

Assessment of Innovative Pedagogies

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Final Group Project Research

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About UCL STEaPP

University College London's (UCL) Department of Science, Technology, Engineering and Public Policy (STEaPP) "mobilises science, technology, engineering and policy expertise to help change the world for the better" (UCL, 2018). STEaPP offers five MPA degrees that offer students the opportunity to work on a real-world policy challenge (scenario week) in their first term, and an extended project for a real client in their second and third terms.

This paper is the research outcome provided to technopolis group.

About technopolis |group|

Technopolis Group, is based in Brighton, U.K. It is a consultancy agency which works with non-for-profit and public organisations to address challenges within economic, environmental and societal realms (Technopolis Group, 2018). The group works on regional, national and international levels, following a principle basis of, consultancy which leads to economic growth through policies and strategies based on evidence.

The group is currently working for the UK Government in assessing the impact and scalability of SPHEIR.

Executive Summary

The Strategic Partnership for Higher Education Innovation and Reform (SPHEIR) programme, a collaboration between the Department for International Development (DFID) and British Council, provides development assistance to higher education institutions in developing nations, with a focus in Sub-Saharan Africa, the Middle East and Southeast Asia. This assistance can take many forms, with a focus on quality, accessibility, relevance, affordability, scale, sustainability and technology (SPHEIR, n.d.b). Technopolis Group, a consulting firm located in the U.K., has been hired by the British Government to assist in the evaluation of SPHEIR and to assess the impact and scalability of the SPHEIR programme. The authors of this report work under the direction of Technopolis Group.

This report has been written to assist in the identification of emerging innovative pedagogies in the SPHEIR regions, in addition to Latin America. Pedagogical innovations were identified within the foci listed above through the application of a variety of frameworks. These frameworks, developed by universities and international organisations, were applied to existing literature and further complemented by conversations with experts in the education field. With these combined elements, a plethora of pedagogies which may be considered to be ‘innovative’ were identified in the selected countries; the Appendix contains detailed descriptions of each pedagogy identified.

There were three broad objectives for this report:

1. Definition of Innovative Pedagogies
2. Examples of Innovative Pedagogies
3. Feasibility and Replicability

In order to identify what may be considered an ‘innovative’ pedagogy, it was first necessary to conduct a rapid evidence assessment (REA) of the existing literature surrounding pedagogical change to find a common definition that can be used in the variety of SPHEIR and non-SPHEIR country contexts. The REA approach provided the foundation for the research undertaken in this report – due to time constraints, the REA methodology was preferable as it enabled a realistically broad, yet sufficiently deep, examination of pedagogical theory and practice. Through examination of government policies, university strategies and the lived experiences of faculty and students, as well as the aforementioned expert conversations, the authors were able to establish a baseline by which to compare pedagogies against to determine what is ‘innovative.’

The identification of innovative pedagogies was conducted by extensive literature reviews of case studies and pedagogical assessments in the selected countries. It was within these case studies that the framework was applied and characteristics of each pedagogy were drawn out. The characteristics and trends discovered in this review were then standardised so as to allow a mixed-methods analysis of the results. Below are summations of the findings of this report, categorised by the overall standardised trend categories used for the mixed-methods analysis.

Pedagogical Innovations

1. Regarding the prevalence of certain types of pedagogical innovations, no geographic trend was observed that would indicate one specific pedagogy was particularly prevalent in either SPHEIR or benchmark countries. Both SPHEIR and benchmark countries commonly experienced the *implementation of ICT towards blended learning* as well as *practical applications to real-world scenarios*, which was slightly more prevalent amongst benchmark countries. The *internationalisation of the classroom* was most prevalent amongst benchmark countries.

- Regionally, *ICT implementation towards blended learning* was experienced in all examined regions. After that, each region experienced high variation regarding observed pedagogical innovations.

Drivers of Pedagogical Innovations

- While all SPHEIR countries experienced *collaboration between institutions, both domestic and international*, the trend was similarly popular amongst benchmark countries. SPHEIR countries were more likely to observe some form of *government strategic planning to direct priority areas*, whereas *local institutions* played similarly insignificant roles in both SPHEIR and benchmark countries.
- Regionally, all examined regions had at least one recorded instance of *government strategic planning to direct priority areas*. Likewise, all of the examined regions had at least one recorded instance of *collaboration between institutions, both domestic and international*. *International / development agencies* seemed to be more active in Sub-Saharan Africa than in Latin America.

Targeted Skills Development

- While the lack of data was particularly pertinent in the skills development category, it was still observed that a majority of both SPHEIR and benchmark countries were interested in *strengthening exposure to and comfortability with ICT*, as well as increasing *industry-specific skills*. Additionally, SPHEIR countries had more occurrences of *critical thinking / problem solving*-oriented pedagogical innovations.
- All regions experienced at least one occurrence of pedagogies linked with *increasing exposure to and comfortability with ICT*, as well as *self-motivation* and *confidence-building*. However, within Latin America, *critical thinking / problem solving* was not observed.

Sources of Funding

- For both SPHEIR and benchmark countries, *student fees* and *international governments or organisations* were the most common sources of funding. *Private sector funding* was similarly negligible between the two groups of countries.
- All of the regions examined witness a reliance on student fees for funding, except for Asia. Within Sub-Saharan Africa specifically, *government, student fees, and international governments or organisations* were common sources of funding. *International governments or organisations* were also observed as funding programmes in Asia and the Middle East.

Faculty Attitude Towards Pedagogy

- Both SPHEIR and benchmark countries experienced the three identified trends: *faculty actively involved in implementation of innovative pedagogies, faculty open to implementation, but hindered by personal / institutional constraints* and *faculty resistant to innovative pedagogies*.
- Regionally, *faculty actively involved in implementation of innovative pedagogies* was most common amongst Latin America and the Middle East; in Sub-Saharan Africa, the most frequently-observed trend was *faculty open to implementation, but hindered by personal / institutional constraints*.

Dimensional Change

- Changes in *pedagogical* dimensions were the most commonly reported change in both SPHEIR and benchmark countries. Changes in *discourse* were similarly popular, though more prevalent amongst

SPHEIR countries than the benchmark countries. *Architectonic* dimensions shifts were equally popular amongst both SPHEIR and benchmark countries.

2. Regionally, Sub-Saharan Africa, Middle East and Latin America most frequently experience *pedagogical* dimensional change. Sub-Saharan Africa was the only region in which *intersubjective* dimensional change was observed. Changes in the *moral* dimension of higher education were not observed in Sub-Saharan Africa or the Middle East, but were noted in Latin America and Asia.

Type of Innovations

1. *Computational thinking* was the most commonly-observed trend among both SPHEIR and benchmark countries, followed by *experiential learning* and *blended learning*. There were no identified occurrences of *gamification* or *embodied learning*.
2. Regionally, *computation thinking* was the dominant trend, observed in each examined region.

It is important to note that certain constraints limited the extent to which this research could be conducted. While the framework was helpful in discerning different models and dimensions of pedagogies and contained an impressive number of dimensions, it does not consider many other realms that affect classroom learning, such as those outside of the conventional learning environment. Further constraining the study is the limited accessibility and reliability of the data within developing countries. In many instances, case studies were over ten years old, meaning they were unable to account for many of the technological breakthroughs that have occurred in recent years that have revolutionised the way people learn information. Additionally, it was not uncommon for case studies to examine the immediate implementation of a new pedagogical approach without recurrent follow-up visits to assess whether or not the new approach remained. Lastly, and perhaps most importantly, the research undertaken here is highly contextualised – while standardisation methods were utilised to identify trends across regions and countries, it fails to capture the nuances of specific ground-level realities that are not present in all developing countries. However, though this may limit the applicability of the results found here to other developing countries, it does *not* limit the replicability of the process utilised to come to these results.

1. Introduction

1.1 Context

What is SPHEIR?

As the world continues to globalise, the issues facing countries, both developed and developing, become increasingly complicated. As the British government's international development agency, the Department for International Development (DFID) is charged with aiding in the development of regions across the globe. One way in which this has manifested has been through the *Strategic Partnership for Higher Education Innovation and Reform* (SPHEIR) programme. SPHEIR is a £45M DFID fund, managed by British Council, Universities UK and PricewaterhouseCoopers (PwC), to enable the transformation of higher education sectors in Sub-Saharan Africa, Asia and the Middle East (British Council, 2016; DFID, 2018). In funding this systemic transformation of higher education systems in parts of the Global South, SPHEIR hopes to assist in the acceleration of development within these countries by “[building] inclusive societies and [promoting] strong economic growth” (DFID, 2018). DFID believes this best to be accomplished through SPHEIR by assisting in education reformation, focused on innovation in pedagogical approaches that work to align the output of higher education systems with local and global market needs (DFID, 2018).

Purpose of Higher Education

By prioritising pedagogical innovation in higher education institutes in partner countries, the SPHEIR programme demonstrates the perceived importance of higher education in development. Indeed, the *Guidance Notes for Partnerships* released by SPHEIR find that effective higher education systems should make contributions to progress in areas such as good governance, vibrant civil society and inclusive economic growth fostered by productive employment ([SPHEIR, n.d.a](#)). With these three factors, the SPHEIR programme believes that sustainable development can be achieved within partner countries ([SPHEIR, n.d.a](#)). This perspective largely aligns with wider literature that identifies the role of higher education institutions in facilitating development.

However, it has only been within the last ten to fifteen years that the role of higher education in development has become widely-accepted as similar in importance to primary and secondary education; previously, higher education had been considered a luxury that the developing world could not afford (Ramphela and Rosovsky, 2015). This change has occurred from two sides: first, from universities around the world that have realised that instruction needs to be more effective and how effective teaching is in their interest, and second, the inclusion of higher education in many international development agencies' funding interventions in the developing world (Schendel, 2018). Prior to this point, such agencies prioritised funding for what was perceived to be ‘more cost-effective’ primary and secondary education programmes over higher education (Schendel, 2018).

In the World Bank study *Globalization, Growth, and Poverty: Building an Inclusive Global Economy*, it was found that in 24 developing countries that were able to successfully integrate into the world economy (and thus experience higher economic growth and average wages), an increase in higher education participation was beneficial to economic development ([Educational Pathways International, n.d.](#)). Similarly, it has been argued that for many in developing countries, the combination of primary, secondary and higher education has enabled individuals to improve the few assets that they do control, namely their labour, enterprise and ingenuity (Ramphela and Rosovsky, 2015). In doing so, higher education promotes a wide variety of development-linked priorities by: increasing choice for students when deciding careers to pursue; training generations of leaders with the skillset to address pressing political, social and economic realities; increasing

the relevant skills of a nation's workforce; and promoting income growth, which further entices individuals to pursue higher education (Ahmad and Bloom, 2000). However, as Ahmad and Bloom (2000) state, the benefits of having a higher education system are not automatic and instead rest on the character of the system (i.e. not only its design but the quality of its participants, the quality of its services, etc.) and its institutions, as well as the social, political and economic systems in which higher education operates.

According to Ahmad and Bloom's (2000) report *Higher Education in Developing Countries: Peril and Promise*, one of the largest obstacles facing the higher education sector is the absence of vision. However, through the thorough investigation of efforts from both universities and governments in the past two decades, it has become apparent that a lack of vision is no longer a major obstacle (for example, see the national and sectoral strategies of Lebanon, Jordan and Sierra Leone, contextually discussed in Appendix 7.2). In fact, in many of the examined countries, visioning and strategic planning have become commonplace amongst universities and governing bodies; however, what remain as substantial obstacles, and as identified by the authors, are the lack of political and financial commitment and the combined effects of initial disadvantage and globalisation. In this context, the initial disadvantage refers to the 'poor baseline' many universities in developing countries begin with, with a cadre of professionals willing and able to strengthen the institutional core of universities – this cadre is further whittled away by globalisation, which entices those who would be qualified to build a nation's higher education sector to seek employment in countries that are able to provide more security and benefits than their home countries (Ahmad and Bloom, 2000).

Innovation and Higher Education

With limited resources, it's perhaps even more imperative that universities in the developing world innovate, for these innovations may be the only way to continue to reach more students, but also maintain quality in educational outcomes. As McCowan (2018b) postulates, strong higher education systems, in this case those that encourage and breed innovation by *utilising* innovation, are paramount to the training of professionals who craft context-specific solutions to overcome the issues hindering development. In order for higher education sectors in the developing world to serve this purpose, the involved stakeholders must craft local, regional and international networks and partnerships; the implementation of innovative pedagogies, such as problem- and project-based learning, is a way by which these networks may evolve (Hansen and Lehmann, 2006). These new pedagogies do much more than craft networks, though: they lay the foundation for the emergence of national systems of innovation and knowledge-driven growth, as well as work to overcome issues as broad and pertinent to the developing world as extremism, to truly drive development for all (Hansen and Lehmann, 2006; [Rose, 2015](#); [Mirza, 2018](#)).

