligibility, richness in information, individualisation, and overall perceived quality of the feedback (see Table 5).

Table 5

Relative assessment of audio feedback

Feedback	Mean
Richness in information	3.54
Overall perceived quality	3.87
Intelligibility	4.00
Individualisation	4.22

It was found that richness in information received a mean of 3.54, which puts it very close to the borderline between comparing text to audio-based feedback. Overall perceived quality of the feedback is also not very encouraging. Though 'richness' and 'quality' were perceived to be low, they can be revisited and potentially tackled differently through further capacity-building exercises.

Sustainability & transferability

In terms of the sustainability of the WOU project work that was conducted during the BUKA project, some of the initiatives have continued being run for at least two further terms and are still running. The revised course structure has been implemented in three terms with further, iterative improvements after every term. It will take some time to convince more academic colleagues within the University to follow suit but this is just a matter of time. Once the BUKA project ends, and the results are reported, it is hoped that academic colleagues will see the benefit of the revised structure.

With regard to the infusion of videos as part of the learning materials, this practice is enjoying wider implementation, with different colleagues experimenting with different ways of producing video content. It is also hoped that the experiment with multimodal feedback will result in more widespread uptake as there has been some interest among colleagues in the University. The University is also planning for the creation of a recording studio, which will help in content

creation as well as being a facility to perform not just audio feedback but also video feedback moving forward.

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Empowering educators through the authentic experience of creating open educational resources - Open University Malaysia (OUM), Malaysia

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Introduction

As one of the BUKA project partners, Open University Malaysia (OUM) has taken on a crucial role in developing the capacity of its full-time academic staff to enhance teaching and learning through inclusive instructional design (ID) and learning analytics (LA). At the heart of the project is the use of inclusive ID and LA in online and blended learning, specifically within the context of Open and Distance Learning (ODL).

The BUKA team at OUM is made up of six researchers and two administrators who work collaboratively with other departments, such as Digital Services and the Centre for Instructional Design Technology. The primary objective of the pilot program is to enable academics at OUM, including full-time and part-time staff, to create Open Educational Resources (OER) for their courses.

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OUM, like any other ODL university, is designed to provide access to education for individuals, irrespective of their geographical location, pace, or time constraints. OUM offers learning materials and resources online, allowing students to study at their own pace and from any location with internet access. OER plays a critical role in ODL, allowing students to access quality educational resources without any financial barriers, thereby promoting equity and access to education.

One of the main benefits of the BUKA project at OUM is that it provides academics with the necessary tools and knowledge to develop OER, leading to a more inclusive and diverse range of resources for students. The project also fosters a culture of knowledge-sharing and collaboration. With OER, educators are not only able to share their knowledge and expertise with their students but also with other educators, thereby contributing to the overall improvement of teaching and learning in ODL institutions.

Moreover, the development of OER also offers an opportunity for educators to innovate in their teaching and learning practices. With OER, educators can create new teaching resources that cater to the learning needs of their students, resulting in a more personalised and engaging learning experience. Additionally, OER can also be adapted and reused by other educators, leading to the continuous improvement of teaching and learning in ODL institutions.

The focus of the OUM BUKA pilot project on inclusive ID and LA in ODL is essential in creating high-quality teaching and learning materials that can be easily adapted to the learning needs of different students. The development of OER plays a crucial role in promoting equity and access to education, as it allows students to access quality educational resources without any financial barriers. With the BUKA project, educators at ODL institutions are equipped with the necessary tools and strategies to develop OER, leading to a more inclusive and diverse range of resources for students by improving their learning experiences.

Methodology

The OUM pilot capacity-building programme applied a case study approach and the target population was the full-time academic staff within the institution. The

pilot was divided into three phases. The first phase began with the development of six learning materials. The last phase was a summative assessment which required academic staff to develop an OER using Canva. In the second phase, the materials were tested by sharing them with focus group participants, with each focus group representing a specific field of study. The focus group sessions utilised a flipped-classroom approach, in which the educators read the materials before the session. Focus group participants were first asked to reflect and share their experiences relating to the content via a guided discussion, before working together on the designed activity. The first focus group attended seven sessions. These sessions were subsequently reduced until the process ultimately shifted to a workshop mode with one pre-workshop session during the third phase. Table 6, below, shows the stages involved in focus group activities.

Table 6

Stages Involved in Focus Group Activities

Stage	Focus Group Activity
Stage 1	Formation of the focus group
Stage 2	Sharing of the module
Stage 3	Online question and answer
Stage 4	Focus group sessions: Discussion and Activity
Stage 5	Development of learning object
Stage 6	Delivery and learning analytics
Stage 7	Analysis and case study

In the second phase, nine focus groups were formed among the full-time academic staff from four faculties: Faculty of Technology and Applied Science (FTAS), Faculty of Education (FOE), Faculty of Social Sciences and Humanity (FSSH), and Faculty of Business Management (FBM). Each faculty was further narrowed down and segregated into sub-fields such as Health Science, Information Technology, Early Childhood Education, Education, Islamic Studies, Psychology/Counselling, Finance/Accountancy, and Business/Marketing. In the third phase, a new group (Group 10) attended a pre-workshop, and a self-study

session before attending the workshop. Table 7 summarises the focus groups and participants who were involved during the second and third phases.

Table 7

Summary of Focus Group and Participants

Group	Focus Group	Faculty	Field	No. of Participants
Completed				
1	Focus Group 1	FTAS	Various	5 participants
On-going				
1	Focus Group 2	FTAS	Health Science	4 participants
2	Focus Group 3	FTAS	Information Technology	4 participants
3	Focus Group 4	FOE	Early Childhood Education	4 participants
4	Focus Group 5	FOE	Education	4 participants
New Group				
5	Focus Group 6	FSSH	Islamic Studies	4 participants
6	Focus Group 7	FSSH	Psychology/Counselling	4 participants
7	Focus Group 8	FBM	Finance/Accountancy	4 participants
8	Focus Group 9	FBM	Business/Marketing	4 participants
Special Group				
10	Workshop 1	Others	Selected educators	8 participants

The third phase will be extended to include educators from selected programmes in a larger group of around 25 participants in order to improve the teaching and learning support. After this phase, the pilot will be converted into fully online courses by embedding the materials into a learning space and the courses will be used to train educators with a focus on the creation of OER with appropriate Creative Commons licences.

Process: Development of Self-instructional Training Modules

In developing self-instructional training modules, eight stages of the process were completed (see Table 8).

Table 8

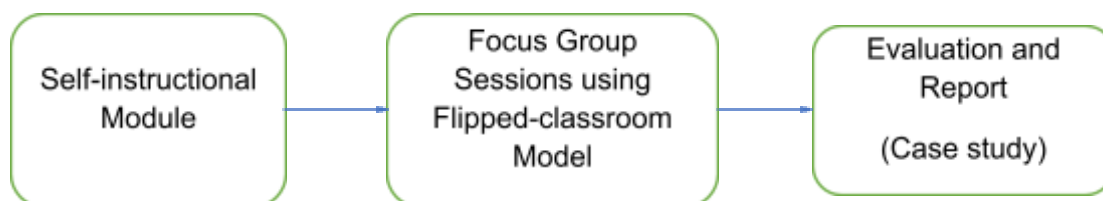
The Stage of the Self-instructional Training Modules Development Process

Stage	Development Work at this Stage
Stage 1	Development of the capacity-building module The module consists of six modules which are learning theories, pedagogical approaches, learning design, multimedia, learning analytics and development and use of learning objects.
Stage 2	Turnitin report This report provides detailed feedback including a breakdown of matched text, the original source of the text, and a similarity score.
Stage 3	Content review by experts The module is given to experts for them to review the content.
Stage 4	Instructional design (ID) The processes of creating effective and efficient instructional materials and activities to facilitate learning.
Stage 5	Readability test The purpose of this stage is to assess the suitability of the module for its intended readers, considering factors such as the complexity of the vocabulary, sentence length, and paragraph structure.
Stage 6	Language editing The process of revising and improving the language, grammar, style, and clarity of the module.
Stage 7	Desktop publishing The process of using computer software and hardware to design and produce printed materials such as books, magazines, newsletters, brochures, and other types of publications. Desktop publishing software allows users to create, manipulate, and format text, images, and graphics for publication.
Stage 8	Proofreading The process of reviewing the module for errors in spelling, grammar, punctuation, formatting, and style. It involves reading the module carefully to detect any mistakes or inconsistencies and making corrections as necessary to ensure that the module is error-free and communicates the intended message clearly and effectively.

With the self-instructional training modules as their focus, the focus group sessions were conducted, using an authentic and experiential pedagogical approach. The focus group sessions were monitored using a set of evaluation tools and reported through written case studies. Figure 6 displays the model of discussing, evaluating, and reporting on the development of materials/modules.

Figure 6

The Model of Discussing, Evaluating, and Reporting on the Development of Materials/Modules



Process: Evaluation

Four evaluation questionnaires were provided to participants in order to receive feedback on their experience of the process. The questionnaires used a 5-point Likert scale ranging from strongly disagree (point 1) to strongly agree (point 5). The focus of each evaluation is shown in Table 9. After the evaluation, the findings were then presented in related, written case studies.

Table 9

Evaluation Questionnaires Provided to Focus Group Participants

Evaluations	Evaluation Questionnaire Content
Evaluation 1	Learning outcomes, instructional design elements, learning process
Evaluation 2	Facilitation of discussion, group activity, reading materials
Evaluation 3	Open educational resources (OER), canvas
Evaluation 4	Format, learning materials, critical thinking

Challenges

Undertaking a project such as this one is a multifaceted and complex task, and obstacles that impede its successful completion are not uncommon. The BUKA Project at OUM was no exception, and the team encountered a number of challenges.

Lack of Manpower

The project team encountered a shortage of team members when some members left the project due to organisational restructuring. This created an overburdening effect on the remaining members, negatively impacting productivity and the project timeline. While new members were appointed to meet the project's demands, the workflow was still impacted by the departure of the previous team members.

Workload

The COVID-19 pandemic brought with it unprecedented challenges, including the need to work remotely, provide additional teaching support, adhere to safety protocols, and comply with social distancing requirements. These factors resulted in an increased workload that made it challenging to adhere to the project's original timeline. To overcome these obstacles, the team had to adjust and develop innovative strategies such as using Google Meet for online meetings, grouping focus groups according to faculty, and accommodating meeting schedules based on the attendees' convenience.

No Breaks Between Semesters

OUM's three-full-semester system posed another challenge for the project team, as there were no breaks between semesters. This meant the team did not have enough time to focus on the project, and the team was just unable to prioritise their focus on the project. It was not because the project was viewed as unimportant or that they lacked commitment, but because the demands on academic staff were such that there were unavoidable delays in progressing the project. The team had to re-negotiate delivery timelines to match the project requirements.

Delay in Procurement

The team encountered delays in getting the necessary materials and equipment, such as the workstations and a server, due to related staff leaving the University and being unable to fulfil their duties for the project. To overcome this challenge

the team was proactively communicative about delays and their impact on the project. This helped to manage expectations and ensured that everyone was on the same page.

Limited Access to Data for Learning Analytics

The project team had limited access to data analysis from the University's learning management system, myINSPIRE, due to concerns over data security and an overwhelming workload. This made it challenging to analyse information relating to project activity, and the data analysis element had to be removed from the project. However, the team received good technical support from OUM's Digital Services Department.

Surmounting Challenges

To surmount the challenges faced, the project team identified issues as they arose and devised appropriate solutions. The experiences taught the team valuable lessons, such as the need to proactively devise contingency plans to address team member departures, to collaborate with system administrators to enhance data accessibility for learning analytics, and to prioritise efficient project management and communication. These are critical criteria for overcoming hurdles and completing a successful project.

Findings and Lessons Learned

Here, the findings and lessons learned in the OUM BUKA project will be presented in two parts: pedagogical impacts; and the evaluation of the modules, focus groups and OER created.

Pedagogical Impacts

Pedagogy refers to methods, principles, and techniques used in teaching and learning. The pedagogical approach focuses on creating an effective, engaging learning experience for students. The following were pedagogical strategies incorporated into this pilot. The impact of the pedagogical approaches was reviewed by the researchers in the OUM BUKA project.

Authentic Learning

The authentic learning pedagogy component was incorporated through the problem-solving, critical thinking, and collaboration tasks situated within the case scenarios faced by the participants. The participants reflected on the challenges and complexities that they may encounter in their own teaching practices and reported on their reflections in their journal portfolios. This pedagogical strategy emphasised the application of knowledge and skills in meaningful and relevant ways.

