R2A1: A learning design framework for international blended and virtual modules/activities

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1. Introduction

1.1. Rationale

Blended and virtual learning activities have become increasingly prevalent during the Covid-19 pandemic, but also in the post-Covid European setting. In the past years, the pandemic forced HEIs to close their physical doors, which pushed educators to have to pivot to online teaching methods to ensure students can continually attend their education, in a way, which was unfamiliar for many, teachers and students alike. Although the unprecedented shift to Blended and Virtual learning has been challenging for HEI teaching staff and students alike, it has also opened up new possibilities and established existing ones as suitable, even beneficial, for learning. With the use of digital tools and platforms, teachers can create more engaging and interactive lessons that cater to different learning styles, as opposed to ones that ruled the scene of HEI education, like Passive Learning Activities. While Active Learning Activities are not the children of the Covid-era, the pandemic made their need and their place in HEI course design prominent. In the following section, the definition of Blended and Virtual Learning will be presented to meet the recommendation of (C. Graham, 2019; C. R. Graham, 2021) connected to Blended Learning Research.

1.2. Definition of Blended and Virtual Learning in the context of the INVITE project

Blended Learning

Blended learning refers to an instructional approach that combines traditional face-to-face classroom teaching with online learning activities. It is a model that integrates in-person interactions and online resources, creating a flexible and personalized learning environment. In a blended learning setting, students typically engage in both physical classroom sessions and online components, such as virtual lectures, multimedia materials, interactive modules, or discussion boards. The combination of these methods aims to optimise learning outcomes by enhancing the benefits of both in-person and digital learning approaches.

Virtual Learning

Virtual learning, also known as online learning or e-learning, involves delivering educational content entirely through digital platforms and resources, it can be synchronous or asynchronous. It is a form of remote education that utilizes technology to provide instruction and facilitate learning without the need for physical classrooms. Virtual learning can take various forms, such as live online classes, pre-recorded video lectures, interactive exercises, virtual simulations, or digital assessments. Students participate remotely using internet-connected devices, accessing educational materials and engaging with instructors and peers through online communication tools.

These modalities are not new to HE, they are experimented with and utilized since the digitalization of HE gained a larger focus, although criticism was formed connected to the lack of systematic application and review of Blended modalities in HE (C. Graham, 2019; C. R. Graham, 2021).

In the context of the Covid-19 pandemic, Blended and Hybrid Learning allowed students to have some face-to-face interaction with teachers while also giving them the flexibility to learn from home, which benefited students' retention and supported them in keeping their pace of study. Blended Learning has the potential, to open up the door for those, who can be excluded from HE due to its brick-and-wall nature, while also addressing and promoting physical interaction when deemed beneficial and serving students' academic engagement.

While in many aspects Blended and Virtual Learning is shaping HE to become more inclusive than ever, there are some aspects of it which still require attention in creating an equal for all opportunity, which is mainly connected to technological limitations, and language barriers depending on the international aspect of the offered learning experience. These limitations derive from the following:

- Access to the internet: Blended and Virtual learning requires access to the internet, which is not available to everyone in the world. This can be a significant barrier for students in developing countries or rural areas.
- Device requirements: Blended and Virtual learning can also be difficult for students who do not have access to the necessary devices, such as a computer or tablet.
- Technical difficulties: Technical difficulties can occur during Blended and Virtual learning, such as slow internet connections, frozen screens, and audio problems. These can disrupt the learning process and make it difficult for students to engage with the material.
- Software compatibility: Blended and Virtual learning platforms may not be compatible with all devices and software. This can require students to spend time and money troubleshooting technical issues in order to access their courses.
- Lack of technological skills: Some students may not have the necessary technological skills to participate in Blended and Virtual learning. This can include skills such as using a computer, navigating the internet, and using Blended and Virtual learning platforms.

Despite these current limitations, it is clear that such modalities can support and enhance learning in HEIs, while also having the capability to promote internationalisation.

Overall, Blended and Virtual learning activities have become an integral part of the European education system. Though they were present before the pandemic, the post-Covid era puts Virtual and Blended educational offers in the spotlight, especially with the support of the second Digital Education Action Plan of the European Union (Digital Education Action Plan (2021-2027) | European Education Area, n.d.). While challenges remain, the shift is due to the pandemic, but also thanks to the attempts of the EU in promoting Virtual and Blended modalities and course offers in HE this shift has also opened up new opportunities for innovative and engaging learning experiences. The INVITE project aims to partake and contribute to enabling and the development of truly meaningful teachers' and students' experiences connected to Virtual and Blended learning and activities. The INVITE Learning Design Framework aims to enable quality course design for non-face-to-face international and intercultural experiences.

1.3. Key Qualities of Blended and Virtual Learning

Flexibility and personalization:

Blended and virtual learning can be tailored to the individual needs and learning styles of students by providing a variety of learning options and activities. For example, students can choose to learn through lectures, discussions, hands-on activities, or online simulations. Students can also learn at their own pace and in their own time.

Engagement:

Blended and virtual learning can be more engaging than traditional face-to-face learning by incorporating a variety of multimedia and interactive activities. For example, students can watch videos, listen to podcasts, play games, and collaborate on projects online.

Collaboration:

Blended and virtual learning can provide students with opportunities to collaborate with each other and with experts from around the world. For example, students can work on group projects online, participate in online discussions, and attend virtual guest lectures.

Accessibility:

Blended and virtual learning can make education more accessible to students who live in remote areas or who have disabilities. For example, students can access online courses and materials from anywhere in the world, and students with disabilities can use assistive technologies to participate in online learning activities.

Affordability:

Blended and virtual learning can be more affordable than traditional face-to-face learning, as it can reduce the need for classrooms and other resources. For example, students can take online courses without having to travel to a campus.

Promoting internationalisation

Virtual and Blended opportunities in HEIs offer students the possibility for internationalisation, with partaking in it they can gain international experiences, without committing a semester or even more, to live in another country, which is a concerning and often even restraining aspect for many, not only due to monetary reasons but also because of the level of commitment it requires from a student.

Fostering intercultural experiences

Intercultural experiences for HE students can be highly beneficial. Virtual and Blended are considered to be much more cost-effective, and more environmentally friendly.

Curated, optimized course content delivery

With the implementation of Virtual and Blended Learning experiences, students can follow more optimized courses. Such modalities in HE have the potential to curate course content in a way that suits students' learning styles best. Though, this requires the understanding of course development based on needs and with a digitalisation mindset over digitization.

1.4. Formats of Virtual and Blended Learning Activities

Passive Learning

Activities where students are mainly receiving information or content without actively engaging in the learning process. While passive learning activities can provide valuable information, they are generally less effective in promoting deep understanding and long-term retention compared to active learning activities. Therefore, it is important to utilize Passive Learning Activities in Blended Learning in a manner, that is purposeful and is the most meaningful approach in sharing information with students.

Active Learning

Designed to engage students in the learning process through interactive and participatory tasks. Active Learning Activities aim to involve and engage students, by supporting them to actively think, analyze, and

discuss certain topics. With Active Learning, they can apply and test the acquired knowledge. Active learning promotes higher-order thinking, critical reasoning, problem-solving, and collaboration (...).

Synchronous Learning

These activities in occur in real-time, where students and instructors engage in learning activities simultaneously, while they might not be present in the same physical location (hybrid learning model). These activities require participants to be present at a specific time and often involve direct interaction and communication. Some examples of synchronous learning activities in blended learning include might include live face-to-face or virtual classes, these are online classes conducted through video conferencing platforms, where instructors deliver lectures, facilitate discussions, and engage in real-time interactions with students. A synchronous setting though, does not have to be a passive learning setting, as collaborative group work often happens synchronously. It entails that the collaboration of students working together in real-time to complete tasks, brainstorm ideas, and discuss project progress.

Asynchronous Learning

Activities are considered asynchronous when they do not require real-time interaction in order to allow students to access learning materials and complete tasks at their own pace and convenience. What characterises asynchronous activities, is that they are often self-directed and allow for flexibility in scheduling. Some examples of asynchronous learning activities in blended learning include pre-Recorded lectures or online assignments and assessments. The prior required the teaching staff to prepare and provide recorded video lectures that students can access and view at their own preferred time and pace, self-paced learning modules are similarly flexible, in the sense, that teachers create online learning modules, readings, quizzes, and other materials which student can complete at their own pace and timeline. The latter is a way of examination, where students can submit assignments, quizzes, or tests electronically without the need for simultaneous participation.

1.5. Tools for Virtual and Blended Learning Activities

The most successful and popular formats of virtual and blended learning activities are those that are engaging, interactive, and relevant to students' interests and learning goals. Some of the most popular formats include:

- Flipped classroom: In a flipped classroom, students watch video lectures at home and then come to class to participate in discussions and activities. This allows students to learn at their own pace and

in their own time, while also providing them with opportunities to interact with their teacher and classmates.