1.2 Statement of the Problem

There are multiple challenges associated with multi-scalar education policies. Specific to higher education, there are two that stand out (OECD, 2011):

1. Ensuring access to reduce social inequality
2. Ensuring quality in content to increase economic growth.

Developing countries are constantly struggling to prioritise basic education policies to guarantee universal access—at least to primary and secondary levels—for all citizens, but often fail to extend the same efforts to higher education systems (Gray, 2008). 100 years ago, having a majority of citizens who could write and read was an achievement (Gray, 2008). However, guaranteeing universal access to education and avoiding academic failures can no longer be the measurement toward success. Ensuring quality of higher education in

a globalized era of fierce economic competition and fast-paced change poses a formidable challenge to all countries, but it also provides an opportunity to developing economies to hack the system and reduce the inequality gap (World Economic Forum, 2015). Implementing effective and efficient education policies that truly train 21st century citizens with the skills that the local labour market requires could be a fundamental pillar to ensure societal and economic development.

The main problem for implementing SPHEIR lies at finding innovations that ensure access and quality of education through innovative policies and partnerships that are contextualised to the unique challenges each of the targeted countries faces. As such, the main challenges are summarized as:

1. Developing countries lack administrative and financial capacities to prioritise the development of their education sector
2. Focus is usually on primary education, but not on secondary, which generates gaps in the construct of long-term growth
3. Pedagogical methods must align with the employment environment, opportunities and challenges of a fierce economic competition and rapid societal change
4. Current fierce economic competition and rapid societal change, entails that not only is universal access necessary, but the pedagogical methods must align with the employment environment and opportunities.

These four challenges are in line with the SPHEIR objective of ensuring access to higher education to reduce social inequality and ensuring quality in the content of higher education to increase economic growth.

1.3 Research Aims and Objectives

This paper aims to assist in the investigation of innovative pedagogical practices to address these challenges. More specifically, this project will investigate identified innovative pedagogies and their contextual outcome in SPHEIR countries; SPHEIR countries will be further benchmarked against a selection of countries, described further in Section 1.4 and 2.2.3. This requires an analysis of the application of innovative pedagogies within selected developing countries and identification of the societal impact those innovations could have in the local and national economy, such as contributing to the employability or entrepreneurship of individuals.

The following are the research objectives of this report:

1. Definition of Innovative Pedagogies

Building a common understanding of what ‘innovative pedagogy’ entails within higher education (application of new materials, new delivery techniques, new monitoring techniques, etc.). The team understands that innovative pedagogies will take on different forms in varying contexts, and thus, will be described differently by varying institutions and actors.

2. Examples of Innovative Pedagogies

To perform a comprehensive research of how innovation is currently happening around the world. This will entail a systematic approach, whereby our group will examine factors such as institutional contexts of higher education, relevance of academic content, funding patterns and partnership-network engagement.

3. Feasibility and Replicability

Understand the contribution that different types of innovative pedagogies can have in different settings. This understanding will highlight the challenges and opportunities of replicability of different innovation models within another target countries of SPHEIR.

To do this, STEaPP will conduct a rapid evidence assessment (REA) and apply a framework able to categorise different pedagogies in a way that analyses innovation and impact, while taking into consideration the many other factors that could come into play.

1.4 Scope

SPHEIR’s impact is currently being assessed by technopolis _{group}, under a four-step framework describe in Figure 1. This paper aims fits into the second step, “Linked Research,” where it provides a profound analysis in the Rapid Evidence Assessment segment.

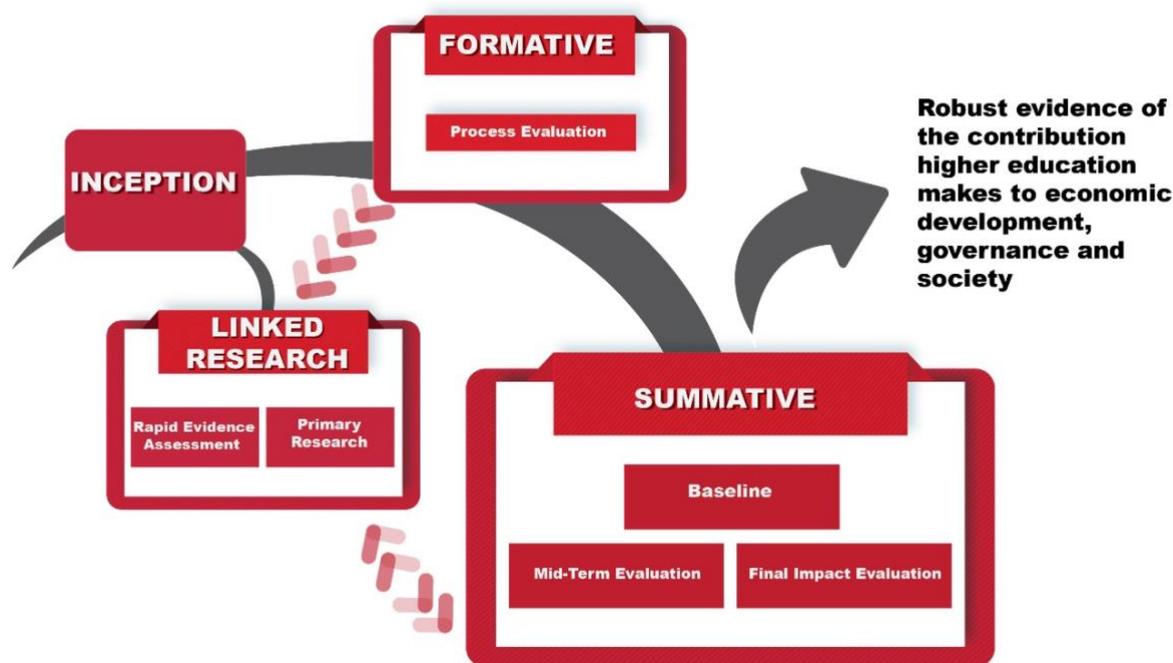


Figure 1: SPHEIR Assessment Framework

Source: technopolis group 2018

Geographical Scope

SPHEIR scope covers low and middle-income countries from Middle East, Sub-Saharan Africa and Asia (SPHEIR, 2018). For this specific paper, technopolis chose 10 countries as the priority for this research: Ghana, Jordan, Kenya, Lebanon, Myanmar, Nigeria, Sierra Leone, Somalia, Tanzania and Uganda. The geographical distribution of these countries can be seen in Figure 2.



Figure 2: Geographic Distribution of SPHEIR Countries

Source: Google Maps 2018

To increase the level of robustness to the analysis of the 10 SPHEIR countries, 10 additional countries with similar economic characteristics were chosen to be also included in the research to extract potential good and bad case practices from previous attempts of innovative pedagogies, if any. Table 1 summarises the list of 20 countries to be analysed with a historical comparison of economic and social metrics.

Table 1: Economic Comparison of SPHEIR Countries and Benchmark Countries

Country	GDP per capita 1990	GDP per capita 2016	GDP Variation	% Investment in Education	Main language (after local in some cases)	Human Development Index 1990	Human Development Index 2015	Change	
SPHEIR countries	Ghana	402.6	1513.5	276%	6.2	English	0.455	0.579	27%
	Jordan	1168.3	4087.9	250%	3.9	English/French	0.62	0.742	20%
	Kenya	366.3	1455.4	297%	5.3	English	0.473	0.555	17%
	Lebanon	1050.1	8257.3	686%	2.5	English/French		0.763	
	Myanmar		1195.5		2.2	English	0.353	0.556	58%
	Nigeria	322.8	2175.7	574%		English/French			
	Sierra Leone	150.7	505.2	235%	2.9	English	0.272	0.42	54%
	Somalia		471.6			English/Italian			
	Tanzania	172	877.5	410%	3.5	English	0.37	0.531	44%
	Uganda	246.8	580.4	135%	2.3	English	0.309	0.493	60%
Benchmark Countries	Burundi	209.1	285.7	37%	5.4	French	0.27	0.404	50%
	Ecuador	1491.4	6018.5	304%	5	Spanish	0.643	0.739	15%
	El Salvador	913.6	4223.6	362%	3.5	Spanish	0.529	0.68	29%
	Gambia	345.9	473.2	37%	2.8	English	0.33	0.452	37%
	Guatemala	825.8	4146.7	402%	2.8	Spanish	0.478	0.64	34%
	Malawi	199.3	300.3	51%	4.7	English	0.325	0.476	46%
	Mauritania	502.2	1101.9	119%	2.6	French	0.378	0.781	107%
	Pakistan	364	1443.6	297%	2.8	English	0.404	0.55	36%
	Peru	1210	6049.2	400%	3.8	Spanish	0.613	0.74	21%
	Zambia	409.3	1269.6	210%	1.1	English	0.398	0.579	45%

Source: UCL STEaPP SPHEIR Group Project 2018, extracted from World Bank (2018a and b), UNDP (2018)

2. Methodology

In order to investigate the question of what innovative pedagogies are, and what impact they have on the developing societies to be explored, it is pivotal that concepts and theories underlying ‘innovative pedagogy’ are understood from literature and expert sources. Moreover, it is essential that a methodology is utilised when looking at innovative pedagogies in different countries; that a constant, yet flexible framework is used which can classify the pedagogical innovations both according to their executive style or essence, as well how they have been innovative for the learning process and impact outside of the education realms. These methodological approaches are part of a Rapid Evidence Assessment (REA), which is discussed in Section 3.1.

In undertaking this project and method of analysis, it is important to be aware of the risks and concerns for a successful project outcome. One of the greatest concerns, with high-impact risk, is that of a lack of data regarding innovative pedagogies in selected countries. This would make it difficult to understand what is ‘pedagogically innovative’ in many developing contexts, as well as what impact these initiatives have had. The group has furthermore identified concerns in getting timely expert opinion to contribute to the work of defining ‘innovative pedagogy’ as is shown in Section 2.3 and 3.1.4, the omission of certain factors to look at regarding the impact of innovative pedagogies, as well as logistics of team organisation and efficiency.

2.1 Rapid Evidence Assessment Methodology

The main method by which we are assisting Technopolis is through a rapid evidence assessment (REA). REA has evolved out of the ‘systematic review’ approach to research, maintaining a slightly-less comprehensive approach to literature and evidence while being far better suited for time-constrained assessments (Thomas et al., 2013). According to DFID, which utilises REAs frequently, REAs “provide a more structured and rigorous search and quality assessment of the evidence than a literature review but are not as exhaustive as a systematic review” (GOV.UK ,2018).

The REA approach is twofold: it includes an assessment of existing literature on ‘innovative pedagogies’ as well as on the chosen countries of comparison. Regarding ‘innovative pedagogy’, it is important to reach a consensus on its meaning as doing so lends some form of standardisation between contextual analyses. This method of standardisation is particularly important in the SPHEIR case as the countries of analysis span continents, including Africa, Latin and South America, Southeast Asia and mainland Asia. Importantly, this standardisation allows for tentative control for variations in relative development levels in selected countries, while identifying what it may mean for a pedagogy to be innovative within differing contexts. Additionally, while comparison countries have been chosen based on their likeness to SPHEIR partnership countries (utilising indicators such as GDP, %GDP spent on higher education, HDI was shown in Table 1), contextual differences are present, thus the REA may identify structural or cultural differences within countries that affect the outcome of certain pedagogical approaches.

To supplement the review of existing literature, discussions and conversations with experts within education policy and pedagogical theory / practice are helpful to bridge the gap in understanding between what is considered to be ‘innovative’ in pedagogical approaches. These conversations provide valuable insight into what aspects can shape the undertaken research when identifying useful and applicable information. Moreover, expert perspectives provide additional lenses with which to examine research, enabling the identification of framework limitations, limitations of existing literature as well as the identification of innovative outcomes that may not ‘fit the mould’ of what is typically considered an innovative pedagogy.