Experiential Learning

Experiential learning strategies were integrated through the activities. The participants had active conversations and engagements in the focus groups. This helped them to learn the module content through their reflections on the experience. The outcome of the discussion was evident in the group projects related to the 'Learning Design' module.

Transformative Learning

Transformative learning often challenges learners' preconceptions and seeks to promote personal growth and development. Hence, the activities require participants to review the materials and subsequently be involved in answering questions, engaging in the focus group, and reflecting on their learning. These elements were intentionally included to allow participants to explore new ideas and perspectives. The purpose of this pedagogical strategy is to foster meaningful changes in the participants' perspectives, beliefs, and assumptions, particularly of the academic staff who are not in the Faculty of Education.

Innovative Learning

The innovative pedagogy was applied to the production of OERs by participants. This exercise had three parts. First, it allowed participants to explore their innovativeness and their understanding of innovative pedagogy. Participants were also encouraged to incorporate the principles of universal design in the OER they developed. Next, the OER developed by a participant served as the evidence of their

learning as they used Canva for content creation. Finally, participants learned to licence their OER using a selected Creative Commons Licence.

Evaluation of the Modules, Focus Group, and OER

A series of evaluations collected data on the pilot's effectiveness from the five groups of participants that were involved in the project. Survey questionnaires were used in these evaluations, in order to gauge participants' thoughts and opinions on the module, focus group, and the quality of the OER that they developed.

Evaluation of the Module

Module 1 was evaluated using a 9-item questionnaire as shown in Table 10. On a Likert scale ranging from 1 to 5, participants were asked to rate their responses. This scale allowed participants to indicate their level of agreement or disagreement with each item. In addition, there was one open-ended question in the questionnaire that allowed participants to express their thoughts and ideas on the content of the module.

Table 10

Survey Items for Module Evaluation

No.	Question
1	The flow within the module is excellent.
2	The module is clearly written.
3	The content in the module is pitched at the right level.
4	The content in the module captures my interest to learn.
5	The Instructional Design elements in the module are evident.
6	The Instructional Design elements in the module are effective.
7	The content in the module is aligned to the stated learning outcomes.
8	The self-check questions are useful in identifying my achievement of the targeted learning outcomes.
9	The activity in the module helps to deepen my learning process.

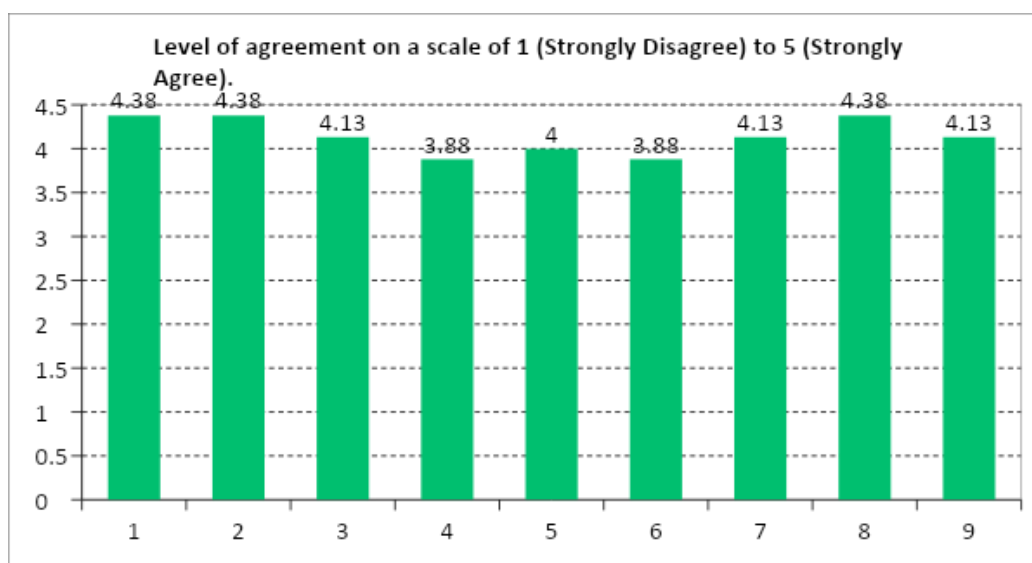
Figure 7 shows the findings of the evaluation of Module 1 based on the responses given by Focus Group 1 participants. It was found that most of the focus group participants agreed, with a mean value of 4.0 and above, that the module had good flow, was clearly written, was pitched at the right level, that instructional design elements were evident, that the content was aligned with the learning outcomes, and that the activity helped to deepen their learning. However, items number 4 (capture interest to learn) and 6 (effective ID elements) had a mean value of 3.88 only each. The comment on the ID was observed across most modules. This signified that the modules need to include elements to capture interest and improve ID elements. The finding was also supported by comments from the open-ended questions on module 2, for example:

The text in module 2 is too lengthy, need more instructional design input for better understanding.

As a result, action was taken to review the modules in terms of the quality of ID by sending them out to an external expert.

Figure 7

Module Evaluation Feedback for Module 1 by Focus Group 1



Evaluation of the Focus Group

A survey questionnaire with six items was used to evaluate focus group participation. On a Likert scale ranging from 1 to 5, participants were asked to rate their responses. The Likert scale, like the module evaluation, allowed participants to express their agreement or disagreement with each item. Two open-ended questions were included in the questionnaire, allowing participants to provide more extensive feedback and share their unique and personal perspectives. The participants from Focus Group 1 rated three items at 3.5 or below for 3:

1. The learning experience I gained through the classroom enriched my learning process.
2. The facilitation of the discussion helped enrich my learning process.
3. The feedback given on the group activity promoted learning.

This indicates that the facilitation instructions during the focus group session for this module require further improvement. This may also be due to the fact that the participants had less exposure to LA. The focus group structure and set up will be reviewed again by the facilitators.

Evaluation of OER

The participants who created OER were given the opportunity to evaluate their own work. A survey questionnaire with 5 items was administered, and participants were asked to rate their responses on a Likert scale ranging from 1 to 5. This scale helped participants indicate their level of satisfaction or agreement with each item. Similarly, an open-ended question was included in the questionnaire to gather additional comments or suggestions from the participants regarding their OER to elicit additional comments or suggestions from participants about the OER they developed.

The findings revealed that participants provided the lowest rating for item 2: 'The OER created meets the designed criteria described in Module 4'. This means the participants felt there was still room for improvement with regard to their OER materials, for example, by adding more elements such as animation, audio, etc., to enhance the OER. The OERs will be placed in a digital gallery for future participants

to view and gain ideas about possible design elements before creating their own OER with newer, innovative ideas.

These evaluations were able to provide comprehensive insights into participants' experiences and perspectives of the training on OER development.

Sustainability and Transferability

The BUKA Pilot at OUM has sufficient resources to sustain the project. All of the modules developed have already been incorporated into a learning space that has been developed using WordPress. The learning space has been designed in a fully online mode with a 20-minute mock classroom recording that will be embedded into the learning space. In addition, the modules are accompanied by an OER that provides an overview of the content, and true-or-false-question-based assessment to promote assessment as learning. The learning space is already hosted under different funding (OUM Internal Research Funding).

There is also the question of the use of software, which cannot be sustained. This is a non-issue since the pilot was developed with the intention of utilising LA from the various tools before designing an in-house infographic tool and using an open-source tool to carry out the analytics and modelling based on the learning experience gained. As such, OUM will be able to sustain the LA part of the pilot and create opportunities to pursue research in the area of Data-Driven Learning Design by incorporating LA into learning design. The only software that needs to be sustained is Canva, which has been provided to the faculty members to develop OER. The cost of Canva is low and can easily be sustained using the aforementioned internal funding. Another ongoing initiative is the development of a fully online skills-based workshop that is expected to be completed in the short-term and will continue beyond this project, thus suggesting the possibility of transferability.


The research team and the Faculty of Education intend to offer the BUKA capacity-building format/materials to school teachers, using the modules in the online format and online skill-based workshop. If a successful collaboration with the Ministry of Education can be formed, then the pilot project can be successfully transferred into a Professional Certificate Programme for teachers. Canva is also

available freely with limited functionality, allowing teachers to develop OER for their classes using that tool. This requires the development of additional materials that give an introduction to OER and Creative Commons Licences. The production of these materials will benefit from the development of the online skill-based workshop.

There is also transferability of the experience of developing courses into the next capacity-building initiative or funded research project. These include:

- module development and revisions;
- conducting flipped-classroom-based focus group sessions in an online setting; and
- Using evaluation tools that help to ensure the quality of the pilot output as well as the pilot outcomes.

Transferability could also include further reinforcement and expansion of the knowledge and experience gained through other capacity-building initiatives and/or funded research projects. Continual use of resources developed with funding, such as that from Erasmus+ funding, will also ensure benefits accrue from funded projects in the form of university social responsibility.



UTAKSES case study: Advancing digital access for students living in remote areas without reliable internet - Universitas Terbuka, Indonesia

Adhi Susilo, Daryono, Della Raymena Jovanka, Suhartono, and Diki⁷

Introduction

The rapid advancement of information and communication technology has resulted in an astounding expansion of online higher education worldwide. In this era of the fourth industrial revolution, or Industry 4.0, Indonesia has strategically utilised online education to boost participation in higher education and provide alternative means of developing human resources. The COVID-19 pandemic, which necessitated less-contact activities, has accelerated this growth. Although online education is relatively new in Indonesia, and offers a different approach to teaching and learning, it is predicted to significantly improve access to quality and comparable higher education at lower costs to students. Online education is

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defined as education that is offered or available through the use of ICT, including connectivity, flexibility, and the capacity to foster diverse relationships (Pannen, 2021). During the COVID-19 pandemic, online education encompassed e-learning, distributed learning, networked learning, tele-learning, virtual learning, web-based education, distance education, technology-based education, massive open online courses (MOOC), blended learning, flipped learning, and also learning from home using ICT. The foundation of Universitas Terbuka (UT) in 1984 signified the introduction of multimedia distance education, which included computer-based education, tele-education, internet-based education, and web-based education.

UT's students live in remote areas without reliable internet access. As internet access is still a privilege for UT students living in remote areas of Indonesia, many of them encounter difficulties accessing UT's online services. This has widened the discrepancies in online learning equity among UT students. UT's BUKA project addresses this disparity, firstly by developing a local hotspot area to enable UT students in remote areas to access UT's online support services. This local hotspot service is beneficial for UT students as it gives them access to online learning experiences that are expected to increase their study success. As most remote areas have limited infrastructure, including power supply and bandwidth, there needs to be a minimum requirement for the local hotspot services to provide access to UT's online support services. Secondly, the UT Buka project aims to develop a learning design model that is adapted to support low bandwidth capacity. By using a Moodle platform service, the online support services are designed with adaptive features. The adaptive features of this learning management system include discussion forums, formative test feedback, student learning progress, and collaborative applications.

Internet access, especially in rural areas, typically depends on the presence of mobile (3G/4G) operators. It is clear from the data available from mobile operators that there are still many blank spots in various regions of Indonesia, especially outside Java. Consequently, internet access in many areas is a challenge. On the nperf.com site, we can observe modest mobile operator coverage in Indonesia with data collected by that website since 2019.

An offline internet server is a device that enables users to access digital content without requiring an internet connection. These devices typically store web pages, educational materials, and other digital content on a local network, making them accessible to users within that network. Efforts to make internet access available offline may not be new. Since the beginning of internet development, some groups, especially in developing countries, have been trying to find solutions for access to internet content while offline. Such efforts include simple email backups, SMS, WhatsApp, and more complex activities such as downloading songs, movies, files, PDFs, ebooks, etc.

In the UTAKSES case study, the focus was on making educational content accessible offline. The UT initiative builds on the work of a small number of state institutions and non-governmental organisations that have made similar efforts with the aid of various offline internet support technologies (Daryono et al., 2022). Certainly more needs to be done in this area, with only a handful of institutions and research teams in the world trying to provide solutions for areas with scarce internet access (Daryono et al., 2022). Therefore, UT is developing an offline internet system for students residing in remote areas with limited telecommunications and internet networks.

The UT BUKA aims to develop a local hotspot in five areas on Java Island where students are located, in order to enable them to access UT's online support services. The project has also developed an associated learning design model that is adapted to low bandwidth capacity. The pilots have been installed in five different locations on Java Island that can be reached by land transportation due to the limitations of air transportation during the COVID-19 pandemic. In addition, the pilots are focused on the following: 1) assessing the online learning needs of UT students living in remote areas; 2) developing adaptive learning design models and strategies; 3) designing the business model and governance of the local hotspot services; and 4) evaluating the useability and performance of the pilot offline local hotspot services.