- Video lectures: Video lectures can be a great way to deliver information and content to students in a way that is engaging and visually appealing. However, it is important to make sure that video lectures are well-produced and that they are broken up into shorter segments to keep students' attention.
- Online discussions: Online discussions allow students to interact with each other and with the instructor to explore a topic in more depth. Online discussions can be used to share ideas, ask questions, and debate different perspectives.
- Group projects: Group projects allow students to collaborate with each other on tasks and assignments. Group projects can help students to develop their teamwork skills and to learn from each other.
- Simulations: Simulations allow students to experience real-world scenarios in a safe and controlled environment. Simulations can be used to teach students about a variety of topics, such as science, technology, and business.
- Games: Games can be a fun and engaging way for students to learn. Games can be used to teach students about a variety of topics, such as math, science, and history.
- Massive open online course (MOOC): A MOOC is a free online course that is open to anyone. MOOCs can be a great way for students to learn about new topics at their own pace.
- Virtual internship: A virtual internship is an internship that is completed online. Virtual internships can provide students with opportunities to gain experience in different fields without having to travel to a physical location.

In addition to these traditional formats, there are also many new and emerging learning activity formats that are enabled by technology. For example, students can now use virtual reality (VR) and augmented reality (AR) to learn about a variety of topics in an immersive and interactive way.

1.6. Need for the INVITE Learning Design Framework (LDF)

In this document, the INVITE project discusses the key challenges of student and teaching staff in this context, in order to develop its Learning Design Framework (LDF). We need to develop a learning design framework because it can help us to:

- Improve the quality of teaching and learning: A well-designed framework can help teachers to plan and deliver more effective instruction, and can help students to learn more effectively.
- Make teaching and learning more accessible: A framework can help us to design learning experiences that are accessible to all students, regardless of their background or learning style.
- Promote equity and inclusion: A framework can help us to create learning environments that are welcoming and inclusive for all students.
- Support innovation and experimentation: A framework can provide a foundation for teachers to experiment with new teaching and learning methods.
- Facilitate collaboration and sharing: A framework can help teachers to collaborate and share ideas about teaching and learning.

The INVITE learning design framework should be based on research and best practices, and it should be flexible enough to be adapted to different contexts.

The overview provided in this document is informed by publications during and after the pandemic, as such materials provide a great insight into how blended and virtual practices were utilised during the Covid-19 pandemic, furthermore what pedagogies, didactics and tools were perceived as essential and fruitful in carrying out education in non-face-to-face settings. This work aims to assess the current status of learning design in Europe and its pedagogical value available in scientific publications. Furthermore, it will assess leading examples of existing projects in order to provide a model for supporting the learning design of mobility activities. The aim of the LDF is informed by established and leading pedagogical principles, and by the research of state-of-the-art practices in the European context. The purpose of LDF is to support HE in enriching the teaching and learning process, the proposed pedagogies, didactics and toolkits will aim to engage HE staff in order to promote the meaningful development of Virtual and Blended modalities in HE.

The LDF also aims to further develop the emerging field of Virtual and Blended teaching and learning experience in HEIs. The LDF encourages teachers and learners in HEIs to freely organize and build a learning experience while providing a framework which supports their endeavour while providing space for including their individual learning objectives. With the support of the LDF, teaching staff can develop and also improve course design, as well as develop future iterations of their course. With the support of the LDF, they can carry out learning evaluations, gather feedback from participants, and open up conversations with other organisers and stakeholders by sharing the gathered insights. Consequently, the INVITE project proposes a framework which aims to support the intelligent integration of Virtual and Blended modalities for course design in HE mobility. Furthermore, the INVITE LDF is complementary to other outputs of the project, as well as it is a living document, that will be continually developed and updated throughout the

span of the connected activities and will be refined based on gathered feedback from pilot events and other testing exercises.

2. Literature review

Teaching and Learning Modalities in Higher Education During the Pandemic: Responses to Coronavirus Disease 2019 From Spain, - Ana Verde and Jose Manuel Valero (2021)
https://www.frontiersin.org/articles/10.3389/fpsyg.2021.648592/full

This paper provides an overview of the changes that were made to teaching and learning modalities in higher education in Spain during the COVID-19 pandemic. Verde and Valero (2021) identify three main types of responses:

- Emergency remote teaching: This involved the rapid transition to online learning in the spring of 2020. Many instructors were not prepared for this shift, and online learning was often seen as a second-rate alternative to face-to-face instruction.
- Hybrid teaching: This approach combines online and face-to-face instruction. It was more widely adopted in the fall of 2020, after instructors had time to prepare and universities had invested in new technologies.
- Blended learning: This approach integrates online and face-to-face instruction in a more intentional way. It is designed to take advantage of the strengths of both modalities.

Verde and Valero (2021) argue that the pandemic has accelerated the adoption of blended learning in higher education. They also argue that blended learning offers a number of advantages over traditional face-to-face instruction, such as flexibility, personalization, and engagement.
However, the authors also acknowledge that there are a number of challenges associated with blended learning, such as the need for instructor training, the need for access to technology, and the need to develop new assessment methods.

Overall, this paper provides a valuable overview of the changes that have been made to teaching and learning modalities in higher education in Spain during the COVID-19 pandemic. It also highlights the potential of blended learning to improve teaching and learning in the future.

Shifting online during COVID-19: A systematic review of teaching and learning strategies and their outcomes - Joyce Hwee Ling Koh & Ben Kei Daniel (2022)
https://educationaltechnologyjournal.springeropen.com/articles/10.1186/s41239-022-00361-7

This article discusses the challenges and successes of teaching and learning online during the COVID-19 pandemic. It also outlines eight strategies used by lecturers and students to adapt to online learning.

Some of the key findings of the article are that students with poor internet access struggled to learn online. Additionally, lecturers found it difficult to create engaging online lessons. However, students who were proactive and used effective learning strategies were able to succeed in the online environment.

Overall, the article suggests that there are both challenges and opportunities associated with online learning. It is important to address the challenges, such as providing students with access to the internet and helping lecturers to develop engaging online lessons. However, online learning also offers opportunities, such as flexibility and the ability to reach a wider audience.

Here are some of the eight strategies used by lecturers and students to adapt to online learning:

- Lecturers:
    - Using a variety of teaching methods and activities
    - Providing clear and concise instructions
    - Being responsive to student feedback
- Students:
    - Creating a dedicated study space
    - Setting realistic goals
    - Taking breaks
    - Seeking help when needed

By following these strategies, lecturers and students can help to ensure that online learning is a successful experience for everyone.

A virtual versus blended learning approach to higher education during the COVID-19 pandemic: The experiences of a sport and exercise science student cohort, - Finlay et al. (2022)
https://www.sciencedirect.com/science/article/pii/S1473837621000642

This paper explores the experiences of sport and exercise science students during the COVID-19 pandemic, when their programs were shifted to either a virtual or blended learning approach. The study found that students had a clear preference for blended learning, as it allowed them to access the benefits of both online and face-to-face instruction.

Students in the blended learning group reported higher levels of satisfaction with their teaching, learning opportunities, assessment and feedback, academic support, organization and management, learning

resources, learning community, and student voice. They also reported higher overall course satisfaction scores.

The study's findings suggest that blended learning is a more effective approach to higher education for sport and exercise science students than virtual learning, particularly during periods of social restrictions. This is likely because blended learning allows students to access the practical and social aspects of their program that are difficult to replicate in a virtual environment.

Overall, the study provides valuable insights into the experiences of sport and exercise science students during the COVID-19 pandemic and the implications for blended and virtual learning in this field.

Blended Learning Reimagined: Teaching and Learning in Challenging Contexts - Shanti Divaharan and Alexius Chia (2022)
https://www.mdpi.com/2227-7102/12/10/648

This concept paper shares some of the key learning points and strategies culled from experiences having to pivot almost overnight to embracing technology and new learning environments, which were sometimes remote or neglected in a milieu and culture that often prided itself in effective physical face-to-face interactions.

This article then draws upon how the Blended Learning approach, undergirded by Connectivism, was implemented in a local IHL. Examples of the different types of blended learning designs that were employed are described alongside examples on how educators can distinguish between them to engage their learners in both modes.

Lessons from the Pandemic: making the most of technologies in teaching - Briefing publication by UK Universities (2021)
The paper argues that the pandemic has accelerated the adoption of digital technologies in teaching and learning, and that universities should now embrace these technologies to deliver a more blended and flexible learning experience for students.
The paper also identifies a number of challenges that need to be addressed in order to implement blended and virtual learning effectively. These challenges include:

- Ensuring that all students have access to the necessary technology and resources.
- Providing training and support for staff in using digital technologies effectively.
- Designing blended and virtual learning experiences that are engaging and effective.

- Assessing student learning in a fair and reliable way.