Experts in a variety of capacities are identified so that they may speak to experiences in different contexts (see Section 2.3 and 3.1.4). One concern with these discussions is that they may equate ‘innovation’ too much with technological ‘embeddedness’, which is an inherently western view of what it means for a pedagogy to be innovative. In the SPHEIR partner countries, however, innovation in pedagogy is not necessarily to what extent modern technologies are used in a classroom setting but can also include how students are encouraged to engage with and question their professors as well as their classmates (see considerations in 3.1.3 and expert conversations in 3.1.4). To gain greater understanding of innovative pedagogies through the conversations, these were oriented around a few guiding points which regarded: the definition of ‘innovative pedagogies’, if the expert could give some examples of innovative pedagogies from their countries of research or interest and how innovation in pedagogy could be measured.

2.2 Research Framework

2.2.1 Application of University of Illinois System of Classification

The educational system of classification created by the Institute of Education at the University of Illinois (Kalantzis and Cope, 2018) makes for a comprehensive categorisation of how to assess different aspects of pedagogies. The classification system uses pedagogy models and pedagogical dimensions. The models give the essence of the general learning pathway for the student which is further detailed by the dimensions, which are (1) didactic, (2) authentic and (3) transformative. The dimensions describe the ways in which the learning is done, the resources the teacher uses and the purpose of the educational environment.

Models of Pedagogy

Didactic: Consists of routines, recitation and memory. It focuses on consuming existing knowledge as it exists today. This is considered to be the most popular pedagogical approach in today’s education systems. The didactic approach has been criticised for lacking a curriculum that encourages critical thinking skills.

Authentic: Also known as progressivism pedagogy, it is primarily focused on the learner. It offers real-life experiences so they can deeply immerse and engage with what they are learning.

Transformative: Also known as reflexive pedagogy, it focuses on problem solving, designing and co-designing where learners also become producers of knowledge. It encourages the learner to be passionate and engaged (emotionally and intellectually) towards what they are learning, and to challenge what is known.

The same analysis also defines eight dimensions of pedagogy inside any of the three models, described in Table 2 (Kalantzis and Cope, 2018).

Table 2: Eight Dimensions of Pedagogy

Dimension	Definition	Questions
Architectonic	The space in which the learning takes place	What is the classroom environment? Is learning indoors or outdoors? How is the physical infrastructure?
Discourse	The discursive arrangement; what happens inside the learning space	How do people interact with each other? What is the discourse; the tone? What is the delivery method (i.e. textbook-led, cathedral lectures, debates, Q&A, recitation, etc.)?
Intersubjective	The power dynamics between the learners and the teachers	Who controls what happens? What kind of power do the students have; the teachers? Is there a hierarchy structure or egalitarian interactions?
Socio-Cultural	The identity that each person brings to the classroom. The existence in the room of each person brings a unique socio-cultural component that plays an important role in the level of engagement and interpretation of everyone in the room	Who is present in the room? What do they represent? What kind of identity do they bring to the room? What are people allowed (and forbidden) to express?
Proprietary	The power that is in control of the space. It can be the student, the teacher, or a third party not present in the room	Is the space open? Is the learning environment closed? How does one belong? What kind of freedom is allowed? What are the expectations? Are students encouraged to be collaborative, or individualistic?
Epistemological	Ways of knowing the world with a critical thinking approach. It has a profound impact on the outcome of the content learnt and the experience of the learning	What is included? Is it top-down where authoritative knowledge is forced? Is it something that one must research by oneself? Are people allowed to make their own conclusions of when something is meaningful and when it is not? Are students encouraged to make new discoveries? What works and what does not?
Pedagogical	Instructional choices made inside the different modes of pedagogy. Those can be choices the teacher or the students make to take ownership of the learning style.	What is allowed and what is not? What is the impact those choices have on the learning outcomes?
Moral	The overarching mission/purpose of any learning environment. Evaluate if or how the institution is trying to produce a specific type of individual.	Are institutions to produce political leaders; business leaders; compassionate people; obedient citizens; curious intellectuals?

Source: UCL STEaPP SPHEIR Group Project 2018.

Adapted from: Kalantziz M. and Cope, W. (2018) "New Learning: Principles and Patterns of Pedagogy".
College of Education, University of Illinois.

2.2.2 Applying the Classification Systems Toward a Framework for Categorisation of Observed Innovations

For the scope of this study, it was decided the University of Illinois classification system (Kalantzis and Cope, 2018) would be used in order to categorise and analyse the educational context and innovative pedagogies occurring in the investigated countries. The classification system provides a categorised overview of an implemented pedagogical approach, whereby a learning environment's characteristics and modes can be observed in a clear manner.

The aim of this research is to determine which educational changes in the chosen countries have produced positive change and/or a new, forward outlook on how things are learned; thus, that which has been 'an innovative pedagogy.' To use this classification system in the format of a framework, it is essential to understand by which measures this 'innovation' can be observed. As the dimensions determine the models which are in place, it would be expected that innovation would be observed when a change (addition, reduction, update) to a dimensional characteristic causes change to an observed model. For example, the implementation of mobile phones as a 'discourse' dimension tool may require students to memorise fewer materials, whereby the earlier 'learning pathway environment' sees a shift. However, in doing research, it was found that it was difficult to retrieve information that discussed the change in the 'pedagogical pathway' or how students learn, which could ultimately be observed as the innovation in itself. Therefore, there was an identified need to add a secondary 'model,' seen in the tables as 'Model 2.' In conversation with experts and through literature research, it was found that the most applicable way of measuring innovation would be to understand and describe the new 'characteristics' that were increased or achieved with the new innovative step.

Visualising the Framework

To establish a table-formatted framework, what was needed was a mode of determining how the 'general' or baseline context of the educational landscape in a country looks before an innovative pedagogy is implemented. Otherwise, there would not be a comparative point to see if an initiative had been innovative. Thus, two parts to the framework were developed consisting of two tables: one which outlines the general educational baseline context in a country (Table 3) and one which outlines the innovative pedagogies (Table 4). In Table 3, the general context is described through the lens of the varying dimensions, together with model 1 (didactic, authentic, transformative). As characteristics pertaining to pedagogies and the learning environment were found to be more institutional or classroom-oriented, a difference was made between characteristics describing the two. However, due to limited information, the characteristics at an institutional level usually pertained to the classroom level as well; for Table 4, the difference between these two categories was not made.

In Table 4, the innovative pedagogies were described through a case study approach whereby changes observed to the pedagogical pathway aspects were noted (model 1), together with skills or new characteristics acquired through the innovative pedagogy (model 2). Additionally, the advantages, disadvantages and dimensional aspects of the new pedagogy are identified. Moreover, a further mode of categorisation was added based on an analysis made by the OECD (2018b) regarding innovative pedagogies and understanding their categorisation ([OECD, 2018b](#)). This categorisation falls under the nomination of 'Type of Innovation' and regards six forms of categories outlined by the OECD (2018b), which can be viewed in Figure 3. For some of the countries, the innovative pedagogies found in literature could not be explored using the 'case study' approach due to a lack of data/information. However, these innovative pedagogies are still mentioned, but as examples under the category 'other innovative pedagogies.' For some countries, only these types of examples were found; for countries for which literature information was plentiful, only case studies are covered.

Table 3: Baseline Context Table

Country	Baseline Context								Model 1		
	Architectonic	Discourse	Intersubjective	Socio-Cultural	Proprietary	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional											
Classroom											

Source: UCL STEaPP SPHEIR Group Project 2018.

Table 4: Innovative Pedagogies Table

COUNTRY	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
Case Study 1	Dimensions covered Type of Innovations				
Other Examples of Innovative Pedagogies					
Example 1					

Source: UCL STEaPP SPHEIR Group Project 2018.

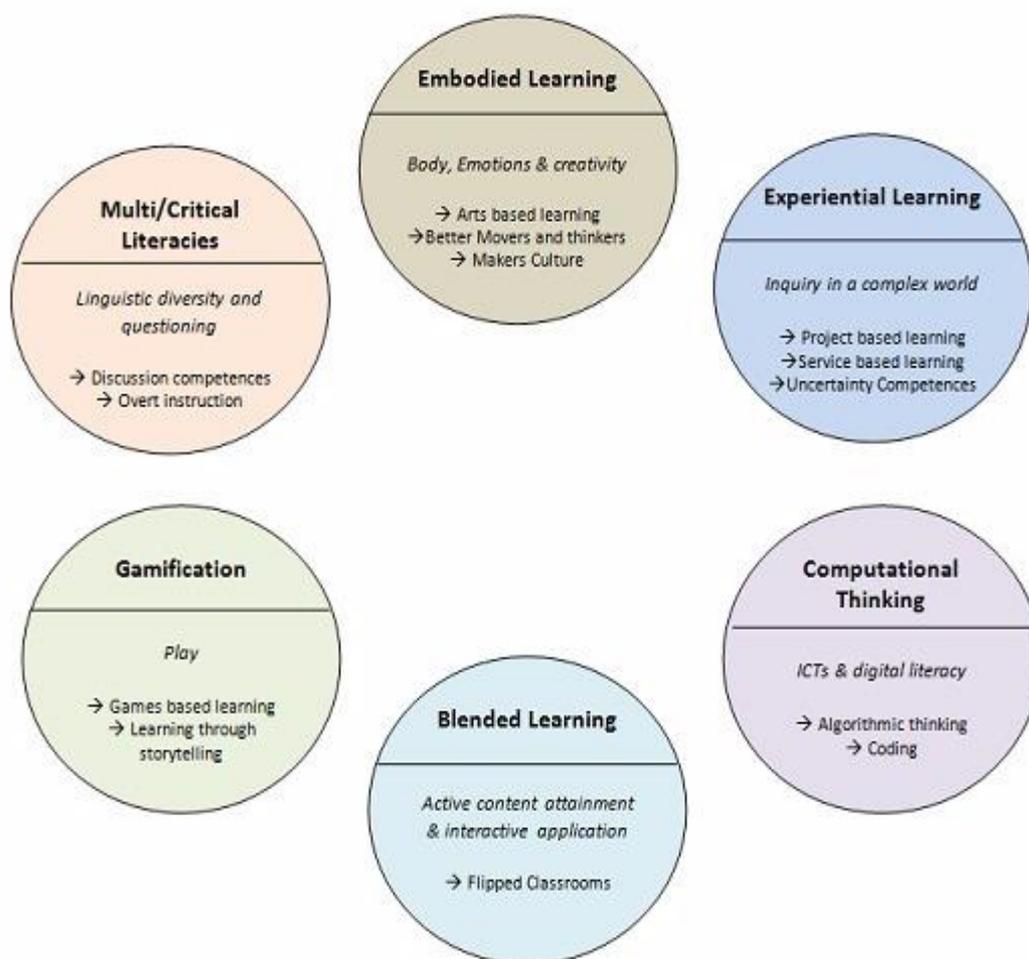


Figure 3. Types of Innovation

Source: Paniagua, A. (2018). *Teachers as Designers of Learning Environments: The Importance of Innovative Pedagogies*, Figure 4.1, p. 79.

2.2.3 Selection of Benchmark Countries and Application of Framework to Country Research

SPHEIR countries and a selected number of benchmark countries are covered in the research. To select the benchmark countries, an approach was used by which GDP per Capita (2016), Percentage of GDP (national) invested in education and Human Development Index Figures (2015) (World Bank, 2018a; 2018b; UNDP, 2018). were used to determine those most suitable. The figures for these variables were established for all SPHEIR countries, and then an average taken of each. Developing countries throughout the world similar in geographical breadth to SPHEIR countries were then selected based on having similar values as SPHEIR countries. As such, countries benchmark countries were selected throughout the regions of Sub-Saharan Africa, Eastern Asia and Latin America.

Once the research of the countries had been done and the information collected in the given research framework, the next step for achieving a form of analysis was to identify the trends for each country and to apply this to overall trends observed. To achieve this, summaries for each country were created, whereby trends regarding different categories described in the framework were noted through a qualitative

standardised process. The different characteristics observed for each country were summarised under different worded descriptions to achieve uniformity for comparison in the trends (see Section 2.2.4, 3.2 and 3.3.). This standardisation of observed trends enabled a basic qualitative analysis to be conducted, in which the prevalence of certain trends could be identified.