Methodology

The project was conducted for three years using an action research (AR) approach (Zuber-Skerritt & Perry, 2002; Zuber-Skerritt & Fletcher, 2007). Following the methodology of Zuber-Skerritt and Perry (2002), two action research cycles are running concurrently. The first is the core AR cycle, which is concerned with the practical problem to be solved. The other is the thesis AR cycle, in which the researcher plans, acts, observes, and reflects on the academic component of the research project and their learnings from it. Simultaneously, AR promotes industry-university collaboration by strengthening links between researchers and practitioners, and in this way contributes to information transfer (Erro & Alfaro, 2020). The study was organised into several activities, summarised in Table 11.

Table 11

Activities on UTAKSES

No.	Activities	2021	2022	2023
A	Instructional Design			
	Instructional Design Assessment	X		
	Content Development	X		
	Small group evaluation	X		
	Content Deployment	X		
B	Hot-Spot Infrastructure Development			
	Pilot Target Location	X		
	Assessment of Existing Infrastructure	X		
	Equipment Procurement		X	
	Mockup Pilot Development (UT)	X	X	
	Mockup Trial (UT)	X		
C	Hot Spot Infrastructure Installation			
	Setting Up Hotspot Infrastructure		X	
	Installation of HotSpot Infrastructure		X	
	Student Testing and Feedback		X	
D	System Design and Governance			
	Development of system design and governance – (workshop)		X	
	Training (Workshop)		X	
	Coaching and evaluation		X	
E	Evaluation and Reporting			
	Evaluation			X
	Reporting			X

Challenges

The challenge of an offline internet server, also known as an offline web server or a disconnected network, is to provide a web-based service to users who are not connected to the Internet or who have limited connectivity. One of the biggest challenges of an offline internet server is ensuring that users can access the information and services they need without an internet connection (Daryono et al., 2022). This requires the server to store a large amount of data and content locally, which can be a significant technical challenge, particularly for large or complex websites.

Another challenge is to ensure that the server remains up-to-date and secure, particularly if it is being used in an environment where it cannot be regularly updated or maintained. This requires careful planning and management to ensure that the server is running the latest software and security patches and that any potential vulnerabilities are addressed as soon as possible.

Finally, an offline internet server may also face challenges in terms of scalability, particularly if the number of users accessing the server increases over time. This requires careful planning and resource management to ensure that the server can handle the increased load without compromising performance or availability.

In terms of the local hotspot infrastructure, the substantial problem in determining what server should be used is ensuring that the server setup is sufficient to handle the desired workload and access point. The specifications of the processor used can vary depending on the load to be handled. For a small number of students, an arm processor machine such as a Raspberry Pi 3 or 4 can be used. The Raspberry Pi 3 has the lowest capability. A Mini PC mobile processor with 8 GB of RAM is the most reliable to serve about 150 concurrent users. Some tips to make the mini PC servers work:

- Where images, videos, documents, etc. are not on Moodle servers but are elsewhere, for example on YouTube, Google Drive, etc., setting up its

digital library server to accommodate various images, videos, documents, etc. should be considered;

- Moodle servers should be prioritised for handling exams and quizzes, especially if a pattern of exams that can be repeated for one semester is adopted. The ability to take exams on Moodle servers becomes a very valuable resource in offline internet systems because of the importance of the learning evaluation process.

A mini-personal computer with an i7 processor and 8 GB of RAM capacity will be sufficient to support up to 150 students. Schools in rural areas with 300 or more students require a setup with more RAM.

The digital divide is not only a matter of the level of access to technology and material infrastructure, as governments frequently seem to believe, but is also related to factors such as education, socio-economic status, age, income, and location, all of which affect the ability to adopt digital media (Purbo, 2017). Rather than technology access per se, adoption depends on people's awareness of the potential benefits of using the Internet for learning. In that sense, internet skills go beyond the acquisition of practical computer skills to require specific forms of digital literacy (Purbo, 2017).

Findings

In September 2021, the UT BUKA Team explored the strengths and weaknesses of the available proprietary and open-source software to be used as the operating system on the offline server. Based on its functionality and affordability, the Linux operating system was selected. Network and IT technicians in Indonesia are also familiar with the Linux operating system, which is easy to maintain and update.

The first package of offline internet infrastructure included a mini PC, a cellular network antenna, an omnidirectional antenna, and a point-to-point bridge already in place. The dummy installation server parameters used in developing the offline internet system used the following specifications:

- Operating System: Ubuntu 20.04 or Debian 11;
- 64-bit mini-personal computer;
- 8G RAM Memory;
- 512 GB SSD;
- I7 Processor.

The mini-personal computer is quite easy to install as it requires only 10 cm of square dimension with a DC power supply. For the BUKA pilot project, some of the main applications supporting e-learning services were also installed, such as the Apache web server, MariaDB database server, PHP, Moodle for e-learning, and Kiwix for offline Wikipedia.

Meanwhile, the supporting intranet network operations use the following applications:

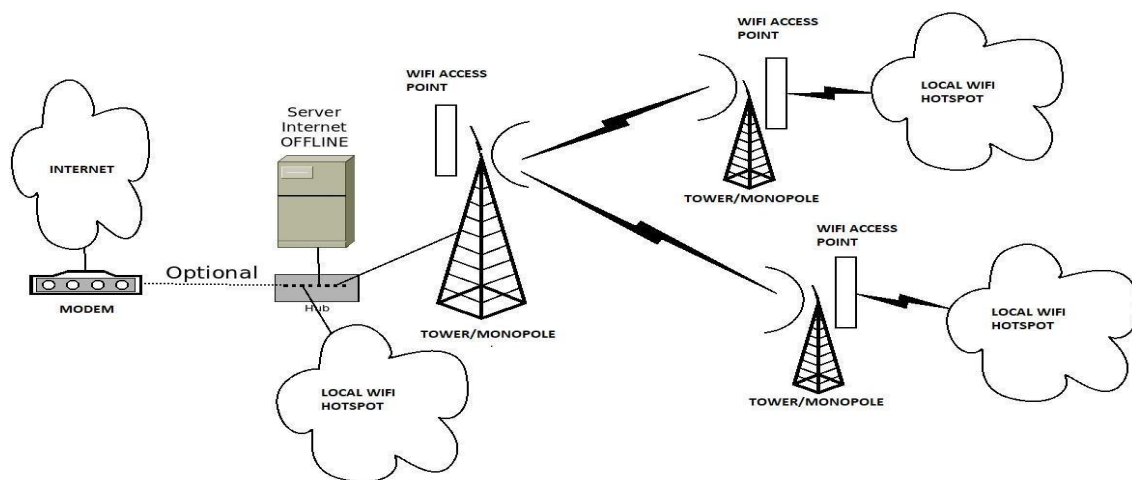
- Bind DNS servers;
- Server SSH;
- DHCP Server;
- SAMBA File Sharing Server

In terms of technology, some exciting technologies are also partly used in the UTAKSES offline internet system, including:

- [SolarSpell](#): Library powered by Raspberry Pi with Access Point Wifi (SolarSpell, n.d.);
- Kiwix is a free app that lets us search and read Wikipedia without an internet connection. Available for Android, iOS, Windows, MacOS, and Linux (Kiwix, n.d.);
- Wikipedia and Wiktionary;
- Open content repository.

The UT BUKA project is relatively unique, with offline internet services facilitating learning for open university students in rural areas, including access to digital libraries and even a digital student evaluation process (see Figure 8).

Figure 8
UTAKSES System Design



The UT-AKSES local wifi hotspot areas in this project were installed as follows:

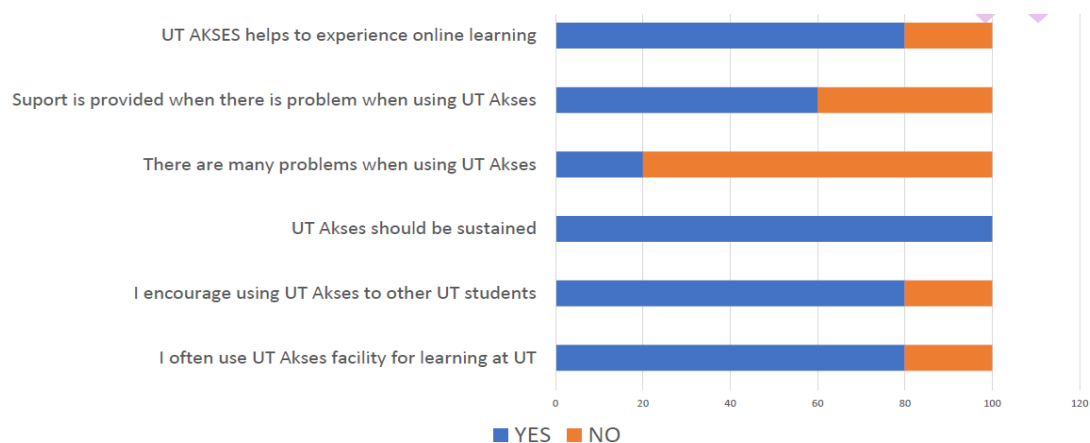
1. Cikopomayak 03 Primary School Jasinga Bogor West Java Province
2. Barusari 02 Primary School in Barusari Garut West Java Province
3. Siliwangi Primary School Cigombong Sukabumi West Java Province
4. Sanghiang 1 Primary School Malingping Lebak Banten Province
5. Al Azhar Tuwel Junior High School in Tuwel Tegal Central Java

Some outcomes of this project include:

1. Performance analysis;
 - a. Hardware: The hardware of the server plays a critical role in its performance. The processor, memory, and storage capacity are sufficient to handle the load of the website or application being hosted;

- b. Software: The software running on the server, including the operating system and any web server software or applications, is optimised for performance and configured properly;
 - c. Network: The network infrastructure, including the LAN (local area network), is designed and configured to provide optimal performance;
 - d. Load testing: The server has been tested to determine its maximum capacity and identify any bottlenecks or performance issues. No performance issues were found;
 - e. Monitoring: The server has been monitored continuously to identify any performance issues or anomalies, and to ensure that it is functioning properly.
 - f. Security: The server is secured against unauthorised access and protected from potential security threats;
2. User satisfaction analysis (see Figure 9). Based on the usability survey carried out in pilot locations. The project still encountered issues in terms of the continuous support of students;
 3. Security analysis: An investigation of the security of the UTAKSES server, including vulnerability to hacking, data breaches, and malware, has been conducted. The server is safe and secure;
 4. Cost analysis: An analysis has been done to compare the costs of implementing and maintaining an offline internet server versus an online server, including hardware, software, and personnel costs. The cost of the UTAKSES server is affordable compared to the costs of an online server;
 5. Use case analysis: An analysis has been completed to explore the potential use cases for an offline internet server, including in remote or low-connectivity areas, disaster recovery scenarios, and secure network environments. UTAKSES is suitable in remote or low-connectivity areas.

Figure 9
User Satisfaction Analysis



Sustainability & Transferability

Most Indonesians live in rural areas, and increasing the country's internet penetration will require a greater focus on rural villages. However, building expensive infrastructure for small populations in isolated areas is not economically feasible from a commercial operator's point of view. Especially in rural areas, a lack of internet affordability, skills, awareness, and cultural acceptance, combined with a lack of content and services in local languages, constitutes a considerable hurdle to digital literacy (Daryono et al., 2022).

As the Internet grows, UTAKSES has been examining ways to build greater sustainability and transferability. UTAKSES strategies, focusing on learning management systems and material infrastructure, are insufficient. The sustainability of rural digital networks also relies on technical education, building infrastructure in response to local demand, keeping costs down, and exploring the economic opportunities that can arise from the use of digital technology. For offline internet purposes in rural areas with 100 students, a computer or mini pc process i7 with 8GB RAM can be used. The estimated budget is around Rp. 15-25 million for a mini pc with a maximum capability of 8GB SSD memory, and RAM hard drive. For small schools, a Moodlebox in Raspberry Pi 3 or 4 with a budget of around Rp. 700,000 can be used, so it is very affordable for most schools and

universities that want to provide knowledge for students with internet connectivity problems.

Education is key to equipping citizens with internet skills. Currently, Indonesians have to rely on self-financed workshops, demos, seminars, online discussions, etc. to gain the required knowledge relating to digital literacies and the use of the Internet. The inclusion of ICT education in school curricula and the deployment of internet connectivity in schools will accelerate the empowerment process relating to digital skills and competencies for Indonesians and, thus, reduce the barrier to greater internet adoption.

In terms of sustainability, an offline internet server has the potential to be a very sustainable solution for communities that lack reliable internet access. By providing access to digital content without requiring an internet connection, these devices can help bridge the digital divide and improve access to educational and other resources. However, the sustainability of an offline internet server depends on several factors, including the quality and durability of the device, the availability of maintenance and repair services, and the availability of power sources. To ensure long-term sustainability, it is essential to select a high-quality device that is designed to last and provide adequate maintenance and repair services.