Impactful e-learning framework: A new hybrid form of education - Syeda Farjana Shetu, et al (2021)

- Problem-based learning success connected to a digital program

- The paper gives insight to a highly scalable e-learning model

Pandemic-accelerated Digital Transformation of a Born Digital Higher Education Institution: Towards a Customized Multimode Learning Strategy - Albert Rof, Andrea Bikfalvi and Pilar Marques (2022)

- Integration of digital methods with a constructivist approach. The need to equip a student and stakeholder-centric approach with framework related and general HE innovation in order to acomodate needs

- Ed-Tech companies redefine the innovation integrated in course design

Students' perception on e-learning: a basis for the development of e-learning framework in higher education institutions - MM Daniels, E Sarte and J Dela Cruz (2019)

- E-learning framework based on student expectation

- Differing attitude towards the implemented Framework: students from public institutions showed higher expectations on e-learning compared to private institutions. A significant difference between ratings of male and female students, based on the paper it might correlate with digital and device related literacy

A literature review: efficacy of online learning courses for higher education institution using meta-analysis - Mayleen Dorcas B. Castro, et al. (2019)

- General benefits in later professional life, a pre-pandemic overview on the benefits and effects of online learning courses and practices

- There is a need to match how students perform face-to-face to physical (or rather where is the place of digital learning) OBJ

3. Key considerations, aims and goals

3.1. Needed action on a policy level

Virtual and Blended offers in higher education are often bottom-up-led initiatives, proposed by enthusiastic individuals. When it comes to acknowledging the value of Virtual and Blended educational activities, the role of policy on the legislative, but also institutional levels is very important. In order to regulate and develop offers which are sustainable and truly benefit students and teachers alike, it is necessary to acknowledge the value of such offers, furthermore, to incorporate them into the institution's strategies (Jager et al., 2019; O'Dowd, 2018).

In recent years a shift can be seen on a policy level, where familiarity with other than face-to-face educational experiences is initiated. Such policy experimentations and pilot projects are launched by the European Commission which can build a path towards more advanced and meaningful Virtual and Blended practice in HE (*Digital Education Action Plan (2021-2027) | European Education Area*, n.d.; Jager et al., 2019).

3.2. Institutional responsibility

In building the INVITE LDF the project defines several aspects to look out for when developing a course. In the following section institutional responsibility is highlighted and discussed from different angles. The recommendations are informed by recent works connected to Virtual and Blended educational innovation and good practices (*Digital Education Action Plan (2021-2027) | European Education Area*, n.d.; Flogie et al., 2021; O'Dowd, 2018).

Strategy: When designing not exclusively face-to-face courses, in order to sustainably do so it is recommended to integrate Virtual and Blended strategies into the institution's internationalisation strategy.

Dissemination: Preparing informative and dissemination activities connected to the modalities in question. Identifying networks and experts, advocates of teaching staff of Virtual and Blended practices can support dissemination.

Promotion and Funding: Encouraging teaching staff to develop courses can be challenging, but they can be motivated as part of the institutional effort, by providing funding to their initiatives, linking promotion opportunities to developing Virtual and Blended learning content and by making collaborations through already existing networking channels desirable, awarding and an activity that can fit into normal working hours.

3.3. Awareness of intercultural differences

A key consideration when developing Virtual or Blended learning offers is to cater to all participants and not only focus on motivating participating teachers and students but also to make sure intercultural differences are acknowledged and also treated with respect and openness, what is more, an opportunity to learn about such differences.

Robert O'Dowd emphasises in his keynote speech (Robert O'Dowd - Keynote Speaker at Telecollaboration, a Catalyst for Internationalisation at Home. - YouTube, 2022) while today's students are considered digital nomads, they are assumed to be more exposed to intercultural influences and values, it does not mean, that they are free of social and cultural biases. Therefore, it is key to emphasize the importance of openness as well as making sure, students get informed and have space for formal and informal interaction to iterate on their existing presumptions of different cultures (Flogie et al., 2021; Jager et al., 2019; 'Mentoring Handbook for Virtual Exchange Teachers', 2022).

Virtual and Blended exchange offers, such as Virtual Exchanges (VE) or Blended Intensive Programmes (BIP) are proven to provide similar intercultural experiences as traditional Internationalisation Abroad (IA) offers. On the contrary, the former ones are by nature tied to incorporate what is defined as 21st-century skills and have an intercultural element to them, furthermore, support students in developing their critical competencies and media literacy, as well as their soft skills, such as creativity, adaptability and critical thinking, skills, which are in high demand on the labour market.

Last but not least VE-s and BIP-s and other similar alternatives of the traditional IA student exchanges are environmentally and economically more sustainable, and less demanding concerning students personal life and resources, as they do not require the student to move to another country for a span of at least 3 months. Traditional student exchanges are more costly, environmentally and economically more polluting, while they have a similar benefit, than their more concise companions VE and BIP. It is not to say, that IA should be replaced by VE or BIP, or other similar offers, but that internationalisation and intercultural experiences are highly valuable and should be offered to those too, who may not be able to commit themselves to a semester or full academic year-long exchange. In recent years only 10 percent of students could commit to an Erasmus exchange in higher education, which makes the need to develop other, less demanding offers for intercultural experiences in order to provide the opportunity for internationalisation to those students, who are unable to participate in IA experiences during their academic journey. As capabilities developed by Intercultural experiences are deemed to be crucial and valuable in the labour market, the democratization of internationalisation is a shared goal. The INVITE project's proposed framework hopes to contribute to this goal.

3.4. Good practices to foster 21st-century skills via Blended and Virtual offers:

On teachers' part: It is crucial to encourage and support teachers in developing new Virtual and Blended course offers. Supporting teaching staff should happen by motivating them, and awarding their efforts and initiatives, as well as providing networking opportunities to find fellow teaching staff they can collaborate with, furthermore, by building an open platform for knowledge sharing within the topic. Supporting teachers is an essential step towards internationalisation, their 21st-century skills and leadership qualities are just as important, as students' or administrative staff's.

On students' part: While students who are considered digital nomads are confident in how to consume digital content, they still need to learn how to collaborate and communicate effectively in this realm (*Robert O'Dowd - Keynote Speaker at Telecollaboration, a Catalyst for Internationalisation at Home. - YouTube*, n.d.). Therefore VE-s and BIP-s, but in general Virtual and Blended offers are great to support their learning. Furthermore, as previously enclosed for some students these experiences might be the only way to take part in intercultural experiences. Why do these opportunities often speak for themselves for academic staff and those working on the policy level, students might not feel the need to take part in offers like BIP-s of VE-s voluntarily. As internationalisation is a shared aim, incorporating educational offers which support the 21st-century skills of students are essential (*Digital Education Action Plan (2021-2027) | European Education Area*, n.d.). By integrating Virtual and Blended activities into the curriculum, students' motivation can be maintained as well as the offers can be widely available. To truly utilize the power of Virtual and Blended activities in HE, it is advised to pay careful attention to the design of these offers. This can be done, by balancing synchronous and asynchronous activities within courses and offers and making sure that they are matched to the suitable activity. For example, a synchronous activity is designed to be held at the project start, and when interaction and collaboration are needed, while asynchronous tasks are connected to for example watching the educational video as part of building the theoretical background for a course or project. Additionally, formal and informal tasks should be also combined in order to maintain the interest and attention of the participants. As with teachers, in the case of participating students an onboarding session, where training is provided on how to use the digital tools during the course is essential to support students in taking the most advantage of the Virtual or Blended opportunity.

On the part of Administrative staff and management: The role of administrative staff and management is just as important as actively participating students or teachers, including student teachers. Often the initiatives to create and incorporate Virtual and Blended activities into HE curriculum and strategy are dependent on the openness and collaboration skills between administrative staff, management and teaching staff. Therefore their communication and leadership skills are required in order to strengthen Virtual and Blended offers in HE. Their contribution to building knowledge-sharing spaces and finding

networks to integrate their institution it is essential for the long-term success of these offers, which will contribute to the 21st-century skills of students and teaching staff. Furthermore, it develops skills which are in demand in the labour market, once the HEI's students leave the institution. In order to foster and continuously develop the quality of Virtual and Blended offers, the courses and projects carried out should contain initial and closing follow-up material, which serves as an evaluation of the carried-out activity. In the evaluation material expectations and reflections can be elaborated on by the participants - both from teaching staff and students - and the strengths and weaknesses of the course design and its delivery can be gained insight in, as well as the learnings from the intercultural experience of all participants, its surprises and changes alike.

3.5. The Path towards Developing Meaningful Virtual or Blended Activities

The path towards developing meaningful virtual or blended activities for learning in HEI can be divided into the following steps:

1. Identify the learning objectives. What do you want students to learn as a result of participating in the activity? Once you know the learning objectives, you can start to think about how to design an activity that will help students achieve them.
2. Choose the appropriate format. There are many different formats for virtual and blended learning activities, such as video lectures, online discussions, group projects, simulations, and games. Choose the format that is most appropriate for the learning objectives and the content of the activity.
3. Make it engaging. Virtual and blended learning activities should be engaging and interactive. This means using a variety of multimedia elements, such as images, videos, and audio, and providing opportunities for students to interact with each other and with the instructor.
4. Make it accessible. Virtual and blended learning activities should be accessible to all students, regardless of their abilities or circumstances. This means providing accommodations for students with disabilities and designing activities that can be completed on a variety of devices.
5. Assess student learning. It is important to assess student learning to ensure that they are achieving the learning objectives of the activity. This can be done through a variety of methods, such as quizzes, essays, and projects.