2.2.4 Standardisation of Results and Subsequent Mixed-Methods Analysis

Upon completion of framework application and country research, and in order to facilitate a quantitative analysis of observed trends in the selected countries, the standardisation of observed trends was conducted. In order to develop metrics that could be used in this quantitative examination of the results, outcomes from each country were examined for commonalities that enabled standardisation. For instance, if a higher education institution in Country ‘A’ began open- and distance-learning (ODL) courses, and an institution in Country ‘B’ introduced free campus-wide Wi-Fi to be used in a classroom setting, both would be classified as “Implementation of ICTs, towards blended learning,” a form of Pedagogical Innovations, which is one of the standardised categories of observed trends. In doing so, it was possible to quantitatively track the occurrence of certain pedagogical innovations across all examined countries. In total, seven standardised metrics were developed, each of which contains sub-trends that were standardised:

- | | |
|---------------------------------------|-----------------------|
| 1. Pedagogical Innovations | 5. Faculty Attitudes |
| 2. Drivers of Pedagogical Innovations | 6. Dimensional Change |
| 3. Targeted Skill Development | 7. Type of Innovation |
| 4. Sources of Funding | |

It is important to note, however, that the absence of an observed trend in a specific country in this analysis does not indicate that there is no occurrence of that trend in that country. Due to the availability of data, as well as the limited number of studies undertaken in many of the selected countries, it is quite possible that many unobserved trends are indeed happening in these countries. This is a limitation of our chosen approach, which will be further examined in Section 2.4.

Following the standardisation, the trends for each country were mapped out in order to grasp visual differences between SPHEIR and benchmark countries, as well as between geographical regional areas (Asia, Middle East (ME), Latin America (LA) and Sub-Saharan Africa (SSA)). Analysis was drawn from this visual overview and was then complemented by a quantitative analysis, which investigated the number of occurrences for each trend (with imbedded sub-trends). For the quantitative analysis, the comparison was also done between SPHEIR and benchmark countries, and between regional areas. Here, it is important to note that the categorisation of information only intended to show whether a trend was observed in a specific country and did not intend to depict the frequency of occurrences in each country. With the standardised information compiled, for each sub-trend a “rate among X countries” was identified to represent the number of countries where the trend was found, which was then divided by the total number of countries in the aforementioned analysis (in this case, called “X”). For instance, if the ‘architectonic’ dimension was found in six (6) Sub-Saharan African countries out of a total eleven (11) countries examined, then the rate among Sub-Saharan African countries would be 6/11, or 55%. Following this calculation, graphics for each category were created in order to show how common it was to find each trend in the chosen group of countries.

2.3 Expert Conversations

To complement the information gleaned from existing literature, discussions with experts have been conducted with individuals who have experience within the fields of higher education and innovative learning. A list of experts (see the list below) are listed below according to their overarching heading of institution base or affiliated organisation.

Understanding the concepts, definitions and theories underlying innovative pedagogies, together with the frameworks used to analyse and categories pedagogies in terms of innovation, as well as country-specific information on the topic- literature research is used¹. This literature both constitutes white and grey components, whereby ‘white’ indicates academic journal articles, while ‘grey’ entails reports and articles produced by international and associated organisations. To keep track of, and gain insight how sources have been found, and what steps can be used to find other sources associated with the topic, our student group is recording the terminology and search engines used in our searches. Search engines include Scopus, Google Scholar, as well as the UCL Library source. The following experts were consulted:

University College London (UCL)

- ❖ *Dr. David Hornsby, Head of Department at STEaPP:* Dr. Hornsby has authored numerous books on education, including *Transforming Teaching and Learning in Higher Education: Towards a Socially Just Pedagogy in a Global Context*.
- ❖ *Dr. Rebecca Schendel, UCL Institute of Education:* Co-author of *Pedagogies for Critical Thinking: Innovation and Outcomes in African Higher Education*.
- ❖ *Dr. Tristan McCowan, UCL Institute of Education:* Co-Author of *Pedagogies for Critical Thinking: Innovation and Outcomes in African Higher Education*

UNESCO

- ❖ *Paz Portales, UNESCO Education expert*

Plan International

- ❖ *David Vasquez, Member of the Executive Committee, Panal Ecuador*

La Rioja University

- ❖ *Javier Taurón, Innovation and Education Development Vice-rector at La Rioja University (online university).*

2.4 Methodology Limitations

2.4.1 Rapid Evidence Assessment

A potential disadvantage of the REA approach is that it sacrifices breadth and depth for timeliness. According to the Center for Evidence-Based Management (CEBMA, 2018), the following qualities limit the scope of a REA:

- ❖ Searches typically only consult a limited number of databases and exclude unpublished research
- ❖ Only research designs specified by the researchers are included

¹ The description of this part to the methodology was built on previously described work in the assessment ‘SPHEIR, An Analytical Report’ provided to the STEaPP Department at UCL on the 21st of June 2018.

- ❖ Limited amounts of key data are extracted (e.g. year, population, etc.).

The Center concludes, then, that REAs are possibly more prone to bias than typical systematic reviews (CEBMA, 2018). There are various ways in which this bias may present itself but is most likely to emerge out of confirmation and cultural bias. In undertaking research, it is imperative to remain cognisant of the educational environments from which researchers learned and how that impacts their views of what it means for a pedagogy to be truly innovative. Likewise, researchers may actively search for resources that only support their idea of what it means for a pedagogy to be innovative, resulting in skewed sources that do not accurately reflect pedagogical approaches in many different contexts.

In undertaking this project and methods of analysis, the group is aware that risks and concerns for a successful project outcome are present. One of the greatest concerns, with high-impact risk, is that of little or lack of data regarding innovative pedagogies in selected countries. This would make it difficult to understand what is ‘pedagogically innovative’ in many developing contexts, as well as what impact these initiatives have had. The group has furthermore identified concerns in getting timely expert opinion to contribute to the work of defining ‘innovative pedagogy’ as is shown in Section 3.1.4 the omission of certain factors to look at regarding the impact of innovative pedagogies, as well as logistics of team organisation and efficiency.

2.4.2 University of Illinois System of Classification and Designed Framework

In an ideal scenario for utilising the framework, the following criteria would be needed:

- ❖ A scenario whereby all higher education institutions and their departments have the exact uniform dimensions and all have the exact same ‘model’ or learning pathway for their students- and all adopt the same changes.
- ❖ The learning environment has stayed continuously the same until a certain point in time- whereby changes have been made which bring innovation. Otherwise, one can discuss innovative pedagogical steps having occurred for every decade, for example.
- ❖ There is sufficient data which explicitly points out each didactic dimension in this uniform learning environment. For example, an academic paper would be provided which states how the students and teachers interact, which materials are being used, what the power relations are between student and teacher.
- ❖ There is sufficient data observing both what the learning environment has looked like in the past/up till the point of innovation and after the point of innovation.

The fulfilment of these criteria would entail that two tables could be made, one for the pre-innovation scenario and another for the post-innovation scenario of each country (see Section 2.2.2). The innovation would then be observed in the shift in the model landscape. However, the reality is very different for the examined countries and the data is particularly difficult to obtain.

Moreover, as the framework was applied to the research for analysis, other points of limitation were discovered. For instance, even though the categorisation according to the numerous dimensions, models and descriptive components allows for thorough informational grasping, it provides a rigidity whereby valuable information that does not necessarily fit into the framework may be omitted. Additionally, the framework allows for subjective interpretation to some extent by each researcher, and thus, allowing for an aspect of non-alignment.

2.4.3 Selection of Benchmark Countries, Standardisation of Observed Trends and the

Mixed-Methods Analysis

Selection of Benchmark Countries

Regarding the selection of benchmark countries, in order to include countries with more similar characteristics to the SPHEIR countries, furthered quantitative data points, such as size of the country, number of universities, etc.- should have been included. Moreover, focused should have also been directed toward qualitative information points for comparison, such as the structure of the higher education system with government policies towards innovative pedagogies. Additionally, within the scope of the project's research, it would have also been valuable to included countries which were much more developed in terms of pedagogical stance. This would have provided a complementary comparative point as one could have understood if there developing countries are following a same pattern of innovative pedagogical applications toward educational development. It is important to note, of course, that the initiatives between developing and developed country groups can be highly different but both still be innovative- due to their applied context (Schendel, 2018; McCowan, 2018a; Hornsby, 2018).

Standardisation toward Trends

As with any method of standardisation, there is the risk of over-simplification of data whereby certain aspects of the subject will be abandoned in favour of other qualities that may have a stronger presence. This is, of course, a limitation that becomes further manifested in the output of the mixed-methods analysis. In the case of this report, time was a significant constraint that hindered the extent to which more trends could be identified; the more trends that are identified, the richer the quality of the mixed-methods output. In future studies, it would be recommended that researchers expand on the trends identified here to gain a deeper understanding of the countries examined.

Mixed-Methods Analysis

Regarding the scope of the analysis there were further limitations, especially concerning the quantitative analysis and the means to which it could be carried out. First of all, there is the question of different modes of research carried out by each researcher- this produces different extents of outcome for each country analysed. Secondly, due to the limitation of available data for certain countries in regard to case studies with thorough information, not all trends could be identified. More so, trends in regard to dimensions, type of innovation and targeted skill development were not indicated for 'other innovative pedagogies' examples which were not case studies, due to the constraint on data- however, these may in reality have had an impact.

Thirdly, due to the difference in size of countries (a more populous/larger country with the same financial and innovative means, as a smaller one, in relation to per capita- would be expected to have more pedagogical innovations in place), there being a different number of countries for each geographical region and between the SPHEIR and benchmark country groups, and the previously discussed concerns of data availability and research carried out- the only comparative quantitative analysis which could be carried out was regarding the identification of trends, but not regarding the number of case studies found for each trend- to understand the difference in case studies between the different country groups. Fourthly, the quantitative analysis, as well as visual analysis, only recognise the type of targeted skills which were developed for example, but not the extent to which they were developed- which however relates to the general scope of the research carried out for this project due to limited data availability. Fifthly, the quantitative analysis does not provide means of statistical significance in order to show if there is statistical significance between the country groups regarding the

trends- this was not done as there is uncertainty toward equitable comparison due to factors such as data availability.

2.4.4 Sources of Information

Literature

In regard to the limitations of the literature used in our research for the REA, the main concern was the availability of information. For several countries, there was very few academic and thorough resources which provide an overview of the outcomes, successful and unsuccessful aspects to innovative pedagogical case studies. Furthermore, for some countries it was the case that little recent data in the past five years was available, thus making it difficult to understand what the reality of the innovative pedagogical landscape, and its course, is in current times. On an additional note it was noted that for some geographical regions there was a higher availability of data than for others- for example, there was a greater number of academic literature pieces available for many countries in Sub-Saharan Africa, whilst a lower number could be found for Latin America.

Interviews

In the selection of interviewees, it is recognised that it will provide a bias in the information provided. The experts come from a limited number of institutions and there is a limitation in varied sectoral and experiential perspective. It is worth noting that we have not gained input from any person who is working on an on-the-ground basis within the higher education institutions in the differing regions.

3. Results

3.1. Rapid Evidence Assessment of Innovative Pedagogies

3.1.1. Definition of Pedagogies

In order to understand what ‘innovative pedagogies’ means, pedagogy must first be defined along with its different models and dimensions. According to Moyles et al. (2002), pedagogy is “the behaviour of teaching” that includes the ability to reflect on how material is taught. This includes the actions and thoughts from practitioners, including theories and principles of teaching within the values of a community, curriculum design and external factors (Moyles et al., 2002). According to Tourón (2018), an expert that was consulted with for this study, “the pedagogy is the science that studies the methodologies or techniques in order to carry out the education; and that can be valued in some results.”

It is important to note that Malcom Knowles (1970) distinguished pedagogies in primary versus higher education contexts (National College of Teaching and Leadership, 2018). He recognised that children and adults cannot be taught in the same format, coining the term “andragogy” for pedagogies that are focused on adults (National College of Teaching and Leadership, 2018). One reason to have two concepts is that adults have different motivations and internal factors that shape their way of learning (Knowles, 1984, cited by National College of Teaching and Leadership, 2018). Despite this difference of terminology, the project will use the broader pedagogical definition as given by Moyles et al (2002).

3.1.2. Definition of Innovation

It is important to note that *there is no one single agreement on what innovation is*. According to the Schumpeterian trilogy (Stoneman, 1995), innovation is used to:

“describe a particular stage in the technological process...[innovation], is however, used widely as a term to describe the whole technological change process representing a shorthand for doing something new.” (Stoneman, 1995)

The Oslo Manual from OECD (2005) (Eurostat) mentions a different approach without a technological component, saying that:

“An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.”

A completely different meaning is the one used by GEM (2015), where innovation is used as something that is new for a market or country, even if it is not something novel at a global scope. Tourón (2018) mentioned that innovation:

“...is a new contribution that seeks to solve a problem or need. It is a different way of working or a contribution of human or material resources, organizational processes, etc. that foster the achievement of specific objectives.”