In terms of transferability, an offline internet server can be an excellent solution for communities that lack reliable internet access, but it may not be appropriate for all settings. The device may be less effective in areas with limited access to power, as it requires electricity to function. Additionally, the content stored on the device may not be relevant or appropriate for all communities. To ensure that an offline internet server is transferable to new settings, it is essential to carefully assess the needs of the community and select the content that is relevant and appropriate. Additionally, it may be necessary to modify the device to work with different power sources or to address other logistical challenges. With careful planning and implementation, an offline internet server can be an effective solution for improving access to digital resources in a wide range of settings.

Building offline internet infrastructure is a solution in a distance learning system for schools that are constrained by signal and quota packages. Students

connected to this offline internet network will not be charged for internet usage. Students are free to access all school services such as accessing materials or books, playing videos, listening to audio, engaging in discussions, taking quizzes, and also accessing video streaming with educators. Because of its local nature, educators and students can carry out learning without having to worry about internet usage quotas or the absence of a cellular signal.

All services are placed on the school's local server. On this local server, services such as e-learning systems, video conferencing, media centres, and so on can be built. The use of open source applications such as using Moodle as an e-learning VLE and the Big Blue Button, as well as Zoom, for video conferencing. Mini computer machines can be used as a server, such as Raspberry Pi, as an alternative to using expensive devices in implementing offline internet network infrastructure. Wireless radio transmitters are used to broadcast signals with a range of up to 10 kilometres. The range of this transmit power depends on the type of radio used. If the area is still not covered by a wireless signal, then a repeater is carried out from the nearest location. Signals can be transmitted to student homes or places that become hotspots so that students and teachers can stay connected to the learning system service network.

On the student side, the wifi signal is received using a wireless antenna supported by a monopole pole. The antenna is connected to the access point so that the wifi signal can be re-emitted around the house or a predetermined place with a range of over 50 metres. It is through the signal that is emitted that students can use their devices to access e-learning content and live conferences with educators on the offline network.

With this offline internet infrastructure, there is a solution for those who experience limited internet quota or internet signal. Due to its offline nature, it does not require external access because all needs are provided locally. Educators and students can conduct live, real-time learning using the devices owned by students. It can replace the use of Zoom or similar which requires being connected to an internet network and consuming data within limited quotas.

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Development of Blended Learning Content to Increase Learning Engagement in Higher Education - Universitas Negeri Padang, Indonesia

Ulfia Rahmi, Ananda Putra, Yulianto Santoso, and Bayu Ramadhani Fajri⁸

Introduction

The implementation of blended learning at Universitas Negeri Padang (UNP) began in 2012. The development of blended learning at UNP began with the development of an online learning platform based on Moodle v2. At the beginning of its development, the number of academic staff who utilised this technology was relatively small at around 10%.

Gradually, this learning platform was introduced to lecturers and students to support online and blended learning activities. Based on system analytics, the use of this learning platform has not been well organised, planned, and programmed. For example, the online platform is used as a substitute for face-to-face meetings that are held unexpectedly because academic staff have

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other activities. Moreover, the content presented on the platform tends to be separate files without learning instructions or learning design (LD). Students admitted that they were confused by the sequence of their activities because it was only a display of material in the Learning Management System (LMS). The presentation of materials in the LMS is also problematic because there are no set minimum standards. UNP tries to address these problems by publishing policies for implementing 50:50 blended learning with component rules and other related quality policies. This is stated in Chancellor Regulation no 8 of 2018.

After this regulation was ratified in 2018, wide-scale training and workshops were given to UNP educators. Various training materials were provided, including how to manage content on the LMS, how to design blended learning that actively involves students, how to create interactive content, animated content, learning videos, and assessments for each lecture that is carried out using the blended learning system.

These efforts are still ongoing. In 2020 the online learning platform was upgraded to Moodle v3. This improvement had an impact on the implementation of training and workshops on the use of the LMS for UNP educators. All educators should now have the ability to design, develop, implement, and evaluate the implementation of blended learning, as data shows that all educators have completed the training in 2020. This activity is one of UNP's policies in which each educator should optimise their LMS materials. An evaluation was conducted after the training programme. The evaluation findings indicate improvements in some areas, such as the component of each meeting, content variation, learning scenario by using a student-centred approach. Analysis of the evaluation results showed that all educators have the ability to complete the minimal component, however, further efforts are needed to improve the quality of content. In addition, there is the data distribution for UNP educators using the LMS provided by the Information and Communication Technology Development Unit (PTIK), as shown in Table 12 below.

Table 12

Percentage of LMS Users in UNP by Faculty (Source: [Executive Information System from Universitas Negeri Padang](#))

No	Faculty	Percentage of LMS Users in UNP					
		Odd 2021	Even 2021	Odd 2022	Even 2022	Odd 2023	Even 2023
1	Faculty of Science Education	93,08	98,46	97,50	97,64	97,35	96,10
2	Faculty of Language and Art	97,19	96,95	98,29	97,21	97,68	99,27
3	Faculty of Mathematics and Science	97,74	97,63	97,10	96,84	99,18	98,68
4	Faculty of Social Science	95,40	96,36	97,30	95,80	95,77	94,46
5	Faculty of Engineering	97,88	93,51	98,02	98,01	98,00	89,61
6	Faculty of Sports Science	93,98	92,65	96,89	91,25	96,76	97,62
7	Postgraduate	96,77	99,53	91,30	91,21	94,67	84
8	faculty of Economics	98,04	99,83	98,40	97,65	96,12	93,66
9	Faculty of Tourism and Hospitality	100	99,83	100	100	100	99,84
10	University courses	96,60	98,24	99,45	99,12	99,28	98,90
11	Faculty of Psychology and Health	100	100	100	100	100	99,42

Even though the number of educators using the LMS and carrying out blended learning is quite high in quantity, based on the evaluation results the quality of content and learning design still needs to be improved. Therefore, through the UNP BUKA Project team chose 10 modules for which complete learning designs would be developed, with content then also being developed for these modules. The LD follows a case-based learning model and project-based learning in a blended learning environment.

Methodology

The case study method used is Research and Development (R&D) following the ADDIE model procedure. The first step includes an analysis of needs, student characteristics, and supporting facilities at UDP. The needs analysis was carried out by conducting a study of the curriculum, the needs of stakeholders, what were the urgent educator objectives, and what needs to be achieved through the BUKA Project. In this step, 10 courses are identified for development. Furthermore, an analysis of student characteristics was carried out with various efforts including surveys, interviews, and reviewing the literature on how students learn and what students need to develop their potential. Then, an analysis of supporting facilities was carried out for the implementation of open, distance, and blended learning. The team made an inventory of supporting facilities from tertiary institutions and student access to devices that are potentially needed in implementing open, distance, and blended learning.

The second stage is the design stage, which was carried out based on the results of the needs analysis. At this design stage, three main things were produced, namely the design of learning activities for each module, the design of content for the LMS, and the design of assessments based on the learning activities and models used in each module. The learning model used is case-based learning and project-based learning. Learning design, content, and assessments were designed to support the implementation of these two learning models in an open, distance, and blended learning environment.

The third stage was the development of learning resources and validation. The LD was adapted to the scope template. Learning content was adapted into various media formats such as text, audio, video, and interactive multimedia. The assessment plan was developed into assessment rubrics, quizzes, and tests for each course. After this, all learning resources were uploaded to the LMS in accordance with the specified systematics at UNP. Each section in a module must contain topics, objectives, content, summaries, discussions, assignments, and references. At the end of this stage, activities, content, and assessments were validated by LD experts, learning media and content experts, and assessment

experts. Validation was carried out using a validation template document completed by experts in assessing activity and content in the LMS. In addition to assessing, experts were also asked to provide input on possible improvements. Module content was then revised and made ready to be implemented.

The fourth stage is the implementation and testing of the activities and content that had been designed. The implementation was carried out in the study programmes of Educational Technology, Educational Administration, Animation, Electronic Engineering, and Chemistry. During implementation, the use of the LMS was observed by the teaching team, using the observation sheets that had been prepared. At the end of the implementation, users, both educators and students, were asked to fill out a questionnaire. This questionnaire was used to analyse the quality of the implementation in order to assess the feasibility of using open, distance, and blended learning developed in UNP. The questionnaire data were analysed using descriptive techniques and qualitative data triangulation.

The final step of the ADDIE model is evaluation. This stage is integrated into each ADDIE step. Two types of assessment were carried out, the first is a formative assessment that was carried out during the development stages, whereas the second is a summative assessment that was carried out at the end of the implementation phase. The summative assessment uses instruments in the form of questions focused on the effectiveness of activities and content for open, distance and blended learning. The results were analysed using the t-test technique to compare class learning outcomes using blended learning with conventional classes.

Challenges

The challenges faced while developing blended learning activities and content related to the development of LDs through the BUKA Project. In other words, developing LDs is challenging for each of the distinct knowledge fields that became the focus of the UNP project, i.e. science, vocational and social fields. Each of them has special characteristics and criteria in LD. The scientific group has the characteristics of learning that explores material in depth with related practicums.

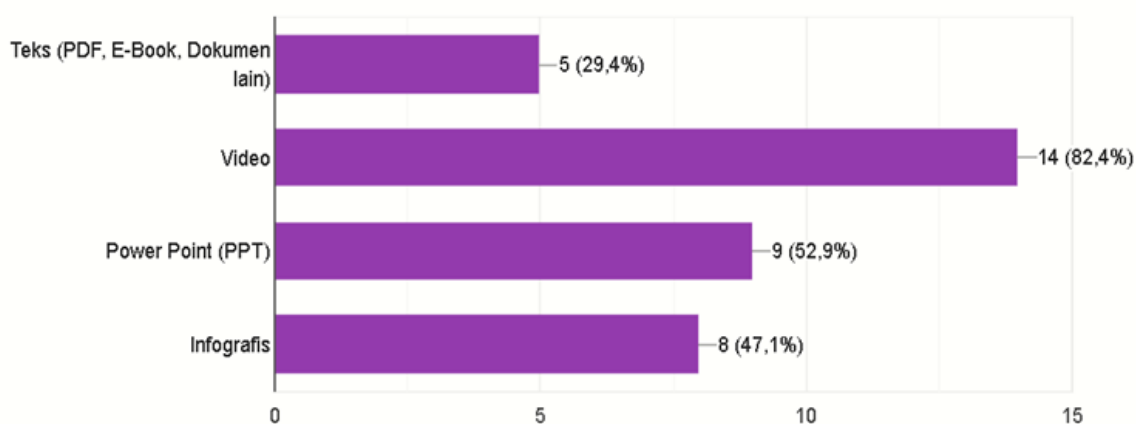
Meanwhile, in the vocational field, they engage in practical activities that have to be designed. Then, in the social field content needs to be developed relating to interactions between humans. The design of learning activities for each subject is a challenge in presenting activities that combine face-to-face activities and activities in the LMS. Every activity in the LMS is integral to the development of learning activities that support blended learning. In addition, the three selected disciplines in the development of LD and lecture content have challenges in presenting content that fits the needs of the lectures. The content developed supports the critical thinking level of students, content that supports LMS integration as part of learning, has the potential needed in the application of open, distance, and blended learning. The application of open, distance and blended learning systems certainly has content in text, audio, video media formats, which are available to support features in the LMS.

Findings

The needs analysis was done by collecting students' responses toward the need for blended learning. The responses were collected from the social field as a representative of this analysis. Based on data from the needs analysis, around 82.4% of student respondents from the social field favoured that video media be developed in blended learning, while 12,6% of student responses stated the need for text formats, broadcast media, and infographics. The following is the content format needed in blended learning (see Figure 10).

Figure 10

Media Formats Favoured by Students in Blended Learning



Students' involvement in blended learning is supported by content that is preferred by students. As can be seen in Figure 10, there are some popular content options in several formats, namely video content is the most popular content with 82.4% of students. Furthermore, PowerPoint (PPT) slides are also favoured by 52.9% of students, and this is followed by content in infographic form being favoured by 47.1% of students. Meanwhile, content in the form of text such as PDF files, ebooks and other documents is favoured by 29.4% of students. In conclusion, video content is the most preferred content by students. This has also been proven in research related to the content needed by students in presenting cases in courses (Syafril et al., 2022).