Here are some additional tips for developing meaningful virtual or blended learning activities:

- Use a variety of teaching methods and activities. This will help to keep students engaged and motivated.
- Provide clear and concise instructions. Students should know exactly what they are expected to do and how to complete the activity.
- Be responsive to student feedback. Use student feedback to improve your activities over time.

- Create a supportive learning environment. Students should feel comfortable asking questions and participating in activities.
- Provide opportunities for students to collaborate with each other. Collaboration can help students to learn from each other and to develop their teamwork skills.

By following these steps, you can develop meaningful virtual or blended learning activities that will help your students achieve their learning goals.

4. Developing the INVITE Learning Design Framework

4.1. Methodology

1. Set Framework goals: Identify students' and teachers' needs and aims of the activity: Brainstorm on the learnings of R1, and define goals based on the past activity and the Project Proposal. And a reflection on the learnings of R1, field analysis on trends in international and blended initiatives
2. Select the compatible and beneficial methodologies identified in R1 - learning objectives identification: Identify strengths and weaknesses of methodologies and examine Problem-Based Learning, Flipped Classroom, Project-Oriented Learning Environments, Co-design virtual exchanges, etc.
3. Identify the most effective digital pedagogies & methodologies - learning activities design: Needs analysis via literature review, including international collaboration, Cooperative or Collaborative Learning, Project-based learning; Problem based learning; Digital stories; Online learning etc. Further deepening of knowledge via literature review
4. Construct a learning design framework proposal: To identify and describe learning objectives, learning activities evaluation methods applicable to blended intensive programs, and international virtual modalities. Utilize existing works, models, and state-of-the-art practices.

4.2. Self Determination Theory (SDT)

Special focus is given to Self Determination Theory (SDT). Self-Determination Theory (SDT) is a theory of motivation and human development that proposes that all individuals have three innate psychological needs: the need for autonomy, the need for relatedness, and the need for competence.

Autonomy is the need to feel in control of one's own life and to make one's own choices. Relatedness is the need to feel connected to others and to experience a sense of belonging. Competence is the need to feel capable of achieving one's goals and to master new skills.

SDT suggests that when these three needs are satisfied, individuals are more likely to be motivated, engaged, and successful in their endeavors. Conversely, when these needs are not satisfied, individuals are more likely to experience amotivation, disengagement, and failure.

SDT in Blended and Virtual Learning

Blended and virtual learning environments offer a number of unique opportunities to support students' autonomy, relatedness, and competence. For example:

- Autonomy: Blended and virtual learning environments can give students more control over their own learning. For example, students can often choose their own learning pace, time, and location. They can also choose from a variety of learning activities and resources.
- Relatedness: Blended and virtual learning environments can help students to connect with each other and with their teachers in new and exciting ways. For example, students can participate in online discussions, collaborate on projects, and receive feedback from their teachers in real time.
- Competence: Blended and virtual learning environments can provide students with opportunities to develop new skills and to master their learning. For example, students can use online simulations and games to learn new concepts and skills. They can also receive immediate feedback on their work, which can help them to identify and address their weaknesses.

Here are some specific examples of how blended and virtual learning environments can be designed to support students' autonomy, relatedness, and competence:

- Autonomy: Provide students with choices about their learning, such as the learning pace, time, location, and activities. Give students opportunities to set their own learning goals and to develop their own learning plans.
- Relatedness: Use online discussions and collaborative activities to help students connect with each other and with their teachers. Provide students with opportunities to receive feedback from their teachers and from their peers.
- Competence: Use online simulations and games to help students learn new concepts and skills. Provide students with immediate feedback on their work. Help students to identify and set goals for their own learning.

Benefits of Applying SDT in Blended and Virtual Learning

There are a number of benefits to applying SDT in blended and virtual learning environments. For example:

- Increased student motivation and engagement: When students' autonomy, relatedness, and competence needs are satisfied, they are more likely to be motivated and engaged in their learning.
- Improved student achievement: Studies have shown that students who learn in blended and virtual environments that are designed to support their autonomy, relatedness, and competence needs tend to achieve at higher levels.
- Reduced student dropout rates: Students who are more motivated and engaged in their learning are less likely to drop out of school.
- Improved student satisfaction: Students who learn in blended and virtual environments that support their autonomy, relatedness, and competence needs tend to be more satisfied with their learning experience.

SDT can offera a valuable framework for designing and implementing blended and virtual learning environments that are effective and engaging for students. By supporting students' autonomy, relatedness, and competence needs, educators can help students to achieve their full potential.

Here are some additional advantages for applying SDT in blended and virtual learning:

- Provide students with a clear sense of purpose and meaning for their learning. Help students to understand why they are learning what they are learning and how it connects to their own personal and professional goals.
- Offer students choices and flexibility in their learning. Allow students to choose their own learning pace, time, location, and activities. Give students opportunities to set their own learning goals and to develop their own learning plans.
- Create a supportive and collaborative learning environment. Encourage students to interact with each other and with their teachers in meaningful ways. Provide students with opportunities to receive feedback from their teachers and from their peers.
- Use technology to support students' autonomy, relatedness, and competence. Online simulations, games, and other learning resources can be used to help students learn new concepts and skills, to receive immediate feedback on their work, and to collaborate with their peers.

4.3. ADDIE - for a systematical and cyclical approach to design

A widely used framework for the design and development of online and blended courses and is often used in the field of distance education and e-learning. Analysis, Design, Development, Implementation, and Evaluation are used in order to systematically and and cyclically approach to instructional design, allowing for continuous improvement and refinement of instructional materials over time. This has been the chosen approach for building the structure of the INVITE training module, as it follows each of the mentioned steps; also with the goal to create the course as a continuous cycle of iterations and improve it with every deployment.

4.4. Supporting models and methods

Backward Design and SAM - for aligning instruction with desired learning outcomes through an iterative process

Methods which emphasize aligning instruction with desired learning outcomes and iterative design process, are also well-suited for digital learning contexts, where the flexibility and scalability of the instruction are

important. The Backward Design: Backward Design is a method of instructional design that starts with the desired learning outcomes and then works backwards to determine the appropriate instructional activities and assessments to support those outcomes. While the Successive Approximation Model (SAM) is an agile instructional design model that emphasizes iteration and collaboration between instructional designers, subject matter experts, and stakeholders.

The CIPP model - for evaluating educational programs and projects

The CIPP Model is a framework for evaluating educational programs and projects. The acronym CIPP stands for Context, Input, Process, and Product. It can be used for example to evaluate the effectiveness of instruction in digital learning contexts, and to identify areas for improvement in online and blended courses.

4.5. Examples of learning design frameworks

FRAMES - Toolkit for Integrating Virtual Exchange in Higher Education | FRAMES project & Eramus+ Programme

The Toolkit for VE Integration can be just as important, and the Framework proposal by the project which will be published in February 2023

Digital Learning Design Framework & Toolkit by Teesside University and Jisc UK | EDUCAUSE

The Digital Learning Design Framework and Toolkit was designed by Teesside University and Jisc UK in 2022, in order to support course leaders and facilitators design more effective courses and programs of study

SCALA Framework in Student's Education; a Guide for Delivering Hybrid Learning | Leeds University

A "Student-centred active learning approach to deliver high-quality research-based education in a hybrid mode, as part of a supportive, enriching and community-focused experience."

Resilient Teaching: A Learning Design Framework for a Post-Pandemic Era | University of Michigan

A community-oriented approach to a learning design framework designed for instructors, in order to support them in navigating immediate and future instructional challenges. The course experience allows participants to engage with each other around the challenges they were facing in their unique instructional contexts

Blended Mobility Handbook C-Extended Intellectual Output 4 | C-EXTENDED project & Erasmus+

The IO4 activity of C-EXTENDED project explores what are the possibilities that Blended learning can offer, it gives insight into students' progress connected to Blended Mobility and provides an overview of blended techniques and guidelines. Connected to the activity the LeQID framework was developed.

4.6. Internationalisation in Higher Educational Institutes

Internationalisation has become a key priority for HEIs around the world in recent decades. This is due to a number of factors, including the increasing globalization of the economy, the growing demand for international talent, and the recognition that internationalisation can enhance the quality of teaching and research.

There are many different ways in which HEIs can internationalise. Some of the most common activities include:

- Recruiting international students and staff
- Offering joint and dual degree programs with international partners
- Conducting international research collaborations
- Participating in international research projects and networks
- Providing international experiences for students, such as study abroad programs and internships

Internationalisation can benefit HEIs in a number of ways. It can help to:

- Enhance the quality of teaching and research by bringing in new ideas and perspectives
- Prepare students for the globalized workplace
- Increase the employability of graduates
- Attract international funding
- Boost the reputation of the HEI

However, internationalisation also poses some challenges for HEIs. These include:

- The need to ensure that international students and staff are well-supported
- The need to adapt teaching and learning methods to meet the needs of a diverse student body
- The need to manage the costs of internationalisation

Despite the challenges, internationalisation is increasingly seen as essential for HEIs that want to remain competitive and relevant in the globalized world.