SPHEIR also has its own definition, introduced in the *Open Call for Partnership Proposals* (British Council, 2016) where they defined innovation as:

“The innovative use of ‘X’, where ‘X’ is technology, or private sector participation, or something else. However, a proposal that includes ‘X’ may or may not turn out to be innovative. For example, the introduction of distance learning in a country might be considered innovative in that country’s context, but if it involves delivery of poor content or courses with high incompleteness rates as is the case with most open, unaccredited MOOCs, the innovation would have little benefit in and of itself.”

Indeed, Schendel (2018), who participated in the early stages of SPHEIR, commented that SPHEIR recognised innovation as all of the definitions provided before as “innovation... is one of those things that is a relative term, what is innovative in one context is not in the other.” In that context, the scope of SPHEIR was opened not just to technological innovations, but also to innovations that stay in the ‘traditional’ approach, such as update the teaching and curriculum in the way that students can gain new skills.

3.1.3. Definition of Innovative Pedagogies

The concept “innovative pedagogies” is moderately used in academic literature but unfortunately lacks a clear definition. However, this section aims to display the different definitions and synonyms from academic bodies along with the information found in SPHEIR documentation.

SPHEIR Resources

The SPHEIR website and affiliated documents do not define the concept ‘innovative pedagogies.’ However, some approaches were found. SPHEIR is working on an innovative pedagogies-based project, *Pedagogical*

Leadership in Africa (PEDAL), whereby, according to its definition, it can be interfered that innovative pedagogies are innovative teaching and learning process/methods that generate significant changes in how graduate education is imparted (SPHEIR, 2018). Also, from the document *Guidance Notes for Partnerships*, it can be interfered that innovative pedagogies are “more effective teaching and learning models” (SPHEIR, n.d.a). SPHEIR (n.d.a) mentioned that those pedagogies should include staff incentives to develop new models, instil confidence in students to be more receptive to those new models and confidence and power to the staff to access ICT.

Academic Definitions

In literature, two definitions and five synonyms of ‘innovative pedagogies’ were found, in addition to three similar concepts with a different meaning. For the definitions, the first has a broader scope and considers innovation in education, whereas the second one regards innovative pedagogies.

According to Serdyukov (2017), innovation in education includes the innovation in new pedagogic theories, methodologies, teaching techniques and learning process, that generate a better student learning through a notable change in teaching and learning. In that context, innovation in education aims to impact in more efficiency, a better quality of education and/or more productivity (Serdyukov, 2017). Innovations can produce a change in qualitative learning outcomes such as better knowledge, more effective skills, effective job placement, etc., and/or quantitative such as better test results, college enrolment numbers, graduation rates, cost efficiency etc. (Serdyukov, 2017).

The definition found for innovative pedagogies is provided by Galvis (2018), which mentions the term ‘innovative’ is sometimes barred against the term ‘traditional’ for comparison and refers to differences between practical approaches. Galvis (2018) refers to ‘traditional’ teaching practices as those which take on a face-to-face modality format, and specifically speaking at a higher education level, in organised classrooms, on campuses, with qualified teaching staff. In this context, pedagogies that are the opposite to the methods that are ‘standard practice’ may be considered innovative. Further definitions will be provided by the experts’ conversations in next Section.

The synonyms found were:

1. Pedagogical innovations (Mueller and Schroeder, 2018; Peterson et al, 2018)
2. Innovation in pedagogy (Peterson et al, 2018)
3. Innovation in pedagogical area (Serdyukov, 2017)
4. Innovative learning systems (Christensen and Eyring, 2011)
5. Innovative experiences in pedagogical discourse (Freitas and Paredes, 2018)

Regarding synonyms, ‘pedagogical innovations’ is the more accurate according to Schendel (2018) and has been used by academic bodies such as Galvis (2018), as well as by non-academic bodies at OECD (Peterson et al., 2018). As examples, the non-academic bodies mention pedagogies that innovate in the socio-emotional dimension, such as collaborative-based pedagogies, social problem-solving or case studies (Peterson et al., 2018). Similarly, Peterson et al. (2018) mentioned innovation in pedagogy as practices that solve problems in a new way, as a response to traditional pedagogies which cannot meet the students’ needs.

Finally, three concepts were found as very similar to ‘innovative pedagogies’ but have a different meaning: ‘innovation pedagogy’ and ‘creative pedagogies,’ that aim to foster innovation and creativity, respectively, among the students (Kettunen, 2017; Barajas and Frossard, 2018), and ‘transformative pedagogy,’ which was mentioned earlier in this report as a deeper pedagogic model that involves a structural change in the students in terms of actions, feelings and thoughts (O’Sullivan, 2003, cited by Donnelly, 2016).

Considerations

It is important to note that some authors in literature referred to innovative pedagogies or to innovation in technological contexts, for instance the Schumpeterian approach (Schumpeter, cited by Paul Stoneman, 1995). Even though innovative pedagogies can be linked with technology in literature, and innovation itself is connected with technology by recognised authors, the reality of SPHEIR countries is very different. Just 23% of the population in SPHEIR countries are internet users, and countries like Sierra Leone report even lower numbers (2.5%) (United Nations Statistics Data, 2015). Also, the Technological Readiness Level in average reach is 3.05 in SPHEIR countries, 1 point below the world average and more than 2 points below western countries (World Economic Forum, 2018). In that context, for this project the definition of innovative pedagogies will include a broader approach, as was suggested by Schendel (2018).

3.1.4. Expert Conversations

Through conversations with practitioners within the education field, as well as those fields tangentially connected to education, it is possible to discern what may be considered as ‘innovative pedagogy’ by those who are involved in pedagogical crafting and implementation. The main takeaways from the expert conversations were the following (see Appendix 7.1 for the complete interview):

Dr. David Hornsby, Head of Department at STEaPP, UCL (See section 7.1.1 in Appendix)

- ❖ Innovation in pedagogy in decolonised countries regards the incorporation of societal transformation. Innovative pedagogies in South Africa are about reconciliation of the country’s past. An example of that is including alternative viewpoints from black scholars, as well as of what can be classified as indigenous ideas to solutions.”
- ❖ Decolonisation is a big aspect of innovation in pedagogy in prior colonised, developing countries and their dimensional aspects to this ‘decolonisation in higher education’. There three suggestions to decolonise higher education: (i) mix people from different walks of life and type of knowledge into one room, (ii) encourage to read new set of literatures or even create one (i.e. indigenous knowledge) and (iii) rethink the way we teach, evolving from the colonial style where the teacher has the power in the learning space.
- ❖ There is a discrepancy between how students and academics view the purpose of education today and may impede innovation in the sector. Many students attend university in order to attain the skills to get a job, however, some academics are still holding on to the notion that universities are public good in their pure existence, and it is not their job to train students to get a job, because they are not technical enough in their vocation.
- ❖ There is a need to solely associate innovation in pedagogy with what occurs in the classroom and in teaching, but also in regard to the overall higher educational environment. Although innovation within the learning space are very important, innovation can also occur in other spaces where learners interact with each other (i.e. student-residences)

Dr. Rebecca Schendel, Co-Investigator and Lecturer in Education and International Development, UCL Institute of Education See section 7.1.2 in Appendix)

- ❖ A pedagogy is innovative when changes are made to what has been done previously. According to Dr. Schendel, innovative pedagogies are “thinking about the teaching and learning process in a different way that has been done previously.” She mentioned innovative pedagogies can have different meanings, from starting something from zero to using a traditional format in a different way, always depending on the context, as “what is innovative in one context is not in the other”.
- ❖ The key variable for measure the success of an innovative pedagogy is the change in the staff attitude. Dr. Schendel mentioned it is not enough to implement a new pedagogy without generating a change towards staff attitude. "Often faculty believe they are innovating because they are introducing the thing they have asked to introduce.... but have not fundamentally changed how they think the whole practice of teaching”. According with the interview the change in faculty attitude comes before than the student learning change. The reason why is very hard to change it is because "teaching is something that is both a technique but it is also an identity.”

Dr. Tristan McCowan, Professor and Researcher at the Institute of Education, UCL See section 7.1.3 in Appendix)

- ❖ Unbundling often occurs in education, but then results in ‘re-bundling’. Unbundling is a process where the elements of higher education are separated and sold individually to consumers. Rwanda is an example of unbundling. It tried to get rid of all the normal ‘entrappings’ of a university by delivering online loop courses. However, they realised it was not enough so they created an IT lab space. Soon after, they realised students had to travel long distances to get there and not all of them had money for transportation, so they built a student residence next to the IT lab. The next realisation was that students were struggling to run the course by their own, so then a tutorial support was provided. So, it end coming back to a conventional university model.
- ❖ The rhetoric regarding innovative pedagogies often differs from the reality of their implementation and their actual effect. As an example, Nigeria is currently innovating at developing critical thinking through newly established entrepreneurship courses. Nevertheless, the class is purely rhetoric and not student-centric so the students do not end acquired the initially desired skills.
- ❖ On understanding the difficulties in measuring the innovativeness of innovative pedagogies and circumstances to take into consideration. “If you know what you want your students to come out with, then you can engage them and see how successful your intervention is. That is something you can do, if you are careful and you acknowledge that there are many other pedagogies that they are receiving besides the ones in classes.”
- ❖ On the circumstances constraining the development and incorporation of innovative pedagogies. The contextual environment such as poorly equipped infrastructure or crowded rooms have a negative effect at implementing new ideas. Moreover, current incentive systems in the teaching side where only through quantity of lectures or research is done is more valued than the quality of the of it create the wrong incentives to innovate.

Paz Portales, Specialist, Education Programme Coordinator, UNESCO See section 7.1.4 in Appendix)

- ❖ Innovative pedagogies should be understood from the goal of advancing in the guarantee of the right to education. According to Portales, innovative pedagogies means “to do something differently that achieves the goal of improving learning and thus advancing in the guarantee of the right to education”. She mentioned that learning is part of the right of every citizen, then if for instance a student does not learn “then his right of education has been violated”. In that context Portales explained that innovative pedagogies “must be available and accessible to all”.

- ❖ Technology by itself does not mean relevant learning. Portales mentioned “technology is very powerful as a tool for pedagogical innovation, but it is not the only one. By itself, technology does not imply relevant and relevant learning.

David Vásquez, National Advisor in Economic Empowerment, Plan International – Ecuador See section 7.1.5 in Appendix)

- ❖ Innovative pedagogies are a constant process, where all actors involved in the learning process should exercise to adapt to market, individual and country’s needs.
- ❖ In developing countries, the government is usually be the main driver of these innovations and should focus in capacity building for the teacher’s side.
- ❖ Innovative pedagogies: Pedagogy is a group of educational practices that are articulated, have sense together, and can change towards innovation.
- ❖ Pedagogical innovations: relate to specific changes in some of those educational practices, within a common pedagogical process.
- ❖ The assessment aspect should have its own section in the chosen research framework
- ❖ When implementing innovative pedagogies in developing countries, there are socio-cultural challenges beyond aligning the curriculum to industry needs. To tackle those challenges, he encourages to embed the concepts of *growth mindset* by Dr. Carol Dwek and *Grit* by Dr. Angela Duckworth inside innovative pedagogies (See Box A and Box B in the Appendix for the definitions).

Dr. Javier Tourón, Innovation and Education Development Vice-Rector, La Rioja University See section 7.1.6 in Appendix)

- ❖ A pedagogy is innovative when there is a contribution towards the development of a better education. According to Dr. Tourón, innovative pedagogies “imply the contribution of a novelty, in the process or methodological, human or material resources to develop a quality higher education. An innovative pedagogy will have academic objectives and the development of professional competences as purpose.”