In addition, video is one format that can be used for presenting this case, educator explanations, and simulating certain activities. Learning videos are a medium for transmitting knowledge and functioning as part of the learning process. Video is one of the digital teaching materials that need to be developed in the 10 selected modules. This selection is based on the fact that digital teaching materials need to be developed to accustom students to learning in a 21st-century environment by optimising campus LMS facilities (Rahmi & Azrul, 2021) for video as well as a tool for development in observing and critical thinking (Nagro & Cornelius, 2013). The use of video in presenting cases in online learning using the LMS is important to do, namely integrating interactive videos into the e-learning

system or LMS (Zhang et al., 2006). This LMS supports video integration in the learning process so that the level of learning interactivity increases and student involvement in learning will also increase. This of course will make learning more effective and efficient.

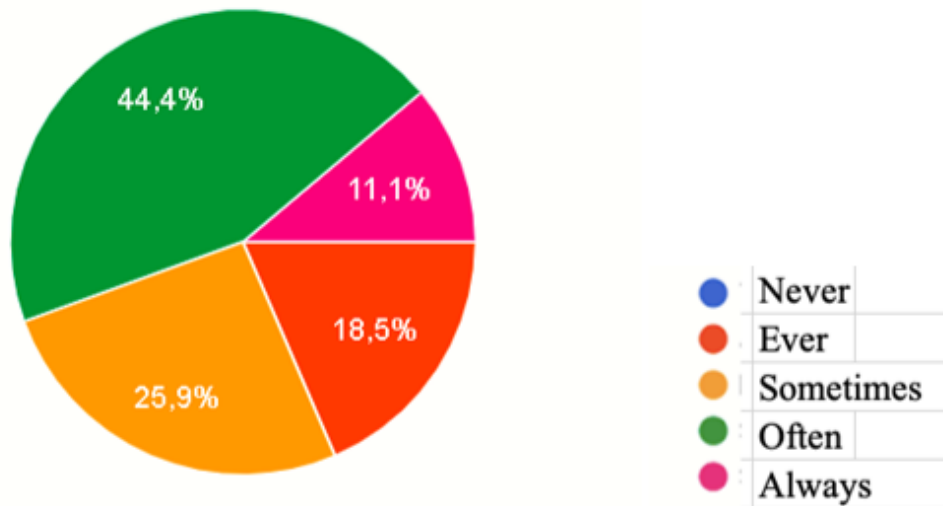
Based on the results of the needs analysis, an analysis of the suitability of the video with the characteristics of the module was carried out. In this case study, it was determined that content would be developed for 10 modules. Then these modules were designed and content was developed, in a variety of formats such as text, videos, presentation slides, and infographics. The content for the LMS was designed and developed following the message-design model in blended learning (Rahmi et al., 2017). This model was used so that instructional messages in LMS content can create meaningful learning (Rahmi & Azrul, 2021). In addition to content, support systems for implementation in a blended learning environment also needed attention. This case study follows a blended learning support system prototype, which has also been developed by the team (Rahmi et al., 2022).

Next, the trials were conducted in a blended learning environment. This stage tested the implementation or use of the content that had been developed. The resulting products are case study-based videos in the form of animated videos and video shoots (interviews), educator explanation videos, practicum simulation videos for animation, teaching materials in PDF format, broadcast material in PPT format, and graphic designs in the form of infographics. This content was trialed on 10 modules in the Educational Technology, Animation, Educational Administration, and Chemistry Study Programs. This stage was carried out to find out how students respond to the content that has been developed and to find out the learning outcomes achieved by students.

Figure 11 illustrates the involvement of the respondents in the learning process in the test courses.

Figure 11

Respondent Engagement in the Learning Process of E-Learning Development Courses



In addition, in order to analyse student responses, tests were carried out on students to see the effectiveness of student learning outcomes using content in a blended learning environment. The results of statistical calculations can be seen in Tables 13 and 14.

Table 13

Statistical Data Calculation Results

		Mean	N	Std. Deviation	Std. Error Mean	Correlation	Sig
Pair 1	Pretest	53.66	41	18.171	2.838	.062	.702
	Posttest	82.00	41	11.472	1.792		

Table 14

Paired Test Calculation Results

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Posttest	-28.341	20.883	3.261	-34.933	-21.750	-8.690	40	.000

From the tables above, it is known that the value of Sig (2 Tailed) is 0.000 <0.005, it can be stated that there is a significant influence from the application of varied content in the blended learning environment by students before and after application. On the other hand, the students who learned using the LD and learning content developed in this project have better learning outcomes compared to the result of the previous test with students not using the blended learning design and content. Therefore, it can be concluded that improved learning outcomes can be achieved by using LD and learning content that is created by the educators. It is also shown in existing research that students' absorption of lecture material is higher when studying in a blended learning environment (Bentri & Rahmi, 2016).

Sustainability & transferability

Technology-based learning activities have great opportunities in future learning. Learning activities with technology integration such as LMS in tertiary institutions are increasingly needed. This is caused by changes in the way students learn to be more independent in gaining knowledge. The design of blended learning-based learning activities is an activity that will always be needed in creating more interactive and dynamic learning by students in the future. Therefore, sustainability in the design of learning activities is also supported by the development of content that is in accordance with learning objectives and supports increasingly developing technological features. Blended learning activities through cross-tertiary institutions in Indonesia are also promoted by the Ministry of

Education through cross-university lecture programmes. The development of learning content for the LMS is necessary for the continuity of cross-university learning programs. In a smaller scope, the design of blended learning activities and content development will continue with policies to support the process of implementing blended learning by the leadership through the Chancellor's decision.

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Appendix

Figure 12

The Observation Sheet used in the UNP BUKA Project

No	Aspect	Weighing (%)	Score (0-5)														Grade
1	Kesesuaian RPS dengan format terbaru (Compatibility of the lesson plan with the latest format)	15%	5														0,75
No	Aspect	Weighing (%)	Score (0-5)														Grade
			M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	
2	Struktur Perkuliahan (Content Structure)	15%	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0,15
3	Relevansi Konten dengan RPS (Content relevance to the lesson plan)	15%	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0,15
No	Aspect	Weighing (%)	Score (0-5)														Grade
4	Substansi Konten dengan keilmuan (substance content with knowledge)	15%	5														0,75
5	Interaksi di LMS (Interaction in LMS)	15%	5														0,75
6	Substansi Aktivitas dengan keilmuan (substance activity with knowledge)	15%	5														0,75
7	Tampilan dan penggunaan bahasa (Visual and Language)	10%	5														0,5
Total		100%															3,8
																Convert	100,00%



Sustainable Institution Building for Open Learning (SIBOL) Initiative - University of the Philippines Open University (UPOU), Philippines

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Introduction

The Philippines' Open and Distance Learning Act or Republic Act (RA) 10650, enacted in 2014, tasks the University of the Philippines Open University (UPOU) with providing leadership, capacity building, and other forms of technical assistance to the Philippine Commission on Higher Education (CHED), Technical Education and Skills Development Authority (TESDA), and higher education institutions (HEIs) in the Philippines in implementing open and distance learning (ODL) programmes to address the limitations and challenges of traditional, face-to-face instruction (see Figure 13). As part of its mandate under RA 10650 to help promote open learning as an educational philosophy and distance education as an “appropriate, efficient, and effective system of delivery” in Philippine higher

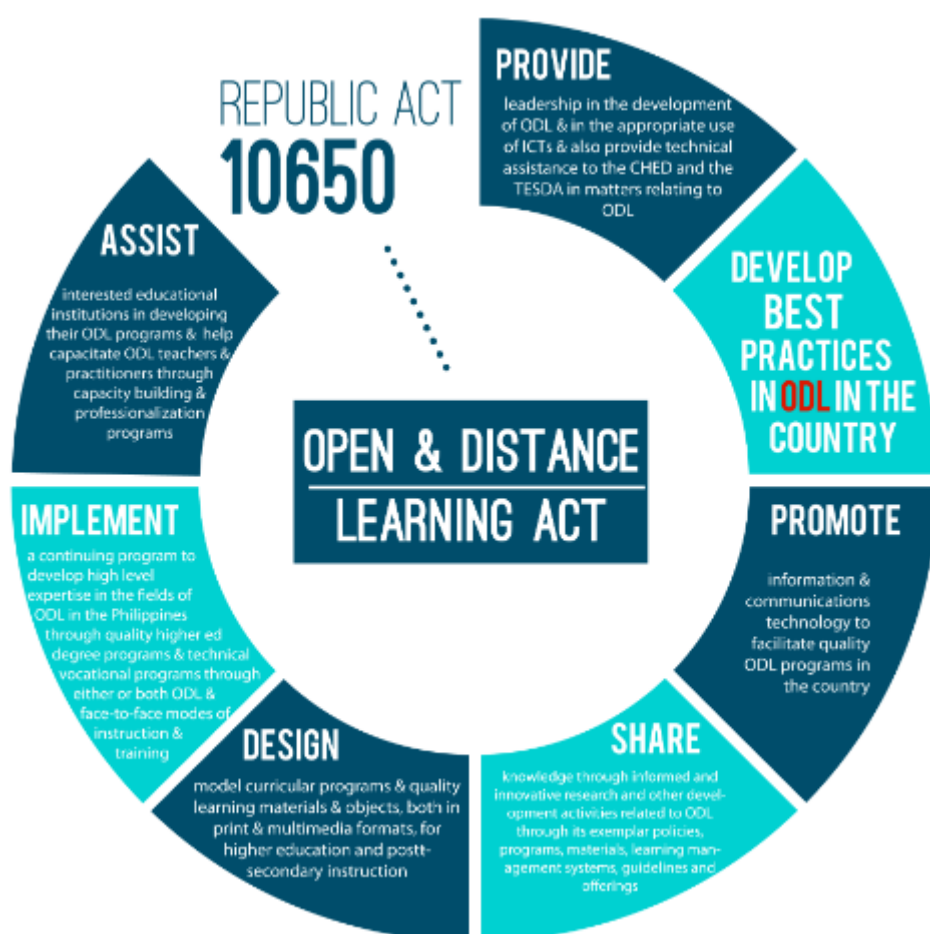
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education (HE), UPOU piloted the Sustainable Institution Building for Open Learning (SIBOL) initiative under the “Advancing Equity and Access to Higher Education through Open and Distance Learning” or BUKA project in 2020–2022.

Figure 13

The Role of the UPOU in RA 10650

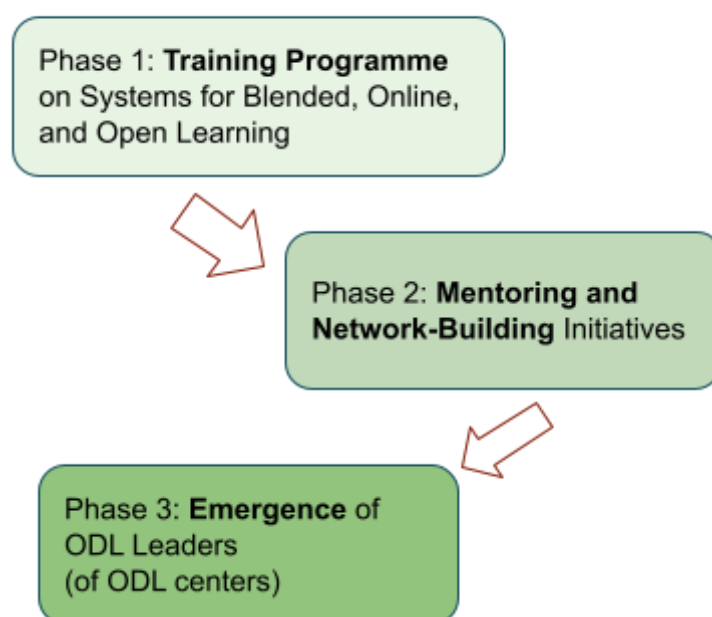


SIBOL aims to provide participating HEIs with training and mentoring in planning, managing, and sustaining blended, online, and open learning programmes. It has three phases (see Figure 14). The first phase is an intensive online training programme for HEIs transitioning to blended, online, and open learning. The second phase is a mentoring program for participating institutions as they implement their institutional strategy for blended, online, and open learning. This second phase is envisioned to strengthen institutional collaboration and

networking, which is essential for building the ODL ecosystem in the Philippines. The third phase of SIBOL would involve the emergence of leaders in ODL who will help build capacity in ODL in their respective regions (Arinto, et al., 2022).

Figure 14

SIBOL Programme Design



This case report focuses on the first phase of SIBOL, particularly the pilot implementation of the online training programme in blended, online, and open learning from March to June 2022.

Methodology

This section describes the design and development of the online training programme and the training participants.

The Training Design

Unlike other training programs intended for individual practitioners, the SIBOL training programme focused on the programme-level or institution-wide implementation of blended and online learning. Table 15 below shows the

differences between training for individual practitioners of blended, online, and open learning and training for institutions.