Benefits of internationalisation for students

There are many benefits for students who choose to study at an internationalised HEI. These include:

- The opportunity to learn from and interact with students and staff from all over the world
- The chance to develop intercultural skills
- The opportunity to study in a different country and learn about a new culture
- The potential to improve their job prospects

Challenges of internationalisation for students

Some of the challenges that international students may face include:

- The cost of studying abroad
- Language barriers
- Culture shock
- Homesickness

How HEIs can support international students

HEIs can support international students in a number of ways, including:

- Providing language support services
- Offering cultural orientation programs
- Providing financial aid and scholarships
- Creating a welcoming and inclusive environment

Conclusion

Internationalisation is an important trend in higher education. It can benefit HEIs and students in a number of ways. However, it is important to be aware of the challenges involved and to take steps to mitigate them.

Additional thoughts

In addition to the benefits and challenges mentioned above, internationalisation can also help to promote global citizenship and understanding. By bringing together students and staff from different countries, HEIs can help to create a more tolerant and inclusive world.

Internationalisation is also a way for HEIs to contribute to the sustainable development goals (SDGs). For example, SDG 4 calls for quality education for all. By internationalising their operations, HEIs can help to make education more accessible to students from around the world.

Overall, internationalisation is a positive development for higher education. It can help to improve the quality of teaching and research, prepare students for the globalized workplace, and promote global citizenship and understanding.

4.7. Benefits of Active learning

Active learning is an approach to instruction that involves actively engaging students with the course material through discussions, problem solving, case studies, role plays, and other methods. It is a contrast to passive learning, where students are simply expected to listen to lectures and read textbooks.

Active learning is based on the principle that students learn best by doing. When students are actively engaged in the learning process, they are more likely to understand and retain the information.

Benefits of Active Learning

There are many benefits to active learning, including:

- Improved student engagement and motivation: Active learning activities are typically more engaging and motivating for students than passive learning activities. When students are actively involved in their learning, they are more likely to be motivated to pay attention and learn.
- Deeper understanding and retention: Active learning helps students to develop a deeper understanding of the course material. When students are actively engaged in the learning process,

they are more likely to think critically about the material and to make meaningful connections between different concepts.

- Improved problem-solving and critical thinking skills: Active learning activities often require students to solve problems and think critically about the course material. This helps students to develop their problem-solving and critical thinking skills, which are essential for success in both school and the workplace.
- Better communication and collaboration skills: Many active learning activities involve students working together in groups. This helps students to develop their communication and collaboration skills, which are also essential for success in school and the workplace.

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How to implement active learning in a classroom

There are many different ways to implement active learning in a classroom. Here are a few tips:

- Plan your activities carefully: Make sure that your activities are aligned with the learning objectives of your course and that they are appropriate for the level of your students.
- Provide clear instructions: Give students clear instructions on what they are expected to do during the activity.
- Circulate around the room: While students are working on the activity, circulate around the room to provide assistance and to answer questions.
- Debrief the activity: After the activity, take some time to debrief with students and discuss what they learned.

Conclusion

Active learning is an effective way to improve student engagement, motivation, understanding, retention, problem-solving and critical thinking skills, and communication and collaboration skills. There are many different ways to implement active learning in the classroom. By planning your activities carefully, providing clear instructions, circulating around the room, and debriefing the activity, you can ensure that your students benefit from active learning.

5. The INVITE Learning Design Framework

Blended and virtual learning are becoming increasingly popular in higher education. These approaches offer a number of advantages over traditional face-to-face instruction, such as flexibility, convenience, and the ability to reach a wider audience. However, blended and virtual learning can also be challenging to design and deliver effectively.

One way to address these challenges is to use a learning design framework. A learning design framework is a structured approach to designing and delivering learning experiences. It can help to ensure that learning experiences are well-aligned with learning objectives, and that they use appropriate teaching and learning methods and technologies.

There are a number of different learning design frameworks available. However, many of these frameworks are not specifically designed for blended and virtual learning. In addition, many frameworks are complex and difficult to use.

This chapter introduces a new model of a learning design framework for blended and virtual modules of education in higher institutions. The framework is called Internationalization-eNhanced blended and VIrTual lEarning (INVITE) Framework.

The INVITE framework is based on the following principles:

- Alignment: The framework is designed to ensure that learning experiences are well-aligned with learning objectives.
- Flexibility: The framework is designed to be flexible enough to accommodate a variety of teaching and learning methods and technologies.
- Accessibility: The framework is designed to be accessible to all students, regardless of their abilities or circumstances.
- Engagement: The framework is designed to promote student engagement and motivation.
- Assessment: The framework is designed to support effective assessment of student learning.

In the following the different phases of this model are discussed:

1. Analysis Phase:

- **Step 1 - Needs Assessment (SDT Focus):**
    - Identify internationalization goals and motivations.

- Assess learners' cultural and motivational backgrounds using SDT principles.

- **Step 2 - Task Analysis (ADDIE Focus):**
  - Analyze content and learning objectives.
  - Determine prerequisites and competencies required for internationalized learning.

2. Design Phase:

- **Step 3 - Learner-Centered Design (SDT Focus):**
  - Foster autonomy, competence, and relatedness by providing choices in learning paths, activities, and assessments.
- **Step 4 - Active Learning Integration (Active Learning Focus):**
  - Incorporate active learning strategies like problem-based learning, simulations, and collaborative projects.
- **Step 5 - Blended Learning Model Selection (ADDIE Focus):**
  - Decide on the mix of face-to-face and online components to suit international and local contexts.

3. Development Phase:

- **Step 6 - Content Creation (ADDIE Focus):**
  - Develop culturally sensitive and diverse content.
  - Create multimedia resources to enhance engagement.
- **Step 7 - Technology Integration (Active Learning Focus):**
  - Select and implement appropriate technologies for active learning, including virtual labs, discussion forums, and interactive simulations.

4. Implementation Phase:

- **Step 8 - Facilitation (SDT Focus):**
  - Train instructors to provide autonomy-supportive environments.
  - Encourage peer interactions to promote relatedness.
- **Step 9 - Blended Delivery (ADDIE Focus):**
  - Conduct both face-to-face and online sessions with a focus on active learning.
  - Monitor international and local students' progress and adjust accordingly.

5. Evaluation Phase:

- **Step 10 - Formative Assessment (Active Learning Focus):**
  - Continuously assess student engagement and learning through active learning activities.

- **Step 11 - Summative Assessment (ADDIE Focus):**
  - Evaluate the achievement of internationalization goals and learning outcomes.
  - Consider culturally appropriate assessment methods.
- **Step 12 - Feedback and Iteration (SDT Focus):**
  - Provide feedback to instructors and students on autonomy, competence, and relatedness support.
  - Revise the course based on evaluation results.

6. Ongoing Improvement:

- **Step 13 - Reflect and Adapt (SDT Focus):**
  - Reflect on the implementation and evaluation feedback.
  - Adapt the framework and courses for continuous improvement and better internationalization support.

This INVITE framework integrates SDT principles to foster students' motivation, the ADDIE model for systematic instructional design, and active learning strategies to create a comprehensive approach to support internationalization in blended and virtual education within higher institutions. It emphasizes learner-centeredness, cultural sensitivity, and continuous improvement.

5.1. INVITE Framework's benefits

The INVITE Framework offers several benefits for students, teachers, and universities:

Benefits for Students:

1. **Enhanced Motivation and Engagement:** The framework, based on Self-Determination Theory (SDT), fosters autonomy, competence, and relatedness, which can increase students' motivation to learn and engage actively with course materials.
2. **Diverse Learning Experiences:** Active learning strategies integrated into the framework provide students with a variety of learning experiences, such as problem-solving, collaboration, and simulations, making learning more engaging and meaningful.
3. **Cultural Sensitivity:** The emphasis on internationalization promotes cultural awareness and sensitivity, preparing students for global citizenship and intercultural competence.

4. **Flexible Learning Paths:** Learner-centered design allows students to choose pathways that align with their interests and learning styles, promoting a more personalized and effective learning experience.
5. **Holistic Assessment:** The framework incorporates both formative and summative assessment methods, ensuring that students receive timely feedback and opportunities for improvement, ultimately leading to better learning outcomes.

Benefits for Teachers:

1. **Effective Instructional Design:** Teachers can follow the systematic ADDIE model to design and develop courses that align with learning objectives and promote internationalization effectively.
2. **Enhanced Facilitation Skills:** Training on autonomy-supportive environments and relatedness can empower instructors to create more inclusive and motivating learning spaces.
3. **Varied Teaching Methods:** Active learning strategies provide teachers with a diverse set of tools to engage students and promote critical thinking, problem-solving, and collaboration.
4. **Data-Driven Improvements:** Continuous evaluation and feedback loops enable instructors to make data-driven improvements to their courses, ensuring ongoing effectiveness.