3.1.5 Summary Mind Map

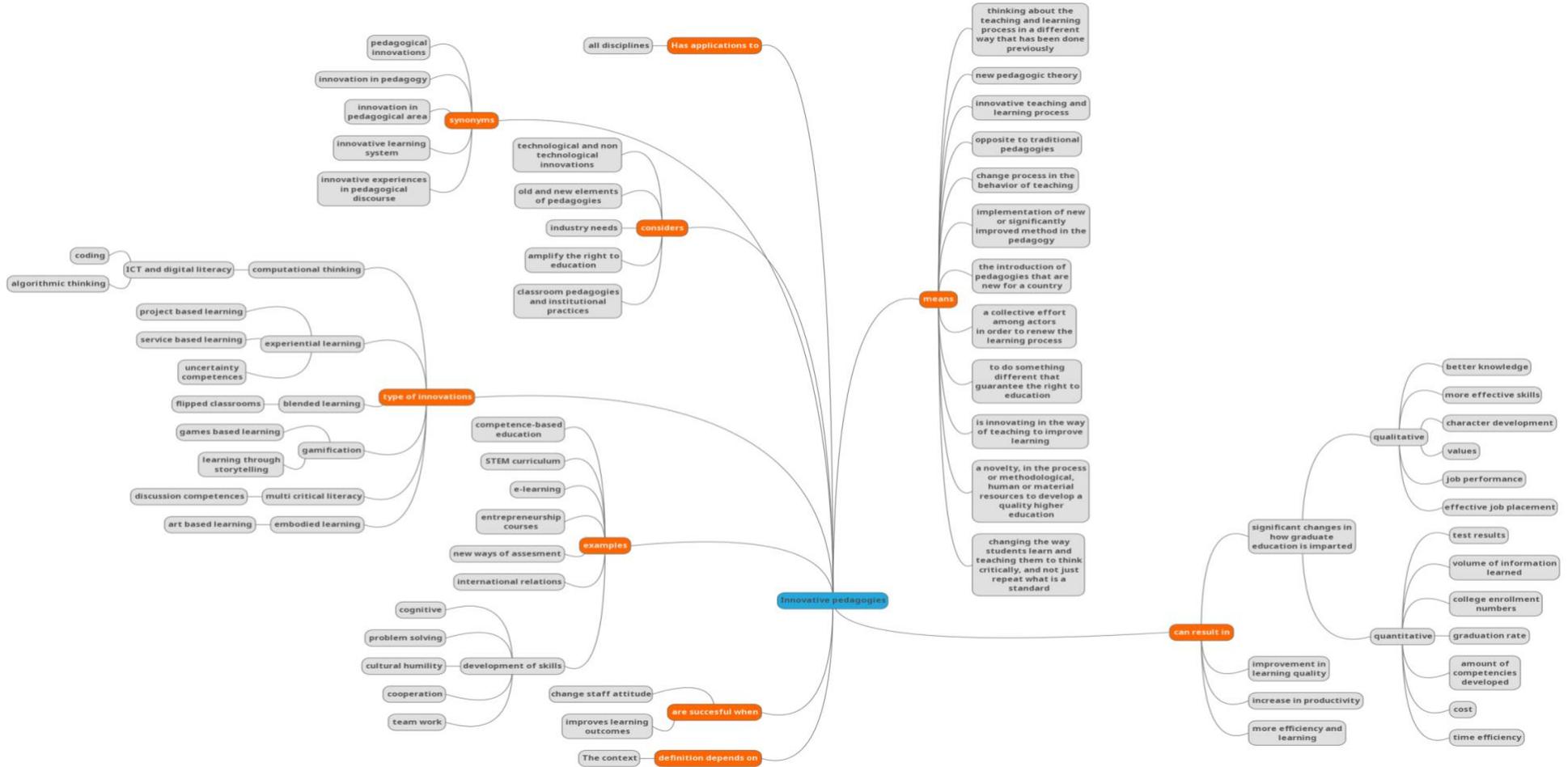


Figure 4. Types of Innovation (Mind Map)

Source: UCL STEaPP SPHEIR Group Project 2018, based on findings in Rapid Evidence Assessment of Innovative Pedagogies. Adaptation of Wills and Miertschin (2006) model. For a better visualization visit: <https://gdurl.com/ZYHO>

3.2 Research Framework Applied to SPHEIR Countries: Summary of Observed Trends

3.2.1 Ghana (For further information and bibliographies see section 7.2.1 in Appendix)

The Ghanaian government has seen higher education as one of the main pillars to alleviate extreme poverty and to promote social and economic growth (Ng'ethe et al., 2003). For this, the government has put a strong financial emphasis to offer universal access to all levels of education to as many Ghanaians as possible (University World News, 2018).

In 2011, the government of Ghana (GoG) spent 25.8% of GDP on education-related expenses, making it the largest government expenditure (Jowi et al., 2013). However, the vast majority of that goes to primary and secondary education and for higher education are mainly for basic operational costs (Jowi et al., 2013). Moreover, the demand for higher education has significantly increased in the last decades. It is estimated that between 1983 and 1996, the total enrolment in higher education grew 162% (Ntim, 2015). Today, the tendency continues where gross enrolment increased from 8.4% to 12.2% between 2008 and 2012 (Guerrero, 2014). This growth brings challenges of capacity, quality and relevance of higher education in the country.

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning
- ❖ Instructor training on new teaching methods

Drivers of Pedagogical Innovations

- ❖ Government strategic planning helps to direct priority areas
- ❖ International organisations and development agencies
- ❖ Collaboration between institutions, both domestic and international

Targeted Skill Development

- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Increase industry-specific skills (i.e. Agriculture, mathematics, science and technology)
- ❖ Self-motivation and confidence (i.e. communication and entrepreneurial drive)

Sources of Funding

- ❖ Government

- ❖ Student fees
- ❖ International governments and/or organisations

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty open to implementation, but hindered by personal / institutional constraints

Dimensional Change

- ❖ Architectonic, Discourse, Intersubjective, Pedagogical

Type of Innovation

- ❖ Blended learning, Computational thinking, Multi-critical literacies

3.2.2 Jordan (For further information and bibliographies see section 7.2.2 in Appendix)

The Jordanian government has identified higher education achievement as a critical pillar for national development ([UNESCO, 2017](#); [Mahafzah, 2017](#)). Despite this, low quality and inefficiency continue to plague Jordan's higher education institutes, with many local employers citing graduates' low skill development as a hindrance to employability (World Bank Group, 2011). Nevertheless, the government continues to produce strategies to improve the nation's tertiary institutions, which include curricula modernisation and new ICT infrastructure (Economic Policy Council, 2018).

The pedagogical approach in Jordan generally remains didactic, though improvements are being made in increasing the relevancy and quality of higher education programmes. While the government sets higher-level policy direction through strategic planning, many pedagogical innovations are nurtured through both domestic and international inter-institutional collaborations (Gharaibeh et al., 2014). Many of these partnerships seem to be successful at increasing the skills of graduates incorporating industry needs into programme curricula.

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning
- ❖ Industry-centred teaching and learning

Drivers of Pedagogical Innovations

- ❖ Collaboration between institutions, both domestic and international
- ❖ International organisations and development agencies
- ❖ Government strategic planning helps to direct priority areas

Targeted Skill Development

- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Increase industry-specific skills

Sources of Funding

- ❖ International governments and/or organisations
- ❖ Student fees

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty actively involved in the implementation of innovative pedagogies

Dimensional Change

- ❖ Discourse, Epistemological, Pedagogical

Type of Innovation

- ❖ Experiential learning and computational thinking

3.2.3 Kenya (For further information and bibliographies see section 7.2.3 in Appendix)

Kenya's higher education system has expanded much quicker than its quality due to the late development of the nation's education sector (McCowan, 2018b), resulting in both an increase in enrolment as well as a growth in the number of higher education institutions (McCowan, 2018; Syoumbua, 2012, Kenet, 2018). However, despite the large and unprecedented growth in demand, some students still do not have the opportunity to enter universities (Ministry of Education, Science and Technology, Republic of Kenya, 2018; Barasa, 2017). Among the challenges, higher education has a lack of financing, prejudicing infrastructure, generating a low level of engagement of academic staff and non-well qualified staff (Voeller, 2017; McCowan, 2018b). Corruption is common among the system (McCowan, 2018b). Finally, there is a miss-matching between knowledge and skills acquired at university versus market needs (Wanzala et al., 2016).

Regarding pedagogies, they are very traditional ones as there is a lack of pedagogical culture (McCowan, 2018b). Moreover, the classrooms can receive between 70 and 1.000 students per one lecturer generating disengagement from students (Chege, 2015; McCowan, 2018b; Mbogho, 2017). In that context, the pedagogy is mainly didactic (see section 7.2.3 in Appendix). Despite that, some institutions are implementing

changes for instance through e-learning courses (Barasa, 2017). It is important to note even some institutions are innovating the lack of infrastructure and university policy do not allow the success of some pedagogies (Hadullo et al.,2018).

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning
- ❖ Social media interaction
- ❖ Practical applications to real-world scenarios
- ❖ Feedback mechanisms between instructors and students

Drivers of Pedagogical Innovations

- ❖ Local institutions
- ❖ Collaboration between institutions, both domestic and international

Targeted Skill Development

- ❖ Critical thinking / problem-solving
- ❖ Increase industry-specific skills

Sources of Funding

- ❖ Student fees

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty resistant to innovative pedagogies

Dimensional Change

- ❖ Architectonic, Socio-cultural, Discourse
- ❖ Shifts from didactic to authentic and transformative; some remained didactic

Type of Innovation

- ❖ Computational thinking, experiential learning, blended learning and multi-critical literacy

3.2.4 Lebanon (For further information and bibliographies see section 7.2.4 in Appendix)

Lebanon's higher education system has shared a high status in its regional area and has maintained this standard despite being in a conflict-ridden area ([SPHERE, n.d.](#); IIE, 2014). Historically, though, the Lebanese higher education system has not kept up to international standards (Hasrouny, 2011). Efforts through the Ministry of Education and Higher Education (MEHE) producing a Strategy for Higher Education in 2007 and the creation of a Higher Education Reform Experts Team, have additionally, face challenges due to the influx of Syrian university students and faculty staff due to the country's civil war ([SPHERE, n.d.](#); Hasrouny, 2011).

Lebanese universities vary highly in both quality and socio-cultural aspects, as some adopt an American system with others applying a French system ([SPHERE, n.d.](#)), however there has been a lack of quality assurance and accountability- especially in newly set up institutions (El-Ghali et al., 2011). Additionally, due to long periods of conflict the areas of scientific development and research have been neglected (El-Ghali et al., 2011). Governmental level steps have been taken toward adopting qualification frameworks and standardisation ([SPHERE, n.d.](#)), as well as in funding and guidance support toward innovative initiatives (Khalil et al., 2015). Most efforts toward updating the pedagogies of the Lebanese higher education system and to produce graduates suited for the employment market, have however come about from university or inter-collaborative university initiatives (Baytiyeh, 2017; Baytiyeh and Naja, 2016; Dagher et al., 2016; Khalil et al., 2015).

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning
- ❖ Practical applications to real-world scenarios

Drivers of Pedagogical Innovations

- ❖ Collaboration between institutions, both domestic and international
- ❖ Government strategic planning helps to direct priority areas
- ❖ International organisations and development agencies

Targeted Skill Development

- ❖ Self-motivation and confidence
- ❖ Critical thinking / problem-solving
- ❖ Increase industry-specific skills

Sources of Funding

- ❖ Student fees
- ❖ Government

- ❖ International governments and/or organisations

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty are actively involved in the implementation of innovative pedagogies

Dimensional Change

- ❖ Architectonic, socio-cultural, pedagogical, epistemological, discourse

Type of Innovation

- ❖ Computational Thinking, blended learning, experiential learning

3.2.5 Myanmar (For further information and bibliographies see section 7.2.5 in Appendix)

After Myanmar's shift from a military to a democratic nation in 2011, the country has begun to reform its higher education system (Win, 2015). During the military regime, the higher education system became highly isolated and fragmented, and deteriorated in quality- despite having held a high prestigious status in the regional area (IIE, 2013). The Ministry of Education is in charge of higher education in Myanmar, with the most-part except for newly planned institutions, being state-funded (Win, 2015). To lead reform the government has to begin with initiated reform at the University of Yangon, the country's oldest and highest-ranking institution (Esson and Wang, 2018). The reform process has however been critiqued for being superficial and not engaging voices of necessary stakeholders- such as faculty staff and head of departments (Esson and Wang, 2018).

The military dictatorship has most prevalently affected the mentality remaining in institutions- whereby there is still a strict hierarchical structure and together with the lack of international exposure, this has led to low adsorptive capacities toward education and research (Esson and Wang, 2018; IIE, 2013). Thus, higher education is highly didactic in Myanmar, lacking resources and trained and creative faculty (IIE, 2013; Esson and Wang, 2018). Initiatives have however, been implemented to encourage internationalisation and to bring in new resources to the higher education system in Myanmar, in a sustainable fashion (Nyein, 2016; Khaing et al., 2016; Esson and Wang, 2018). These initiatives have come through governmental support, university initiative and inter-collaborative approaches between universities.