Table 15

Individual-focused vs. Institution-focused BOL Training

Topics/Foci	Individual practitioner level	Institutional level
Instructional design (ID)	Course design, learning activity design	Programme design
Student support	Strategies for engaging, motivating, and communicating with students Synchronous and asynchronous learning strategies	Student support system (communication system, etc.) Student engagement framework
Developing self-directed and autonomous learning	Learning activity design	Independent learning programs (including support systems)
Assessment	Types of assessment in ODL	Examination systems System for recognition of prior learning
Instructional materials development	Selecting and curating learning resources Multimedia materials production for individual courses	Organisational setup for materials development Repositories Policy framework (e.g. on copyright, incentives, QA)
Educational technology	Digital tools and resources for teaching and learning	Learning management systems and platforms *Learning analytics Registration system Library system Information tracking systems

Building a learning community	Building a community of learners at the course level (e.g. community of inquiry or COI model)	Faculty development and support Building a community of practice (CoP) among faculty
Quality assurance (QA)	QA-ing your own course Course evaluation	Program-level and institutional-level QA (benchmarking, internal QA, external QA including accreditation) Program monitoring & evaluation

Table 16 shows the final SIBOL training curriculum based on the analysis shown in Table 15.

Table 16
SIBOL Training Curriculum

SIBOL Training Module	Essential Questions Covered
Module 1 - Planning Blended, Online, and Open Learning (BOL)	<ul style="list-style-type: none"> • Why do blended, online, or open learning (BOL)? What institutional goals and what needs and challenges are to be addressed through the adoption of BOL? What is your vision for teaching and learning? • What BOL strategy is appropriate and effective for your institution? • How can the strategy be adopted across the institution? What BOL systems and policies are needed?
Module 2 - Materials Development in BOL	<ul style="list-style-type: none"> • What course materials are needed in BOL and what are the options for BOL course materials development? • What is a BOL materials development system and what factors should be considered in building the system? • What policies should govern the use of blended

	learning materials within the institution?
Module 3 - Technology Management for BOL	<ul style="list-style-type: none"> • What are the current technologies being used in BOL? How do we select technologies for BOL? • What policies are needed to ensure safe use of technologies in BOL? • How do we roll out BOL technologies across the institution? What tech support and maintenance activities should be planned?
Module 4 - Faculty Development for BOL	<ul style="list-style-type: none"> • What BOL faculty development model would best suit your institution? • What policies should your institution adopt to promote effective and sustainable BOL practices? • How do you build a community of practice in BOL?
Module 5 - Learner Support for BOL	<ul style="list-style-type: none"> • What is an effective student support system in BOL? What are the components of this system? • What factors should be considered in developing and implementing your institution's learner support system?
Module 6 - Quality Assurance for BOL	<ul style="list-style-type: none"> • Why is quality assurance in BOL necessary? What are the dimensions of quality in BOL? • What are the components of a QA system in BOL? What factors should be considered in setting up the system?
Module 7 - Sustaining BOL	<ul style="list-style-type: none"> • How is continuous innovation across the institution sustained?

The modules were designed to foster independent and collaborative learning among training participants, and were delivered via a course site on MODEL, UPOU's Moodle-based MOOC platform. For Modules 1 to 6, participants were asked to view short video lectures, take online quizzes with automated feedback (self-assessment quizzes), study required readings, participate in online discussion forums, and work on group assignments with co-participants from their institution. The group assignments were presented and discussed at online synchronous workshops with the workshop facilitators and training participants from other institutions. Module 7 took the form of a focused group discussion with each participating institution regarding their impressions of and takeaways from

the SIBOL training; their plans for the implementation of blended, open, and online learning in their institutions; and possible areas for collaboration with the UPOU BUKA team specifically and UPOU more generally.

The Participating Institutions

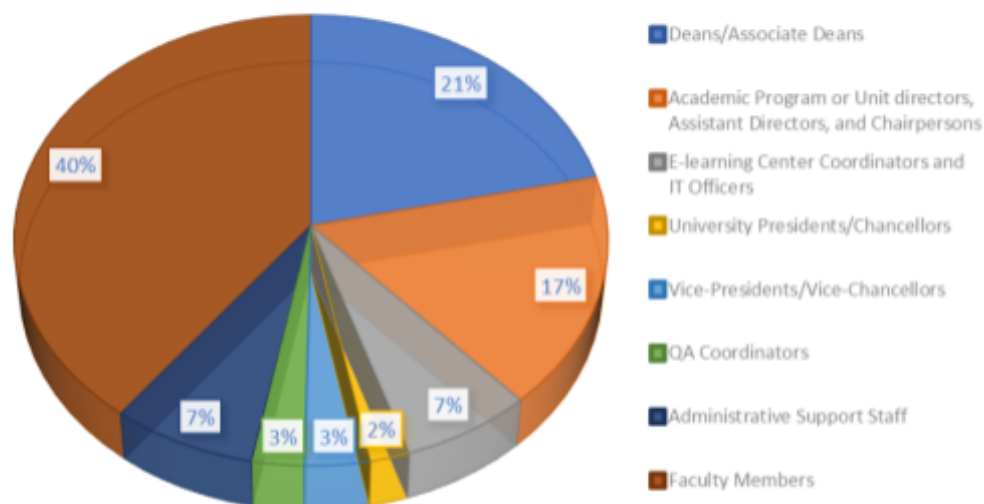
A total of 23 HEIs responded to the call for participants in the pilot SIBOL online training programme. In line with the institutional focus of the training, the participating HEIs were asked to send a team of four to seven faculty members, academic staff, and/or administrators responsible for planning, programme implementation, and monitoring of blended and online learning programmes in their institutions.

The 23 HEIs included 14 state universities and colleges, one local college (comprising 61% of the total), and eight private colleges and universities (39%). The majority (19 out of 23, or 83%) of the participating institutions were from Luzon, one of three island groups comprising the Philippines, where the national capital region is located. There were only two institutions each from the Visayas and Mindanao island groups.

From the 23 participating HEIs, there were 149 individual participants holding various positions within their institutions who participated in the training programme (see Figure 15).

Figure 15

Designation of the SIBOL participants in their institutions



Challenges

The UPOU BUKA team encountered four major challenges in implementing the SIBOL training programme, namely:

1. Recruiting participating institutions from across the country;
2. Providing more institution-focused feedback;
3. Encouraging discussion and collaboration within teams and across institutions; and
4. Sustaining participant engagement.

Participant Recruitment

While there was a relatively good mix of publicly funded and private HEIs among the 23 participating institutions, 19 of the participating institutions (83% of the total) came from Luzon, one of three island groups comprising the Philippine archipelago. Of the Luzon-based HEIs, five were from Metro Manila (also known as

the National Capital Region) and four were from Region IVA, which is near Metro Manila. There were only two participating HEIs from the Visayas, which is composed of three regions, and two participating HEIs from Mindanao, which is composed of six regions. The ideal would have been at least one HEI from each of the 17 regions comprising the Philippines since the adoption of blended and online learning is part of CHED's vision for a more flexible higher education system. This representativeness is also necessary to develop institutional leaders in ODL, as envisioned by the Open and Distance Learning Act (2014). However, institutional readiness for ODL is essential, which implies that participation in the training programme should be voluntary on the part of HEIs. To encourage more participants from HEIs in Visayas and Mindanao, there could be future iterations of the training programme for each area.

Providing more Institution-focused Feedback

Noting differences in institutional and individual experiences with blended, online, and open learning, the UPOU BUKA team applied principles from the Universal Design for Learning (UDL) framework (CAST, 2022) in developing the training materials. Learning resources were provided in different formats, such as pages in the VLE, files in portable document format (PDF), videos, annotated readings, and presentation slides. Moreover, the discussion questions encouraged reflection on institutional practice, attendance in the online synchronous sessions was not mandatory for all team members, and everybody had access to the recorded sessions.

However, the diversity of institutional experiences and levels of engagement with blended, online, and open learning made it difficult to address specific concerns and provide more focused feedback. To address this, the participating HEIs were grouped according to similarities in institutional context, and different members of the UPOU BUKA team were assigned to mentor each group. Grouping the participating HEIs according to similarities in institutional context facilitated a more productive exchange of ideas among the participants and between the participants and the training team.

Encouraging more Open and Collaborative Discussions

At the outset, teams were expected to work on the group assignments together and discuss the module topics before the online synchronous workshops. However, not all teams could do this consistently for all modules. There was a tendency to rely on particular members to prepare and present the group assignments during the synchronous workshops. The problem was partly addressed by requiring different members of the team to present at each session and requesting members of the other participating institutions to comment after each presentation. Grouping the participating HEIs with similar experiences and concerns made this process easier.

Sustaining Engagement

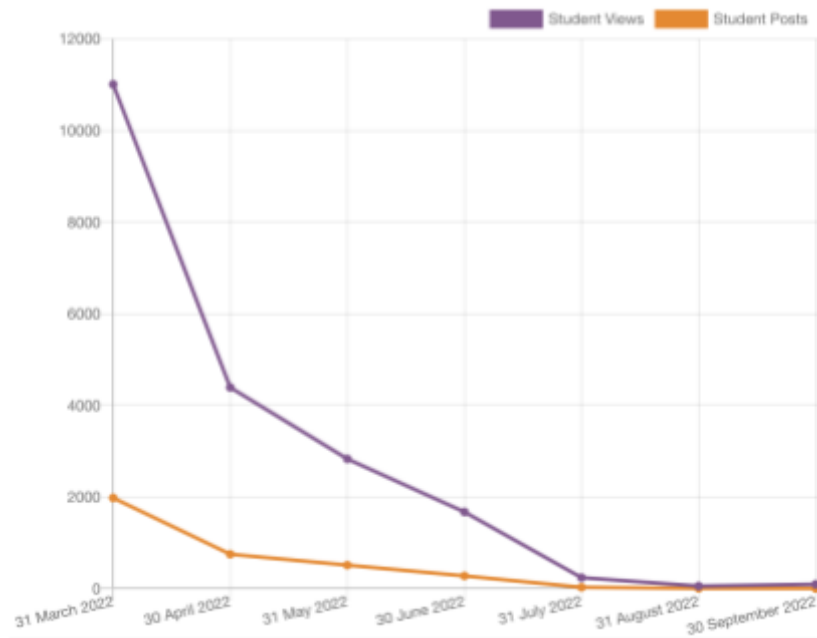
The duration of the training proved to be challenging for the participants, most of whom held administrative positions in their respective institutions and had other work assignments to which they had to attend. This challenge was partially addressed by the training design where individual participation in the online discussion forums and other asynchronous activities was self-paced, and the minimum requirement for the synchronous workshop was attendance by at least one team member from each institution. Assignment deadlines were also adjusted to provide sufficient time for the participants to work on the assignments as a team.

Findings and Lessons Learned

Despite refinements to the training design as the course progressed, a decline in the number of individual participants who engaged in the asynchronous module activities as the training progressed was noted (see Figure 16). Most of the participants simply viewed the module forums instead of posting responses to discussion questions and to other participants' posts.

Figure 16

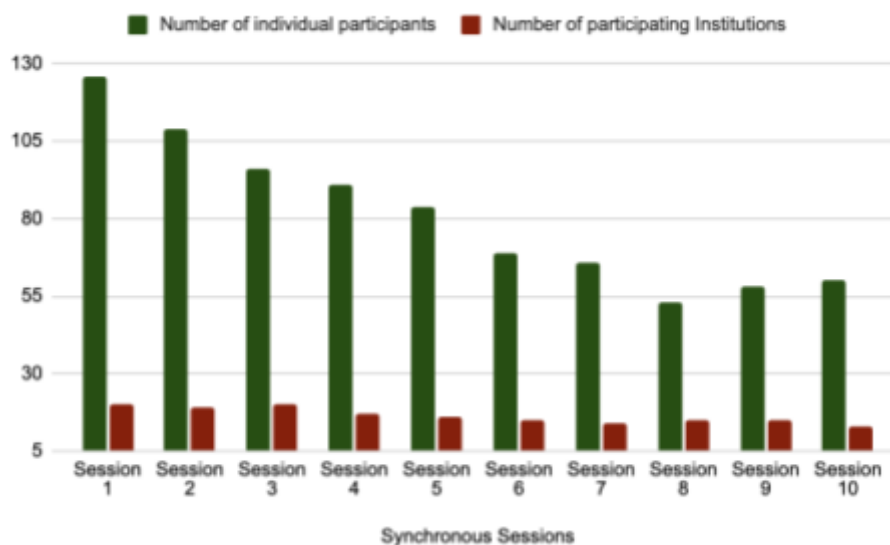
Number of participants' views and posts on the VLE



Despite the downward trend in individual participation, the institutional participation remained somewhat consistent based on the attendance in the online synchronous workshops, as shown in Figure 17.