Benefits for Universities:

1. **Competitive Advantage:** Universities that effectively internationalize their courses are better positioned to compete on a global scale, attracting both domestic and international students.
2. **Increased Retention and Graduation Rates:** Engaging and motivating students through the framework can lead to higher retention and graduation rates, benefiting the university's overall performance metrics.
3. **Research Opportunities:** The framework can also stimulate research on effective teaching and learning methods, contributing to the university's knowledge base and educational innovation.
4. **Alignment with Mission Statements:** Many universities have a mission to provide a diverse and inclusive education; the INVITE framework aligns with this mission by promoting internationalization and inclusivity.

In summary, the INVITE Framework offers a range of benefits to students, teachers, and universities by promoting effective learning, enhancing motivation and engagement, and supporting the internationalization goals of higher education institutions.

6. Connection of the INVITE Framework with R1

6.1 Enabling technologies for teaching and learning

The INVITE framework leverages various technologies to enhance teaching and learning in higher education. Here's how the framework enables the use of technology:

1. **Blended Learning Environments:** INVITE encourages a blend of face-to-face and online learning experiences. This blend is made possible through technology, which supports virtual classrooms, video conferencing, and asynchronous online discussions. Students can access course materials, engage in discussions, and collaborate on projects from anywhere in the world.
2. **Digital Learning Resources:** The framework promotes the development of digital learning materials, including multimedia resources such as videos, interactive simulations, and online textbooks. These resources enhance the learning experience by providing engaging and interactive content that can be accessed at any time.
3. **Learner-Centered Online Platforms:** INVITE emphasizes learner-centered design, and technology plays a crucial role in this aspect. Learning management systems (LMS) and online platforms can be customized to allow students to choose from a range of learning activities, access resources, and track their progress. This customization promotes autonomy and self-directed learning.
4. **Active Learning Tools:** The framework integrates technology to facilitate active learning strategies. Virtual labs, gamification elements, and collaborative online tools enable students to actively engage with course content, work on real-world problems, and collaborate with peers, regardless of their geographical location.
5. **Assessment and Feedback:** Technology supports a variety of assessment methods, including online quizzes, peer assessments, and automated grading. It also enables timely feedback to students, promoting a formative assessment approach. This use of technology ensures that students receive continuous feedback on their progress.
6. **Data Analytics:** The INVITE framework encourages the use of data analytics to monitor student engagement and performance. Learning analytics tools can help identify at-risk students and provide early interventions, ensuring that students receive the support they need to succeed.
7. **Professional Development:** To support teachers, the framework promotes technology-enhanced professional development opportunities. Online courses, webinars, and virtual communities of practice enable instructors to enhance their technology skills and instructional strategies for online and blended learning.

8. **Global Networking:** Through technology, universities implementing INVITE can promote global networks and partnerships with other institutions. These partnerships can lead to joint programs, collaborative research, and exchange opportunities, enriching the learning experiences of students and faculty.
9. **Accessibility and Inclusivity:** The framework emphasizes the importance of making education accessible to all. Technology can be used to provide accessible content, including transcripts for videos, screen readers for visually impaired students, and captioning for multimedia materials.

To summarize, this framework utilizes technology to create dynamic, inclusive, and globally connected learning environments. It enables a flexible and learner-centered approach to education, promotes active learning, supports assessment and feedback mechanisms, and facilitates international collaboration among students and educators.

6.2 Supporting active learning methodologies

The framework also actively supports and integrates active learning methodologies into the teaching and learning process. It promotes a student-centered, interactive, and engaging learning experience through various active learning methodologies. It recognizes the importance of student autonomy, collaboration, problem-solving, and technology-enhanced tools to create a rich and dynamic educational environment. The following are the included methodologies:

1. **Learner-Centered Design:**
    - INVITE emphasizes learner-centered design, allowing students to take an active role in their learning. This approach promotes autonomy and self-regulation, enabling students to make choices about how they engage with course content.
2. **Choice and Personalization:**
    - The framework encourages instructors to offer choices in learning activities, assignments, and assessment methods. By allowing students to select activities that align with their interests and learning preferences, active participation and engagement are fostered.
3. **Problem-Based Learning (PBL):**
    - INVITE incorporates problem-based learning, a well-established active learning approach. Students are presented with real-world problems or scenarios and are actively engaged in researching, analyzing, and proposing solutions. This approach promotes critical thinking and problem-solving skills.

4. **Collaborative Projects:**
    - The framework encourages collaborative projects and group work. Students work together to solve problems or complete tasks, fostering teamwork and communication skills. Technology is used to facilitate online collaboration, making it feasible for students from diverse locations to work together.
5. **Interactive Simulations:**
    - INVITE incorporates interactive simulations and virtual labs that allow students to actively explore and experiment with complex concepts. These simulations provide a hands-on learning experience and promote active engagement with course material.
6. **Flipped Classroom Model:**
    - The framework supports the flipped classroom model, where traditional lecture content is delivered outside of class, typically through online videos or readings. Instructors then use class time for active learning activities, such as discussions, problem-solving, and group work.
7. **Peer Teaching and Peer Assessment:**
    - INVITE encourages peer teaching and peer assessment. Students are actively involved in evaluating and providing feedback on their peers' work. This process not only engages students in assessing their own understanding but also promotes a deeper understanding of the material.
8. **Classroom Response Systems:**
    - Technology, such as classroom response systems or clickers, can be used to engage students in active discussions and quizzes during lectures. This immediate feedback mechanism promotes active participation and helps instructors gauge student comprehension.
9. **Just-in-Time Learning Resources:**
    - The framework supports the provision of just-in-time learning resources. Students can access supplementary materials, tutorials, or additional readings to deepen their understanding when they encounter challenges or questions during their active learning activities.
10. **Formative Assessment and Feedback:**
    - Active learning methodologies are closely tied to formative assessment and feedback. INVITE emphasizes ongoing assessment and timely feedback to guide students' learning journeys, enabling them to adapt and improve continuously.

6.3 Inspiring teachers and training strategies

The INVITE framework encourages a holistic approach to teaching that aligns with modern pedagogical principles and promotes continuous improvement in teaching practices. It supports teacher training strategies and inspires educators in several ways:

1. **Professional Development Opportunities:**
    - The framework encourages universities to provide professional development opportunities for teachers to enhance their skills in blended and virtual education. This includes training in instructional design, technology integration, and strategies for promoting active learning.
2. **Autonomy-Supportive Teaching Practices:**
    - INVITE emphasizes autonomy-supportive teaching environments, aligning with the principles of Self-Determination Theory (SDT). Teachers are trained to create classrooms where students have a sense of autonomy and choice in their learning, which can be motivating for both students and teachers.
3. **Emphasis on Learner-Centered Approaches:**
    - The framework inspires teachers to adopt learner-centered approaches to instruction. Educators are encouraged to design courses that take into account students' diverse backgrounds, interests, and learning styles. This shift toward learner-centeredness can be invigorating for teachers as they see the impact on student engagement and success.
4. **Active Learning Strategies:**
    - INVITE promotes the integration of active learning methodologies. Teachers are provided with training and resources on how to implement active learning strategies effectively. This can inspire teachers by offering new and innovative ways to engage students and make learning more interactive and dynamic.
5. **Technology Integration Skills:**
    - Given the reliance on technology in blended and virtual education, the framework encourages teachers to develop or enhance their technology integration skills. Training in the use of learning management systems, multimedia tools, and online collaboration platforms equips teachers to create engaging virtual learning environments.
6. **Global Perspective:**
    - The emphasis on internationalization in the INVITE framework can inspire teachers by broadening their perspectives. Collaborating with colleagues and students from diverse cultural backgrounds can be intellectually stimulating and enriching, inspiring teachers to explore global perspectives in their teaching and research.

7. **Data-Driven Improvement:**
    - The framework encourages teachers to use data and feedback from assessments and evaluations to continuously improve their courses. This iterative process of improvement can be motivating for educators who see the tangible impact of their efforts on student learning.
8. **Alignment with Educational Goals:**
    - The framework aligns with many universities' educational goals, particularly those related to internationalization and inclusivity. Teachers who see their work contributing to broader institutional goals are often more motivated and inspired in their teaching efforts.
9. **Student Success Focus:**
    - By promoting active learning, learner-centered approaches, and ongoing assessment, the INVITE framework ultimately aims to enhance student success. When teachers witness the positive impact of these strategies on student learning outcomes, it can be highly motivating and inspiring.

6.4 Institutional policies

The implementation of the INVITE framework can be significantly influenced by institutional policies in higher education. These policies can either support or hinder the successful adoption and execution of the framework. Here's how institutional policies can affect the INVITE framework:

1. **Technology Adoption Policies:**
    - Supportive policies that promote the adoption of modern educational technologies can facilitate the integration of technology into the INVITE framework. However, restrictive or outdated technology policies may limit the use of innovative tools and platforms.
2. **Accessibility and Inclusivity Policies:**
    - Policies that prioritize accessibility and inclusivity ensure that the INVITE framework is designed to accommodate all students, including those with disabilities or diverse learning needs. Institutions with strong accessibility policies are more likely to provide resources and support for accessible course materials.
3. **Internationalization Policies:**
    - Institutions with a strong commitment to internationalization are more likely to align with the goals of the INVITE framework. Supportive policies may include the promotion of

cross-cultural collaboration, recognition of international credits, and incentives for faculty to engage in global education initiatives.