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning
- ❖ Internationalisation of the classroom through ICTs, collaborations, etc.

Drivers of Pedagogical Innovations

- ❖ Collaboration between institutions, both domestic and international
- ❖ Government strategic planning helps to direct priority areas

Targeted Skill Development

- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Self-motivation and confidence

Sources of Funding

- ❖ Government
- ❖ International governments and/or organisations

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty open to implementation, but hindered by personal / institutional constraints

Dimensional Change

- ❖ Architectonic, socio-cultural, pedagogic, discourse

Type of Innovation

- ❖ Computational Thinking

3.2.6 Nigeria (For further information and bibliographies see section 7.2.6 in Appendix)

As set by Nigeria's Nation Policy on Education, the purpose and goals of the country's higher education system is to provide accessible learning opportunities for all its citizens to create a skilled labour force and to foster community engagement and entrepreneurship toward national development (FGN, 2013). The country has over 504 higher education institutions, which are private-, state- or government owned, which align under the oversight of the Federal Ministry of Education, yet despite this quantity and it being obligatory for all universities to provide entrepreneurship education to its undergraduates (Nuc.edu.ng., 2017; Agbu, 2017; Onuma, 2017)- teacher-to-student ratios remain unbalanced and the education fails to foster critical thinking and to be aligned with the job market (Agbu, 2017; Ochinanwata and Ezepue, 2017; Anasi, 2012). The pedagogical style remains highly didactic, with other issues being a lack of research, quality staff and maintained infrastructure (Agbu, 2017).

Yet, to improve conditions and to meet the demands of students and the employment market, initiatives have been exercised at many levels- with the government placing high emphasis on ICT and Open Educational Resource Infrastructure (Agbu, 2017). Initiatives have also come

about from universities, inter-collaborations with universities, as well as being grounded in student activity (Promise *et al.*, 2015; Oyelere *et al.*, 2015).

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning
- ❖ Feedback mechanisms between instructors and students

Drivers of Pedagogical Innovations

- ❖ Government strategic planning helps to direct priority areas
- ❖ International organisations and development agencies
- ❖ Collaboration between institutions and national government
- ❖ Collaboration between institutions, both domestic and international
- ❖ Local institutions
- ❖ Student-driven

Targeted Skill Development

- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Critical thinking / problem-solving
- ❖ Self-motivation and confidence

Sources of Funding

- ❖ Government
- ❖ Student fees
- ❖ International governments and/or organisations
- ❖ Private Sector

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty actively involved in the implementation of innovative pedagogies
- ❖ Faculty open to implementation, but hindered by personal / institutional constraints

Dimensional Change

- ❖ Architectonic, socio-cultural, pedagogical, discourse, epistemological

Type of Innovation

- ❖ Blended learning, computational thinking, multi-critical literacies

3.2.7 Sierra Leone (For further information and bibliographies see section 7.2.7 in Appendix)

Higher education institutions in Sierra Leone are weakly guided by education sector plans (ESPs) that are released by the government every few years (Alghali et al., 2015). Specific issues identified by the government have been related to quality, monitoring and evaluation and financing (Ministry of Education, Science and Technology, n.d.). While institutions are almost wholly dependent upon public funding, recent government strategies aim to place the burden of financing upon the universities themselves; there are concerns about how this will increase the accessibility of higher education in the country (Tarawallie, 2015).

Although curriculum reform is underway in Sierra Leone, the overall approach remains highly didactic (Jackson, 2016). While didactic teaching is not inherently detrimental, at many universities it is not complemented by alternative teaching styles or curriculum modernisations. The integration of real-world work experience is said to be particularly important for the Leonean context in order to both align curriculum with industry needs and to demonstrate to students how a university education can increase their likelihood of employment (Tarawallie, 2015).

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning
- ❖ Student-centred curricula

Drivers of Pedagogical Innovations

- ❖ Collaboration between institutions, both domestic and international
- ❖ International organisations and development agencies
- ❖ Government strategic planning helps to direct priority areas

Targeted Skill Development

- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Critical thinking / problem-solving

Sources of Funding

- ❖ Government
- ❖ International governments and/or organisations

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty actively involved in the implementation of innovative pedagogies

Dimensional Change

- ❖ Discourse, intersubjective, epistemological, pedagogical

Type of Innovation

- ❖ Experiential learning, blended learning and computational literacy

3.2.8 Somalia (For further information and bibliographies see section 7.2.8 in Appendix)

Somalia has one of the weakest education systems globally and has been immersed in an unstable political system (Cummings and Rost van Tonningen, 2003). The challenges faced by the higher education system are a lack of infrastructure, lack of materials, lack of qualified lecturers and low levels of funding, among others (Cummings and Rost van Tonningen, 2003; The Heritage Institute for Policy Studies, 2013). Those elements result in students without the required skills to enter to the labour market (The Heritage Institute for Policy Studies, 2013).

Regarding pedagogies, they are very traditional ones remaining in didactic models (see section 7.2.8 in Appendix). However, some universities have managed to incorporate partnerships and new models of education reaching a broader spectrum of people (Eno et al., 2015).

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning
- ❖ Feedback mechanisms between instructors and students
- ❖ Student-centred curricula

Drivers of Pedagogical Innovations

- ❖ International organisations and development agencies
- ❖ Collaboration between institutions, both domestic and international

Targeted Skill Development

- ❖ Critical thinking / problem-solving
- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Increase industry-specific skills
- ❖ Self-motivation and confidence

Sources of Funding

- ❖ International governments and/or organisations
- ❖ Private sector
- ❖ Student fees

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty resistant to innovative pedagogies

Dimensional Change

- ❖ Architectonic, discourse, socio-cultural, pedagogical
- ❖ Shift from didactic to authentic

Type of Innovation

- ❖ Computational thinking and multi-critical literacy

3.2.9 Tanzania (For further information and bibliographies see section 7.2.9 in Appendix)

Tanzania has grown from one tertiary training institution in 1961 to 200 in 2006 (Msolla, 2006). The total student population surpasses the 50,000+ students, where more than 2/3 of them attend public universities (Msolla, 2006). Tanzanian Education was free before the late eighties (Msolla, 2006). However, growth of population and number of students completing advanced secondary education, pushed the government to introduced a policy of cost-sharing between families that leaves many people out of higher education (Msolla, 2006).

Tanzania has had a steady economic growth from 4% in 1996 to 6% and its currently experiencing its lowest unemployment rates in history with 10.3% in 2016 (Trading Economics, 2018). However, the country has stagnated, and despite having thousands of new graduates every year, there are not enough jobs and a new labour force, with different skills, is needed it (Mirondo, 2017). It is advisable that higher education institutions partner with the national government to incentivize the economy in the tourism and agricultural sectors as the two most promissory markets where professionals will be needed (Mirondo, 2017).

Pedagogical Innovations

- ❖ Student-centred curricula
- ❖ Implementation of ICTs, towards blended learning
- ❖ Feedback mechanisms between instructors and students

Drivers of Pedagogical Innovations

- ❖ Collaboration between institutions and national government
- ❖ Government strategic planning helps to direct priority areas
- ❖ Collaboration between institutions, both domestic and international

Targeted Skill Development

- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Increase industry-specific skills (i.e. technology and agriculture)
- ❖ Critical thinking / problem-solving / entrepreneurship

Sources of Funding

- ❖ Government
- ❖ Student fees

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty open to implementation, but hindered by personal / institutional constraints

Dimensional Change

- ❖ Discourse, Proprietary, Epistemological, Pedagogical

Types of Innovation

- ❖ Computational Thinking, Experiential Learning

3.2.10 Uganda (For further information and bibliographies see section 7.2.10 in Appendix)

The Ugandan government releases detailed higher education sector development plans to contribute to the nation's overall development goals. These plans aim to provide accessible, equitable, relevant and sustainable quality higher education. However, quality assurance in higher education is greatly hindered by the lack of monitoring and evaluation frameworks within the sector. Additionally, inadequate funding prevents many universities from modernising ([Makoba, 2017](#)).

International partnerships have allowed some institutions to implement new programmes and upgrade their infrastructures (Jowi et al., 2013). Universities realise that curriculum needs to be more closely aligned with local and international industry needs in order to produce competitive graduates, and international partnerships have been an integral way in which this can be achieved (Jowi et al., 2013).

Pedagogical Innovations

- ❖ Practical applications to real-world scenarios
- ❖ Industry-centred teaching and learning

Drivers of Pedagogical Innovations

- ❖ Government strategic planning helps to direct priority areas
- ❖ Collaboration between institutions, both domestic and international
- ❖ International organisations and development agencies

Targeted Skill Development

- ❖ Increase industry-specific skills

Sources of Funding

- ❖ Student fees
- ❖ Government

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty actively involved in the implementation of innovative pedagogies

Dimensional Change

- ❖ Architectonic, discourse, epistemological, pedagogical

Type of Innovation

- ❖ Experiential learning

3.3 Research Framework Applied to Benchmark Countries: Summary of Observed Trends

3.3.1 Burundi (For further information and bibliographies see section 7.3.1 in Appendix)

Burundi's higher education system is highly underdeveloped due factors stemming from the country's poverty, years of political instability and environmental crises (Varly et al., 2017). The country's 9 recognised institutions are characterised by poor and inadequate infrastructure, poor quality teaching and underdeveloped research sectors (4icu.org, 2018; Bti-project.org., 2018; Ministry of Planning and Communal Development/Forecasting Unit ,2011; Ist-africa.org., 2017). Moreover, it is having to face these developmental challenges whilst being faced with the pressure of a shifting educational environment due to the adoption of endemic languages into the system, a demand for more innovative and rational models, as well as increasing enrolment rates (Rwantabagu, 2013; Njenga, 2011). The higher education system in Burundi falls under the oversight of National Commission for Higher Education (CNES) and the functioning of private and public institutions is outlined by the Higher Education Act (Cnesburundi.org., 2018; Makoni, 2012).

At a governmental/policy level, initiatives toward reforming and reshaping the higher education system have come through French collaboration, as through the East Africa Community toward the realms of the sector (Provini, 2017; Waruru, 2017). However, steps have also been taken at a university level, between universities, between universities and industry, as well as through internationally driven initiatives. Yet, there is little information regarding the outcome and impact of these.

Pedagogical Innovations

- ❖ Practical applications to real-world scenarios
- ❖ Internationalisation of the classroom through ICTs, collaborations, etc.
- ❖ Implementation of ICTs, towards blended learning
- ❖ Instructor training on new teaching methods

Drivers of Pedagogical Innovations

- ❖ Collaboration between institutions, both domestic and international
- ❖ International organisations and development agencies
- ❖ Local institutions

Sources of Funding

- ❖ International governments and/or organisations

- ❖ Private sector
- ❖ Government

3.3.2 Ecuador (For further information and bibliographies see section 7.3.2 in Appendix)

Due to the implementation of the Organic Law of Higher Education (LOES), the education system in Ecuador has increased from one university in 1596 to more than 71 by December 2012 where 45 of them were created from 1992 and 2006, representing an increment of 273% in just 14 years (Mendoza, 2018). The current organic law (LOES) follows 5 key principles: 1. Responsible Autonomy; 2. Co-government; 3. Equality of Opportunities; 4. Quality; 5. Relevance; 6. Self-determination (CES, 2018).

Ecuador is a country where the government has taken clear steps into major education reforms. One of the main ones is to have defined the university as a system that answers to the public interest without profit, giving the State the exclusivity in the action, control and regulation of higher education. Investment in higher education reached a maximum of 2% of GDP in 2013. (World Bank, 2018c). With a population of 16.6 M people, Ecuador has had an average unemployment rate of 7.29% from 1991 until 2017 (The World Bank, 2018). The public universities are sustained in a 95% with public funds, (5% is self-management), while, amongst the private, there are co-financed universities (60% budget comes from government) and auto-financed universities (100% household enrolment fees or independent donors/grants) (Macías, 2017).