Figure 17

Attendance in the synchronous sessions



Completion of the training program was based on the submission and presentation of the group/team assignments, and at the end of the training, 16 out of the 23 participating institutions met this requirement. Unfortunately, out of the 16, only five pushed through with the institutional consultations in Module 7.

Strengths of the training programme

Aside from the activity logs and attendance in the synchronous sessions, end-of-module surveys provided a glimpse of the participants' views of the training experience. Based on the survey responses, three aspects appeared to have worked well for the participants:

1. The module resources, particularly the video presentations and the core readings or case studies;
2. The synchronous sessions; and
3. The group assignments.

The participants said that the core readings and case studies were useful because these materials presented them with curated institutional policies, guidelines, and practices on the blended, open, and online learning subsystems that helped in their analysis of their own institutional context. The participants also realised the advantage of making learning materials available at the VLE throughout the training, so they could study them more closely at their most convenient time. Some appreciated the video lectures for highlighting key points to help them understand the topics better.

The synchronous sessions were seen as an effective space to share practices and discuss issues concerning the different blended, online, and open learning subsystems with academics from other institutions. As one participant noted, the faculty and faculty administrators of Philippine HEIs tend:

to focus on some things that are based only [on] our experiences and insights from those experiences. Discussing these with others gave us a greater perspective that will help us in planning our own [programs].

In other words, the synchronous sessions were also an opportunity for benchmarking, identifying institutional weaknesses, and exploring possible solutions to issues and concerns in blended, online, and open learning. Working on the assignments as a group was a positive aspect of the training because it prompted the participants to reflect on their institution's context and culture. As one participant stated, the group work allowed them to:

think really deep[ly] regarding our status vis-a-vis what the module says.

Points for improvement

Most of the participants who completed the end-of-module surveys did not indicate any aspects that needed improving, but there were a few useful suggestions, such as adjusting the training schedule, providing more resource materials, and emphasising key takeaways from the modules during the synchronous sessions. Adjustments in the training schedule were easy to address, i.e., allocating more time for the asynchronous group assignments and extending deadlines. With regard to the provision of resource materials, while the modules featured a good mix of readings and multimedia materials, for example, video lectures, presentation slides, some participants wanted more case studies and examples. A few wanted 'bite-sized' videos that would summarise key points while another suggested discussing the key points in the module during the synchronous sessions. This preference for more condensed versions of the learning resources could be due to the fact that they found it difficult to manage their time as a participant in the training amidst their busy work schedules.

For the UPOU BUKA team, aside from making the training materials more accessible, providing more institution-focused feedback was challenging. Grouping the participating institutions according to similarities in their

experiences of blended, online, and open learning facilitated the provision of feedback during the synchronous sessions but this may not have been sufficient. The one-on-one consultations for each institution in Module 7 partially addressed the concern, but only 30% of the participating institutions that completed the six modules opted to participate in Module 7.

Sustainability and Transferability

Philippine HEIs, especially during and after the COVID-19 pandemic, have been compelled to evaluate how they can help build a more robust, responsive, and sustainable higher education system. Some aspects of this process are beyond the control of the HEIs themselves. For one, there is a need for clearer policies and frameworks, and more concrete support from the government with regard to the implementation of blended, open, and online learning.

As a capacity-building program on blended, online, and open learning, SIBOL can be further improved by fully adopting the UDL principles concerning engagement, representation, action, and expression. Perhaps different versions of the training modules to address the needs of specific domains or academic disciplines, for example, humanities, social science, or STEM, could also be developed. Also, forums, colloquia, and seminar-workshops could be held as part of the training phase as well as the mentoring phase (Phase 2) of SIBOL. One example is the forum, ‘Technology-supported Teaching and Learning in Higher Education,’ held on the seventh of February 2023 at UPOU where representatives from the participating institutions of the BUKA project shared their institutional practices and projects related to blended, online, and open learning. These activities would serve as spaces for networking and allow a community of practice to sprout (“sibol” or “sumibol” in Filipino).

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BUKA - REACH Capacity Building on Innovative Flexible Learning - Mindanao State University-Iligan Institute of Technology (MSU-IIT), Philippines

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Introduction

The Mindanao State University-Iligan Institute of Technology (MSU-IIT) has had a track record of conducting training on the use of ICT through the Center for eLearning even before the COVID-19 pandemic, through its collaboration with the institution's College of Education. MSU-IIT's virtual learning environment (VLE), called the MSU-IIT Online Learning Environment (MOLÉ), uses the Moodle learning management system customised to use single sign-on along with the My.IIT University Portal, and Google Workspace for Education. However, the use of MOLÉ, though voluntary, was adopted by faculty members at MSU-IIT to enhance teaching and learning activities for certain classes following the traditional mode of delivery. Although there was a Board of Regents-approved mandate that academic staff can use the 70-30 hybrid mode of delivery, with 70% of teaching

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and learning activity occurring online and 30% occurring face-to-face, the uptake of the hybrid mode of delivery with use of MOLE was low among academic staff.

Amid this situation, the BUKA project emerged, driven by a strong commitment to advancing equity and expanding access to higher education (HE) through open and distance learning (ODL). The project, starting in February 2020, perfectly aligned with the MSU-IIT objective of developing programmes for online and blended learning in order to cater for the diverse needs of students.

Implementing the BUKA project principles is an important move on embracing the changing educational landscape and the growing demand for flexible learning options. Its timely inception during the COVID-19 pandemic has offered MSU-IIT an opportunity to empower faculty members in designing inclusive courses to cater for the diverse needs of students, particularly in the realm of ODL.

To support faculty members in designing inclusive course materials, a peer mentoring framework was implemented as part of the project. In the initial two years of the project, the MSU-IIT College of Education (CED), in collaboration with the Center for Pedagogical Innovations, piloted a capacity building framework for designing quality e-learning courses. Recently, MSU-IIT expanded the training to the six colleges within the University and nearby HE institutions in Mindanao. The [BUKA project at MSU-IIT](#) is instrumental in enhancing access to quality e-learning courses and improving teaching practices through the implementation of innovative flexible learning modalities.

Methodology

Capacity building at MSU-IIT is grounded on the theory of Technological Pedagogical Content Knowledge (TPACK) by Koehler and Mishra (2005). It is a theory that explains the set of knowledge, including technology, content, and pedagogy that teachers need to develop in order to efficiently redesign their traditional teaching for the online, remote learning context.

The ADDIE model suggested in FAO (2021) was used as a framework in completing the process for capacity building. The ADDIE model helps in

understanding the specific needs of faculty members, designing relevant content, identifying effective strategies in conducting training, and evaluating the outcomes.

Analysis

During the analysis stage, a Training Needs Assessment was used to assess the teachers' levels of knowledge in technology and pedagogy. The survey was focused only on assessing the level of knowledge in terms of technology and pedagogy on the premise that all faculty were already content experts in their subjects. Additionally, students were also considered during the analysis in order to know their capacity in terms of availability of elearning resources at home. By considering both the faculty and student needs, a holistic understanding of the capacity building on teaching and learning online is established.

Design and Development

To ensure equity and access for all students, one of the important goals of the BUKA project was to create inclusive learning materials suitable for both face-to-face and online modalities. Recognizing that not all students had access to the Internet, faculty members developed learning packets and printed modules to cater to those who could not engage in online learning. Moreover, online materials and activities were curated for students who had internet access, thus providing a comprehensive learning experience.

When the COVID-19 pandemic struck in 2020, more than 90% of the educators actively participated in online training in utilising MOLÉ. This initiative aimed to enable a transition to emergency online instruction, ensuring that teaching and learning could continue uninterrupted despite the challenges posed by the COVID-19 pandemic. By embracing digital platforms and promoting the use of MOLÉ, faculty members were equipped to effectively engage with their students, deliver course materials, facilitate discussions, and assess student progress using MOLÉ.

The design of the training programme was focused on:

- Redesigning syllabi from traditional face-to-face delivery to a remote teaching and learning modality, following the Outcome-Based Education (OBE) framework by Spady (1994). Syllabus must be vertically aligned to institutional standards and horizontally aligned to intended learning outcomes (ILOs), teaching learning activities (TLAs), and teaching assessments (TAs) for both face-to-face and online modes; and
- Creating a MSU-IIT Online Learning Environment (MOLÉ) classroom utilising appropriate technology tools to support in achieving learning outcomes considering the diversity of learners. The training leverages the use of technology effectively to cater the needs and preferences of varied learners.

To enrich the training experience, visiting professors were invited as guest speakers and trainers. These professors are experts in the field of ODL, possessing considerable experience and knowledge. They gave lectures and workshops on various topics, including inclusive learning design, instructional material development with an emphasis on Open Educational Resources, and open pedagogies.

In planning the training topics and activities, the design framework employed was REACH, which stands for Relevant, Engaged, Active, Connected, and Holistic. This framework, developed by Dr. Amelia Buan at MSU-IIT, ensured that the training content and activities were meaningful, engaging, interactive, connected to real-world scenarios, and holistically designed to address the diverse needs of the participants.

Before the actual training took place, the training team prepared the following important components in the capacity building tasks:

- MOLÉ Training Classroom - To facilitate the smooth flow of training content delivery, a MOLÉ classroom was developed for the training. The topic and activities were sequenced thoroughly to ensure the clarity of contents and coherence of content delivery;

- Training modules - Resource speakers were asked to design learning materials to address the required content. The learning materials include lecture notes, activity sheets, guides, videos, and other supplementary materials to enhance training experience. These materials served as valuable resources for both resource speakers and the participants.
- Evaluation tools - The evaluation tools employed in the training program extended beyond the assessment of the training itself. They also encompassed self and peer evaluation checklists to evaluate the materials being developed by the participants. These evaluation tools ensured that the training materials met the desired training outcomes.

Preparing these essential components will create a well-structured and comprehensive capacity building experience for the participants.

Implementation

The [BUKA MSU-IIT capacity building project](#) had three categories: first, the piloting of the BUKA MSU-IIT learning sessions at the College of Education (CED); second, implementing the piloted learning sessions at a university-wide level, which were conducted at the Center for eLearning (MICEL; now called the Center for Pedagogical Innovations - CPI); and third, the project provided academic support to the University through capacity building on designing inclusive curriculum for blended learning delivery.

Pilot implementation of the BUKA MSU-IIT capacity building workshops initially occurred during the first year of implementation in the College of Education. In this phase, the REACH framework was utilised in designing the Innovative Flexible (InFLex) Webinar Series. The goal of the webinar series was to develop learning guides and other relevant materials to support students in the pivot to emergency remote teaching and learning. Assessment plans were embedded in the course design, taking into consideration students varied access to digital technologies and tools. Furthermore, mentors were trained to provide support on each department implementation. To provide a more user friendly virtual learning environment (VLE), the course in the MOLE classrooms. The topics

covered were: Training for Teachers on Innovative Flexible Learning Strategies; Developing CED Peer Mentors; and Open Educational Practices (OEP). The BUKA MSU-IIT team reflected on the pilot implementation for university-wide implementation of the capacity building workshops/webinars.

Phase 2 of the BUKA MSU-IIT project was the University-wide implementation of the capacity building activity in six other colleges, where each Dean recommended mentors for each department. The mentors were certified by the University based on their training outputs and mentoring programmes in their departments.

Support for the implementation was put in place using two support strategies, namely, BUKAtalk and Skill Building Sessions. BUKAtalk is a semi-annual sharing session allowing faculty members to share their best practices and innovation in implementing InFLeX teaching and learning during the semester. This far, participants have engaged in reflexive discussions and adopted effective strategies to improve their blended learning practices. The InFLeX mentors have used the BUKA learning space to support faculty members in developing inclusive learning materials.

Table 17, below, outlines the activities, outputs and initiatives related to the University's efforts to implement and promote flexible and innovative teaching.