4. **Professional Development Policies:**
    - Policies related to faculty professional development can impact the training and preparation of educators to implement the INVITE framework effectively. Supportive policies may allocate resources for training and recognize faculty efforts to enhance their teaching skills.
5. **Assessment and Evaluation Policies:**
    - Policies related to assessment and evaluation methods can affect how the INVITE framework is implemented and measured. Institutions with flexible assessment policies may allow for innovative methods that align with the framework's emphasis on formative assessment and ongoing feedback.
6. **Course Design and Delivery Policies:**
    - Policies related to course design and delivery methods can influence the extent to which educators can implement learner-centered and active learning strategies. Institutions that promote flexibility and experimentation in course design are better positioned to support the INVITE framework.
7. **Data Privacy and Security Policies:**
    - Policies governing data privacy and security can impact the collection and use of student data for personalized learning experiences. Compliance with these policies is essential to ensure the ethical and legal use of technology in education.
8. **Quality Assurance Policies:**
    - Quality assurance policies play a crucial role in ensuring that courses developed using the INVITE framework meet high standards of educational quality. Institutions with robust quality assurance policies can help maintain the integrity of the framework's implementation.
9. **Funding and Resource Allocation Policies:**
    - Adequate funding and resource allocation are essential for the successful implementation of the INVITE framework. Policies related to budgeting and resource allocation can impact the availability of technology, instructional design support, and professional development opportunities.

Institutional policies can have a significant impact on how effectively the INVITE framework is implemented within higher education institutions. Supportive policies that align with the framework's principles can create an environment conducive to innovative and internationalized teaching and learning, while

restrictive or contradictory policies may pose challenges to its successful adoption. Therefore, it is essential for institutions to review and adapt their policies to align with their educational goals and the evolving needs of their students and faculty.

6.5 National and European support instruments

The INVITE framework can be influenced by various national and European support instruments and initiatives. These instruments can provide funding, guidance, and resources to institutions and educators aiming to implement the framework effectively, and can affect the INVITE framework in different ways:

1. Funding Opportunities:

- National and European support instruments often offer funding opportunities for educational projects and initiatives. Institutions can seek financial support to develop and implement the INVITE framework, which may involve creating online courses, investing in technology infrastructure, or providing professional development for faculty.

2. Policy Alignment:

- National and European educational policies and strategies can influence the adoption of the INVITE framework. When these policies align with the principles of internationalization, blended and virtual learning, and learner-centered education, institutions are more likely to embrace the framework as a means to meet policy objectives.

3. Research and Innovation Programs:

- Support instruments may include research and innovation programs aimed at advancing teaching and learning in higher education. Educators and institutions can leverage these programs to conduct research on the effectiveness of the INVITE framework, develop innovative teaching methods, and share best practices.

4. Cross-Border Collaboration:

- European support instruments, such as Erasmus+ programs, facilitate cross-border collaboration and student mobility. The INVITE framework can benefit from such programs by promoting international collaboration and exchange of best practices among European institutions.

5. Digital Infrastructure and Access Initiatives:

- European support instruments may focus on improving digital infrastructure and access to online resources. These initiatives can contribute to the effective implementation of the INVITE framework by ensuring that students have the necessary technology and internet access for virtual learning.

6. Interdisciplinary Collaboration:

- Some national and European programs encourage interdisciplinary collaboration. The INVITE framework's emphasis on learner-centered and active learning approaches can align with these initiatives, fostering collaboration between disciplines and departments.

7. Recognition and Credentialing:

- National and European support instruments can influence the recognition and credentialing of courses and degrees developed within the INVITE framework. Efforts to standardize and harmonize recognition practices can facilitate the acceptance of qualifications earned through virtual and blended learning.

National and European support instruments can have a significant impact on the adoption and success of the INVITE framework in higher education. By providing funding, policy alignment, quality assurance, and opportunities for collaboration and professional development, these instruments can facilitate the implementation of learner-centered, internationalized, and technology-enhanced education. Institutions and educators should actively explore and leverage these support mechanisms to maximize the benefits of the INVITE framework.

6.6 Internationalisation

The INVITE Framework promotes internationalisation in higher education in several key ways:

1. **Cultural Sensitivity and Awareness:** The framework emphasizes the importance of cultural sensitivity and awareness in course design and content development. By incorporating diverse perspectives, examples, and materials, it helps students develop a deeper understanding of different cultures, fostering a global mindset.
2. **Inclusivity:** INVITE encourages inclusive teaching practices that take into account the diverse backgrounds and experiences of both local and international students. It promotes relatedness, a key concept in Self-Determination Theory (SDT), by creating a sense of belonging and community among students from various cultural backgrounds.
3. **Autonomy and Choice:** The learner-centered design aspect of the framework supports students' autonomy by allowing them to make choices regarding their learning paths and activities. This approach respects individual differences and preferences, catering to the needs of both local and international students.
4. **Global Collaborative Opportunities:** Active learning strategies integrated into the framework, such as collaborative projects and discussions, can facilitate international collaboration. Students from

different parts of the world can work together on projects, fostering cross-cultural communication and teamwork.

5. **International Content Integration:** The framework encourages the integration of international content and perspectives into the curriculum. This includes using case studies, examples, and guest speakers from various regions to provide a more comprehensive and globally relevant educational experience.
6. **Technology-Enhanced Learning:** By leveraging technology for blended and virtual learning, the INVITE framework can connect students and instructors across borders. Virtual classrooms and online forums create opportunities for international interactions and discussions.
7. **Assessment of Global Competencies:** The framework incorporates assessments that measure not only subject-specific knowledge but also global competencies such as intercultural communication, adaptability, and cross-cultural problem-solving. This ensures that internationalization goals are explicitly assessed and addressed.
8. **Continuous Improvement:** Through ongoing evaluation and feedback loops, the INVITE framework encourages universities to continuously enhance their internationalization efforts. This includes refining course content, teaching methods, and support services to better meet the needs of international and local students.
9. **Global Networking:** Universities implementing the INVITE framework can establish partnerships with institutions in different countries, further promoting internationalization by offering joint programs, exchange opportunities, and collaborative research initiatives.

Overall, the INVITE Framework aligns with the principles of internationalisation by creating an educational environment that values diversity, promotes intercultural competence, and prepares students to thrive in a globalized world. It integrates elements of cultural sensitivity, active learning, and SDT to support internationalization efforts in higher education.

7. Example of applying the INVITE framework

An example of how the INVITE framework could be applied to a specific course in a higher education institution:

Objective: Facilitate international collaboration between students from two partner universities, University A in the United States and University B in France, in a course titled "Global Sustainable Development."

Application of the INVITE Framework:

0. Preparation Phase:

- Partners Identification: Identify suitable partners for collaboration.
- Course/Module Definition: Select a proper academic module or course in which to integrate a virtual/blended modality. It is highly suggested to select those that can open a practical activity to an international collaboration. There is always an option to open a new course, but it needs to be considered that students' work needs to be recognised through academic credits or credentials.
- Get prepared for the international negotiation
- Focus on Student Collaboration Stages: Define stages for student collaboration: preparation, introduction, engagement, implementation, and results sharing.
- Consider the Intercultural/International Assessment: Evaluate student performance and project outcomes and make them reflect on international/intercultural experience.
- Teaching Practice Reflection: Reflect on teaching practices and project implementation for continuous improvement.

1. Analysis Phase:

- **Needs Assessment (SDT Focus)**:
    - Define learners' composition
    - Assess learners' cultural and motivational backgrounds
    - Identify the international/intercultural added value to the activity

- **Task Analysis (ADDIE Focus)**:
    - Define learning outcomes of the course, as well as internationalization skills' development goals: To be able to do this, it is important to first identify students'

base skills (e.g. fluency in English) necessary for internationalized learning. This can also be applied to teachers and/or staff, as a way of designing the course in a way that fits their own digital capabilities and that they feel comfortable with.

2. Design Phase:

- **Learner-Centered Design (SDT Focus)**:
  - Promote autonomy and relatedness in online learning: Create a hybrid learning environment that allows students to select project topics related to global sustainable development and form international teams.
  - Offer choice in assessments: Allow students to choose from various assessment formats, such as collaborative research papers, presentations, or virtual debates, conducted online.
- **Active Learning Integration (Active Learning Focus)**:
  - Collaborative online projects: Design group projects that require students from both universities to work together on real-world sustainability challenges. Use virtual collaboration tools.
  - Virtual discussions and webinars: Incorporate regular virtual discussions, webinars, and guest speakers to encourage active dialogue and knowledge sharing among students in the hybrid environment.
- **Blended Learning Model Selection (ADDIE Focus)**:
  - Choose a hybrid model: Implement a hybrid learning model that combines virtual interactions (online) and in-person meetings (when possible) for a well-rounded international experience. Also, combine an synchronous approach with asynchronous learning; to increase opportunities for interaction and immediate feedback, as well as deep reflection and critical thinking, respectively.
  -

3. Development Phase:

- **Content Creation (ADDIE Focus)**:
  - Develop culturally sensitive and culturally relevant content
  - Use OERs to collaborate and save resources: They often need to be adapted to different contexts and needs. Also, pay attention to licenses and citation.
- **Technology Integration (Active Learning Focus)**:
  - Utilize online collaboration tools and select appropriate technologies: Implement multimedia resources, such as video conferencing, shared document editing, and discussion forums, to facilitate group work and discussions in the hybrid online setting.