Table 17

Timeline of BUKA MSU-IIT Capacity Building Activities

1. Capacity Building Pilot: College of Education (CED)	Output
CED Training Teachers On Innovative Flexible Learning Strategies (June -July 2020)	<ul style="list-style-type: none"> • OBE Course Syllabus • Learning Guides and Course Materials • Course Assessment Plan • Improved MOLE Classroom
Developing CED Faculty Peer Mentors for InFLeX Modality 2021	College-level Peer Faculty Mentors on InFLeX

Department mentoring on InFLeX 2021	Department-Level Peer Mentors on InFLeX
Open Educational Practices: Combating Challenges with an Open Approach 2021	Design Inclusive Course Materials: OER and Design Thinking
2. Capacity Building: University-wide	Output
InFLeX Webinar Series - Online Training-Workshop on Innovative Flexible Learning and Teaching Modalities (June-July, 2020)	<ul style="list-style-type: none"> • OBE Course Syllabus • Learning Guides and Course Materials • Course Assessment Plan • Improved MOLE Classroom
InFLeX Faculty Mentoring and Certification Program (IFMC)	<ul style="list-style-type: none"> • OER Utilisation and Development • Building of Community of Mentors
3. Academic Support	Output
BUKAtalk	<ul style="list-style-type: none"> • A semi-annual sharing of best practices and innovations during the InFLeX implementation for the school year. • Reflection, inquiry, and adoption of effective strategies from the discussant to improve their teaching practice.
InFLeX Mentors	Develop champions and peer facilitators for flexible and remote teaching in their respective colleges.
Skills Building Sessions	Short training sessions to upskill or enhance the capabilities of academics on the use of productivity tools for InFLeX modalities.
BUKA Learning Space	Establishment of a laboratory for educator use on developing technology-based and inclusive instructional materials.
Training academics from MSU main campus and local college	<ul style="list-style-type: none"> • OBE Course Syllabus • Learning Guides and Course Materials • Course Assessment Plan • Use of Google Workspace

Evaluation

Evaluation on capacity building workshops used the desired assessment tools in each training session. The cycle of improving the sessions followed the plan, implement, reflect, revise approach. The BUKA MSU-IIT team reflected on the process of delivering each session and improved based on participant feedback. The BUKA mentors also used the same Plan, Implement, Reflect, Revise approach on the learning materials being implemented based on student feedback.

Challenges

The BUKA MSU-IIT team encountered a number of challenges in the course of the project. Where these challenges were encountered, solutions were identified in order to minimise or eliminate those challenges (see Table 18).

Table 18

Challenges Encountered and Solutions Identified on the BUKA MSU-IIT Project

Challenges Encountered	Identified Solutions
<p>Since all training activities were delivered online, participants had difficulty following the demonstration presented by the speaker.</p>	<ul style="list-style-type: none"> ● Recorded sessions were organised in the MOLÉ classroom, for the participants to review the contents delivered. ● For technology skills, skills building sessions were conducted to develop specific skills on the use of tools and development of courses. ● Based on the feedback of the participants, some contents and skills demonstration sessions were improved to address the challenges met during the session.
<p>Lack of personalisation. Without the physical presence of a facilitator and fellow learners, participants in online programmes more easily lost motivation, got distracted, or ended up ‘multi-tasking’.</p>	<ul style="list-style-type: none"> ● Echo training in colleges/departments and develop a community of mentors whereby peers could have direct consultations either in-person or through social media platforms. ● Mentoring sessions were customised based on the needs of the participants

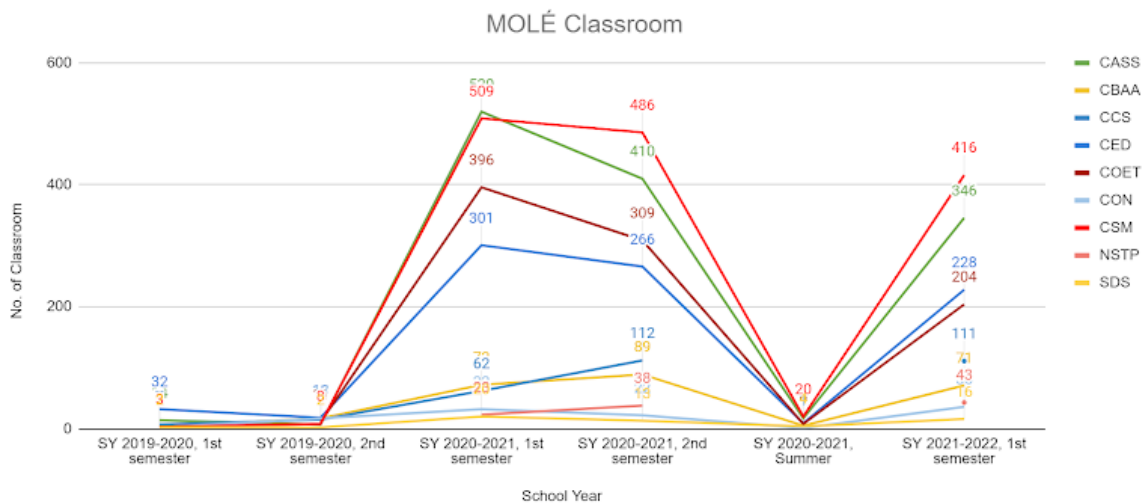
<p>Limited eLearning tools for all educators on work from home scheme.</p>	<ul style="list-style-type: none"> ● The University provided laptops with eLearning tools for all academic staff. ● BUKA space was used for mentoring sessions for academic staff who had limited access to the technology tools
<p>Teaching and learning in online modality is problematic because of the different categories of learners.</p>	<ul style="list-style-type: none"> ● Different categories of students were identified: <ul style="list-style-type: none"> ○ students with internet connectivity and gadgets; ○ Students with intermittent connectivity and low-tech gadgets; ○ Students with no connectivity and no gadgets). ● Training on how to develop learning packets and OERs for each cohort were conducted.

Findings

The BUKA MSU-IIT project implementation of innovative flexible (InFLeX) learning strategies has yielded positive results as shown by the increased utilisation of the MOLÉ VLE from 2020, as presented in Figure 18. A higher percentage of educators have demonstrated improvement in the course design aligning to the Outcome - Based - Education (OBE) and InFLeX methodologies. Consequently, the course designs have enhancements in content delivery and assessment, promoting an inclusive learning environment.

Figure 18

Utilisation of the MOLÉ Classroom from 2019–2020 to 2021–2022



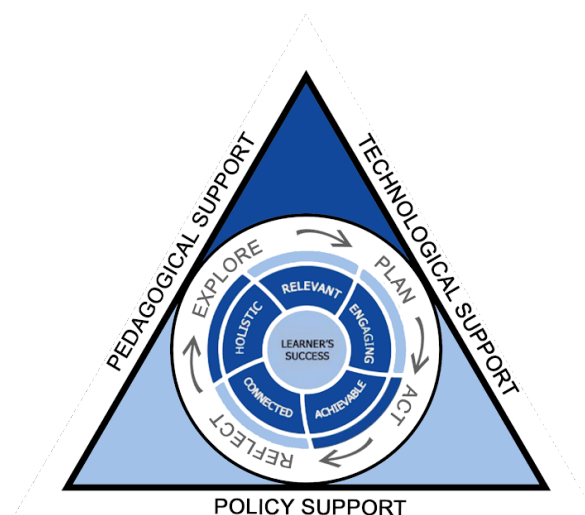
As faculty members have become adept at integrating digital resources, the quality of Teaching - Learning - Activities (TLAs) has shown marked improvement. The improvement in the quality of learning resources has led to an increase in student engagement within the use of the MOLÉ VLE (Buan et. Al., 2022).

The BUKA MSU-IIT project, using the REACH framework, yielded a successful pilot implementation. Moreover, educators from diverse disciplines, including social and natural sciences, engineering, and business have acquired a better understanding of inclusive learning design.

However, to sustain and nurture these positive outcomes, it is crucial to provide educators with comprehensive and continuous support encompassing pedagogical, administrative, and technological aspects. In this regard, champions who are good at designing inclusive learning materials should be given the necessary policy support to foster and maintain a robust peer mentoring program. Furthermore, based on the experience of the BUKA MSU-IIT project, the REACH framework has become a guide on the implementation of inclusive course design.

Figure 19

Expanded REACH Framework (BUAN, 2022)



The successful implementation of the BUKA MSU-IIT Capacity Building project on Innovative Flexible (InFLeX) has resulted in a positive impact to the University. The positive outcomes can be summarised as follows :

- Increase the utilisation of the University VLE, MOLÉ. This means that more students and faculty members are actively engaging with the platform for teaching and learning activities;
- Improvement of Course Design. Trained faculty members have demonstrated improvement of their course design, aligning with the outcome-based education and inclusive learning methodologies. This has enhanced content delivery and assessment strategies that promote an inclusive learning environment;
- Increased Student Engagement. The improvement in the quality of learning resources has resulted in student engagement, collaboration, and social interaction;
- Successful pilot implementation of the REACH Framework, which is an inclusive learning design approach. The positive impact of this

implementation has extended to other colleges in the University, fostering a better understanding of inclusive learning design.

Sustainability and transferability

For continued implementation of practices that foster equity and access in higher education, sustainability and transferability can be assured through comprehensive and continuous support encompassing administrative, pedagogical, and technological aspects. Furthermore, there is a need for recognising and supporting champions who excel in the designing and implementation of InFLeX. These faculty members can play a crucial role in maintaining the peer mentoring program, which further supports the adoption of inclusive learning design. The REACH framework has proven to be a useful guide for implementing inclusive course design. It should be continued to be used as a reference for future course development and enhancements.

Conclusion

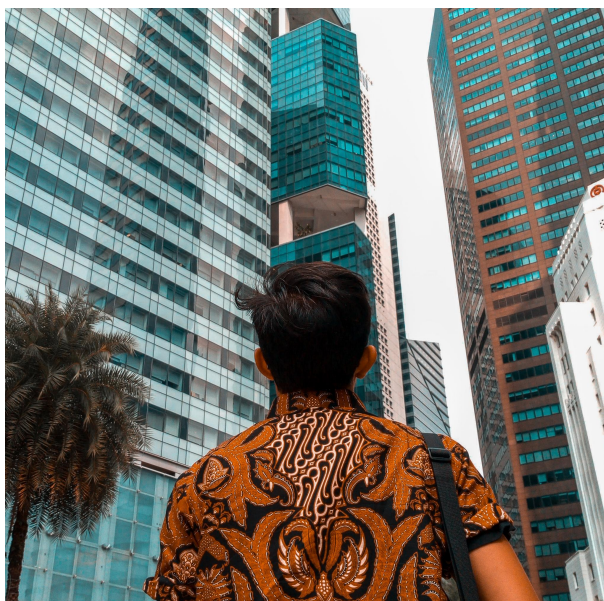
In conclusion, the BUKA MSU-IIT Capacity Building project had a positive impact on the University, leading to increased utilisation of MOLÉ, improved course design, enhanced student engagement, and successful adoption of inclusive learning practices. To ensure the sustainability and transferability of these positive outcomes, ongoing comprehensive support and recognition of champions are necessary, along with continued utilisation of the REACH framework as a guiding tool.

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Conclusion



Openness serves as an indispensable ingredient in the rich recipe of human learning, development, and progress. It is a truth universally acknowledged that human beings naturally inhabit an open ecosystem, engaging in complex, multifaceted interactions with their environment. Hence, one can make a persuasive argument that openness acts as a potent catalyst, facilitating and invigorating the process of learning.

(Bozkurt et al., 2023)

The BUKA: Advancing Equity and Access to Higher Education Through Open and Distance Learning project was conceptualised with the aim of promoting equity and access in higher education, through the use of open and distance learning (ODL), in the six partner universities in Malaysia, Indonesia, and the Philippines. The project was supported by funding from the European Union's (EU) Erasmus+

programme, which has the apt tagline “enriching lives, opening minds” (EU, 2023). More specifically, the BUKA project falls under the Erasmus+ programme’s Key Action 2, cooperation among organisations and institutions, with a focus on bringing positive and long-lasting effects on participating organisations and related policy systems, organisations, and individuals (EU, 2023). Within Key Action 2, the BUKA project is associated with the goal of capacity building in higher education within educational institutions and systems in designated non-EU countries by, for example, promoting inclusive education, equality, and equity in higher education or by improving the training of teachers in order to impact the longer term quality of education systems (EU, 2023).

The institutional teams in Malaysia, Indonesia, and the Philippines developed their own projects based on local, regional, and/or national needs but with intersecting themes such as: direct capacity building for educators, development of infrastructure to support such capacity building, and increasing access to higher education for marginalised groups through innovative structural and technological advancements. This important work was done against a backdrop of the COVID-19 pandemic and the impact that it had on staff in higher education, something a number of project team members reflected on during the first year of the pandemic (Teräs et al., 2020). During the COVID-19 pandemic, existing tensions between closed, techno-deterministic approaches to the development of online learning and more open and inclusive approaches were amplified, and a noteworthy aspect of the BUKA project was that those partners without a history in ODL were choosing to take the open and inclusive route in developing blended and online learning provision. By any measure, the BUKA project overall, and through the constituent six partner projects, has answered the call to enrich lives, open minds, bring positive and long-lasting impact, and promote inclusive education, equality, and equity through building capacity at the individual, team, institutional, and educational system level.

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