- Online learning environment: Develop an interactive online learning environment that supports active engagement and interaction among students and with teachers, regardless of their physical locations.
- Use AI tools in international activities to enhance: personalized learning, efficiency, task automation, trend awareness.

4. Implementation Phase:

- **Facilitation (SDT Focus)**:
  - Train instructors in creating autonomy-supportive environments
  - Mentorship in the virtual space: Assign mentors or peer facilitators to support international teams and address any challenges that may arise during online collaboration.
  - Encourage peer interactions
  - Conducting Face-to-Face and Online Sessions with a Focus on Active Learning
  - Monitoring International and Local Students' Progress and Adjusting Accordingly
- **Promote Intercultural Collaboration (SDT Focus):**
  - Organize regular virtual meetings, discussions, and collaborative work sessions in the online environment to ensure students from both universities have equal opportunities to participate, fostering relatedness. The use of icebreakers is a tool to start promoting a collaborative environment.

5. Evaluation Phase:

- **Define intercultural learning outcomes (ADDIE Focus):** should be measurable and not too broad, including a specific intercultural dimension that becomes measurable and is aligned with the proposed activities.
- **Collect evidence that indicates the achievement of learning outcomes (ADDIE Focus):** direct evidence through course assignments during the actual learning experience or indirect evidence through perceptions of student learning.
- **Consider emerging trends for assessment (SDT Focus):** Shifting the assessment paradigm from whether assessment is done to students or with students, focus more on formative assessment (collected throughout the course) than on summative assessment (end of course), which is more results-focused, emphasizing the cultivation of intercultural mindsets over achieving specific assessment scores.

5.1. Ongoing Improvement: This step is suggested but not mandatory in the INVITE framework.

- **Reflect and Adapt (SDT Focus)**:
    - Continuous online feedback: Collect online feedback from both students and instructors after each collaborative project and online session, and use this feedback to make iterative improvements to the course.
    - Online curriculum enhancement: Regularly review and update the online course content and activities to align with evolving internationalization goals and sustainability trends within the hybrid learning environment.

This example demonstrates how the INVITE framework can be applied to create an international collaboration course that leverages the hybrid and online learning environment. It emphasizes autonomy, relatedness, and active engagement among students in a virtual context, fostering cross-cultural understanding and teamwork in a sustainable development course.

8. Evaluating an application of the INVITE framework

Evaluating the success of the INVITE framework when applied involves assessing various aspects of the learning experience and outcomes. Here are key evaluation strategies:

1. Learning Outcomes Assessment:

- **Pre-Post Assessment**: Compare students' knowledge and skills before and after the course to measure learning gains in both content knowledge and cross-cultural competence.
- **Alignment with Objectives**: Evaluate how well the achieved learning outcomes align with the stated objectives of the INVITE framework, including internationalization, active learning, and technology integration.

2. Student Engagement and Participation:

- **Online Analytics**: Analyze data from the online learning platform, such as participation rates in virtual discussions, time spent on course materials, and submission of assignments, to gauge student engagement.
- **Feedback Surveys**: Administer surveys to students to gather their feedback on the course's design, the effectiveness of virtual collaboration, and their overall satisfaction.

3. Cross-Cultural Competence Assessment:

- **Cross-Cultural Assignments**: Assess the quality of cross-cultural assignments or collaborative projects, including the depth of cultural analysis, intercultural communication, and the ability to work effectively in international teams.
- **Self-Reflection**: Encourage students to reflect on their cross-cultural experiences and personal growth in terms of intercultural competence.

4. Technology and Online Learning Environment:

- **Technical Issues**: Monitor and address technical issues that students encounter during online learning, such as connectivity problems or difficulties with collaboration tools.
- **Usability Feedback**: Collect feedback from students about the usability and effectiveness of the online learning platform and virtual collaboration tools.

5. Faculty and Instructor Feedback:

- **Instructor Reflections**: Encourage instructors to reflect on their experiences with the INVITE framework, including the challenges faced and successful strategies employed.
- **Peer Evaluation**: Implement peer evaluations among instructors to provide insights into the effectiveness of their facilitation of virtual collaboration and the use of blended learning methods.

6. Cross-Institutional Collaboration Assessment:

- **Communication and Collaboration**: Evaluate the effectiveness of communication and collaboration between faculty members and support staff from partner institutions.

- **Logistical and Administrative Challenges**: Assess logistical and administrative challenges related to coordinating international collaboration, such as scheduling virtual meetings across time zones.

7. Student Feedback on International Collaboration:

- **Interactions and Experiences**: Collect feedback from students regarding their interactions with peers from partner institutions, the cultural learning experiences, and their perceptions of the value of international collaboration.
- **Challenges and Successes**: Encourage students to share challenges they encountered during collaboration and their strategies for overcoming them.

8. Impact on Internationalization Goals:

- **Alignment with Institutional Goals**: Evaluate the extent to which the INVITE model aligns with the institution's broader internationalization goals and strategies.
- **Global Awareness**: Assess the impact of the course on students' global awareness and whether it contributes to the institution's internationalization efforts.

9. Long-Term Impact:

- **Alumni Surveys**: Conduct surveys of course alumni to assess the long-term impact of their international collaboration experience on their careers, cultural awareness, and global mindset.

10. Iterative Improvement:

- **Review and Adaptation**: Use evaluation findings to inform ongoing course improvements, curriculum enhancements, and adjustments to the implementation of the IEBVL framework.

By using a combination of quantitative and qualitative assessment methods, institutions can gain a comprehensive understanding of the success of the INVITE model in promoting blended and virtual learning, international collaboration, and the attainment of learning objectives. Regular evaluation and continuous improvement are essential for optimizing the outcomes of this innovative educational approach.

9. Limitations and risks of the INVITE framework

While the INVITE framework offers many advantages for higher education, it is not without limitations, potential problems, and associated risks. Here are some key considerations:

1. Technological Challenges:

- Dependence on technology can pose challenges, including issues with connectivity, hardware compatibility, and the digital divide, where some students may lack access to necessary technology and internet resources.

2. Faculty Training:

- Faculty members may require extensive training to effectively implement the framework, especially if they are not already experienced with blended and virtual teaching methods.

3. Quality Assurance:

- Ensuring the quality and consistency of courses and materials across various disciplines and instructors can be challenging, particularly in decentralized institutions.

4. Assessment and Academic Integrity:

- Maintaining academic integrity and preventing cheating in virtual assessments can be more challenging than in traditional settings. Implementing effective assessment methods can be demanding.

5. Student Engagement:

- Keeping students engaged in virtual and blended environments requires careful planning and design. Without proper engagement strategies, some students may struggle with motivation and participation.

6. Equity and Accessibility:

- Ensuring that all students, including those with disabilities and diverse learning needs, have equitable access to course materials and resources can be challenging. Institutions must prioritize accessibility.

7. Resource Constraints:

- Developing and maintaining high-quality online courses can be resource-intensive. Smaller institutions or those with limited budgets may face constraints in terms of infrastructure and expertise.

8. Faculty Resistance:

- Some faculty members may resist changes to their teaching methods, especially if they are more accustomed to traditional, lecture-based instruction.

9. Assessment Alignment:

- Aligning assessments with active learning strategies and internationalization goals can be complex and may require careful planning to ensure that assessments effectively measure desired learning outcomes.

10. Cultural Sensitivity: -

- Promoting internationalization in course materials and activities requires cultural sensitivity and awareness. Insensitive content or activities may inadvertently cause offense or misunderstanding.

11. Privacy and Data Security: -

- Collecting and managing student data in online environments must adhere to strict privacy and data security regulations. Mishandling of data can lead to legal and ethical issues.

12. Resistance to Change:

- Implementing significant changes to teaching and learning methods, as the INVITE framework suggests, can face resistance from various stakeholders, including faculty, administrators, and students.

13. Evaluation Challenges:

- Measuring the effectiveness of the framework and its impact on internationalization can be complex and may require sophisticated assessment methods and data collection.

14. Faculty Workload:

- Creating and managing online content, interactive activities, and assessments can be time-consuming, potentially increasing faculty workload.

15. Scalability:

- Adapting the INVITE framework to large class sizes or institutional-wide implementation can be challenging, especially for institutions with limited resources.

It's important for institutions and educators to be aware of these limitations, problems, and risks and to develop strategies to address them effectively when implementing the INVITE framework. Careful planning, ongoing evaluation, and a commitment to addressing challenges can help mitigate these issues and maximize the benefits of the framework.

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