Pedagogical Innovations

- ❖ Student-centred curricula
- ❖ Industry-centred teaching and learning
- ❖ Implementation of ICTs, towards blended learning

Drivers of Pedagogical Innovations

- ❖ Government strategic planning helps to direct priority areas
- ❖ Collaboration between institutions, both domestic and international

Targeted Skill Development

- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Increase industry-specific skills

Sources of Funding

- ❖ Government

- ❖ Donors
- ❖ Student fees

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty open to implementation, but hindered by personal / institutional constraints

Dimensional Change

- ❖ Architectonic, Socio-Cultural, Epistemological, Pedagogical, Moral

Type of Innovation

- ❖ Computational thinking, Multi-critical literacies

3.3.3 El Salvador (For further information and bibliographies see section 7.3.3 in Appendix)

Education at El Salvador is well recognised among its citizens despite the criminality that affects the country (USAID, 2016) and despite being one of the lowest investors in education countries of Central America (World Bank, 2018). The challenges of the higher education system are, among others, the low quality of its graduates (U.S. Department of State, 2018; UNESCO, IESALC, 2006; USAID 2016) and the weak research infrastructure (Gobierno El Salvador, 2016). Currently, the governmental strategic plan considers prioritising pedagogical support for staff and to foster innovation, science and technology (Gobierno de El Salvador, 2018). El Salvador is part of the few countries where ICT in higher education has been implemented at national level because it comes from a decree law (UNESCO and IESALC, 2006).

Regarding pedagogies, they are mainly didactic, with a passive role of students (Universidad El Salvador, 2014). However, new methods have been introduced through the national and international collaboration (see section 7.3.3 in Appendix). Also, universities are in a transition from the traditional methods to for instance competences-based model (Universidad El Salvador).

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning
- ❖ Student-centred curricula
- ❖ Practical applications to real-world scenarios
- ❖ Feedback mechanisms between instructors and students

Drivers of Pedagogical Innovations

- ❖ Collaboration between institutions, both domestic and international
- ❖ Collaboration between institutions and national government
- ❖ International organisations and development agencies
- ❖ Government strategic planning helps to direct priority areas
- ❖ Local institutions

Targeted Skill Development

- ❖ Self-motivation and confidence
- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Increase industry-specific skills

Sources of Funding

- ❖ International governments and/or organisations
- ❖ Student fees

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty actively involved in the implementation of innovative pedagogies

Dimensional Change

- ❖ Architectonic, socio-cultural, pedagogical, epistemological, discourse, remains didactic or authentic

Type of Innovation

- ❖ Computational thinking, experiential learning, blended learning and multi-critical literacy

3.3.4 Gambia (For further information and bibliographies see section 7.3.4 in Appendix)

Before 1999, the Gambia had no official universities (MoHERST 2018) resulting in students having to study overseas with a very low returning back for Gambia (MoHERST, 2018). To address this challenge, and foster country's own local knowledge power, The University of The Gambia (UTG) was created in 1999 to train and retain talent in the country (Camara, 2015). There are now 24 Higher education institutions; nevertheless, they are concentrated in the greater Banjul area, reducing opportunities for students in rural areas (UNESCO, 2018).

Education receives the highest share of the government budget (20.4%) but because the total public spending as a share of GDP is low (15%), education spending as a share of spending is also low (3.2% of GDP) (UNESCO-MoBSE, 2018). As a result, external contribution is extremely critical representing 35% of the total budget, and small donors filling in urgent gaps (UNESCO-MoBSE, 2018).

Pedagogical Innovations

- ❖ Industry-centred teaching and learning
- ❖ Implementation of ICTs, towards blended learning

Drivers of Pedagogical Innovations

- ❖ Government strategic planning helps to direct priority areas
- ❖ International organisations and development agencies
- ❖ Collaboration between institutions, both domestic and international

Targeted Skill Development

- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Increase industry-specific skills (agriculture, tourism, ICT, fisheries, creative industries, cross-sector synergies. ITC, 2018)

Sources of Funding

- ❖ Government
- ❖ International governments and/or organisations
- ❖ Donors
- ❖ Student fees

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty open to implementation, but hindered by personal / institutional constraints

Dimensional Change

- ❖ Architectonic, Pedagogical

Type of Innovation

- ❖ Blended learning, Computational thinking, Multi-critical literacies

3.3.5 Guatemala (For further information and bibliographies see section 7.3.5 in Appendix)

Guatemala has the lowest Education investment in Latin-America (Muñoz, 2018; World Bank, 2018). Indeed, the Ministry of Education just assist primary and secondary level due to the country priorities such as low rates of literacy (República de Guatemala, 2005; UNICEF, 2012; Tobar, 2011). In that context, higher education can be accessed just for the Guatemalan elites (Global Education Fund, 2018; Rivera et al.,2017) and there are skills deficit in labour market (World Economic Forum, 2017).

Regarding the pedagogies, they are typically traditional and highly didactic (see section 7.3.5 in Appendix). Indeed, there is a lack of pedagogical faculty training and the ones that have the opportunity, avoid taking it, especially for the technological ones (Alvariño y Severín, 2009 cited by UNESCO, 2014; Rivera et al.,2017). Contrary, the use of technology, such as smartphones among the students is very common (Segura,2014). Indeed, Guatemala is in the process of catching-up with ICT implementation (Kats, 2009 cited by Rivera et al., 2017).

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning
- ❖ Practical applications to real-world scenarios
- ❖ Instructor training on new teaching methods
- ❖ Student-centred curricula

Drivers of Pedagogical Innovations

- ❖ International organisations and development agencies

Targeted Skill Development

- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Increase industry-specific skills
- ❖ Self-motivation and confidence

Sources of Funding

- ❖ International governments and/or organisations
- ❖ Student fees

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty resistant to innovative pedagogies
- ❖ Faculty actively involved in the implementation of innovative pedagogies

Dimensional Change

- ❖ All, but primarily socio-cultural, architectonic and discourse
- ❖ Shift from didactic to authentic and transformative

Type of Innovation

- ❖ Computational thinking and experiential learning

3.3.6 Malawi (For further information and bibliographies see section 7.3.6 in Appendix)

Until 1998 Malawi had one university in the country (Mizrachi, 2010 et al). There are now 15 accredited universities where more than half are located in Lilongwe, the capital city (Mizrachi, 2010 et al). From 1998 to 2010, enrolment in public universities doubled; however, access to higher education stayed as one of the lowest globally – with no more than 64 students per 100,000 people (Mizrachi, 2010 et al).

The completion rates of students correlate highly with the wealth and privilege of the students, meaning that the public funding provides the highest benefit for the wealthy – making the Malawian education system incredibly elitist – the highest in Africa, with 73% of the public resources going to the 10% most educated students (Mizrachi, 2010 et al). 90% of higher education students are from the wealthiest 20% of families (World Bank, 2010d). Also, in 2000, 1% of the population was enrolled in higher education institutions (EPDC, 2014). Malawi will be dependent on skilled, expatriate-sourced in the coming foreseeable future, due to the frowning need for high-skilled workforce- unless there is an expansion of the higher education system (EPDC, 2014).

Unemployment Rate in Malawi remained unchanged at 5.90% in 2017 from 5.90% in 2016. Unemployment Rate in Malawi averaged 7.17% from 1991 until 2017, reaching an all-time high of 7.80% in 2003 and a record low of 5.90% in 2014 (Trading Economics, 2018).

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning
- ❖ Industry-centred teaching and learning
- ❖ Feedback mechanisms between instructors and employers
- ❖ Instructor training on new teaching methods

Drivers of Pedagogical Innovations

- ❖ International organisations and development agencies

Targeted Skill Development

- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Increase industry-specific skills

Sources of Funding

- ❖ International governments and/or organisations
- ❖ Government
- ❖ Student fees

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty open to implementation, but hindered by personal / institutional constraints

Dimensional Change

- ❖ Proprietary, epistemological, pedagogical

Type of Innovation

- ❖ Computational Thinking

3.3.7 Mauritania (For further information and bibliographies see section 7.3.7 in Appendix)

Mauritania's higher education system can to a general extent be described as severely underdeveloped (UNESCO), contributed by the state of the development of the country and political crises ravaging the country (Sawahel, 2009). The system dates back to 1966, and its main university- the University of Nouakchott was founded in 1981 (StateUniversity.com, n.d.) and has been highly influenced by French colonialism and has not developed its own identity (Lindsey, 2016). The Ministry of Higher Education and Scientific Research (MHESR) is in charge of the higher education system and works alongside the Council for Scientific Research and Innovation to enhance the country's research and higher education base (Sawahel, 2016).

Higher education in Mauritania suffers from significant quality and infrastructural deficiencies, as well as being severely misaligned with market needs (Sawahel 2009; Sawahel, 2018). In order to develop the Mauritanian higher education sector in alignment with the reality of the nation's economy, (Lindsey, 2016), changes such as the implementation of ICT in education have begun to take place (Agyeman et al., 2007).

Unfortunately, there is not much information regarding these initiatives, but they mostly orient around inter-university collaborations and intra-university modes of working and events.

Pedagogical Innovations

- ❖ Internationalisation of the classroom through ICTs, collaborations, etc.
- ❖ Practical applications to real-world scenarios
- ❖ Implementation of ICTs, towards blended learning

Drivers of Pedagogical Innovations

- ❖ Collaboration between institutions, both domestic and international
- ❖ International organisations and development agencies

Sources of Funding

- ❖ Student fees
- ❖ Government
- ❖ International governments and/or organisations

3.3.8 Pakistan (For further information and bibliographies see section 7.3.8 in Appendix)

The Pakistani higher education sector is well established and regulated by the Higher Education Commission (HEC). With more than 120M students enrolled in the nation’s tertiary institutions, maintaining quality as well as accessibility is a priority for Pakistani development (Mirza, 2018). Unlike many other countries examined in this report, however, Pakistan has directly identified the role of higher education in combating extremism as well, which further elevates the sector to national importance (Mirza, 2018).

Issues abound, though, for the nation’s institutions. Perhaps most pertinent is ensuring the quality of the higher education sector as a whole: while enrolment has increased substantially over the last decades, the availability of formally qualified faculty and, importantly, students, remains a substantial barrier (Hoobdbhoy, n.d.). Interventions by the HEC are not necessarily welcomed by universities, who will sometimes be blacklisted by the Commission for various reasons; also, these interventions are not always beneficial or efficient. Nevertheless, the HEC remains pivotal for sectoral development and has worked hard to reform industry-specific curricula as well as expand access through ICTs and ODL (HEC, n.d.).

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning

Drivers of Pedagogical Innovations

- ❖ Government strategic planning helps to direct priority areas
- ❖ International organisations and development agencies
- ❖ Collaboration between institutions and national government

Targeted Skill Development

- ❖ None identified

Sources of Funding

- ❖ International governments and/or organisations
- ❖ Private sector

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty actively involved in the implementation of innovative pedagogies

Dimensional Change

- ❖ Architectonic, socio-cultural, epistemological, moral, discourse

Type of Innovation

- ❖ Computational thinking

3.3.9 Peru (For further information and bibliographies see section 7.3.9 in Appendix)

Nowadays, the Peruvian higher education system is experiencing expansion due to an increase in demand, but also due to an important number of new private universities that have been created in the last years (Irigoyen, 2017). Among the challenges of the system, the low quality of education, low contribution of universities to society and the mismatching between competences taught at university versus the labour market, all affect the sector's progression (SUNEDU, 2015). In order to face some of those elements, the government is working on "Plan 2021," which aims to improve research and accreditation (República de Perú, 2010).

Regarding pedagogies, they are mainly traditional ones with use of memorisation, passive role of students and vertical relationship with lecturer (Mejía-Navarrete, 2018). However, 70% of universities have virtual classrooms (INEI, 2015).

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning
- ❖ Social media interaction
- ❖ Practical applications to real-world scenarios
- ❖ Student-centred curricula
- ❖ Internationalisation of the classroom through ICTs, collaborations, etc.

Drivers of Pedagogical Innovations

- ❖ Local institutions
- ❖ Collaboration between institutions, both domestic and international

Targeted Skill Development

- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Increase industry specific skills
- ❖ Critical thinking/ problem-solving
- ❖ Self-motivation and confidence

Sources of Funding

- ❖ Student fees
- ❖ International governments and/or organisations

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty actively involved in the implementation of innovative pedagogies

Dimensional Change

- ❖ Socio-cultural, pedagogical, moral and proprietary
- ❖ Shift to transformative

Type of Innovation

- ❖ Experiential and blended learning

3.3.10 Zambia (For further information and bibliographies see section 7.3.10 in Appendix)

Despite the youthfulness of its universities, the Zambian government has been meticulous in the development of the higher education sector. The government is primarily focused on increasing access and quality, including the quality of instructors, as well as enabling graduates to find meaningful employment that aligns with the development goals outlined in Vision 2030 (MESVTEE, n.d.; MESVTEE, n.d.).

The liberalisation of the private sector has been a pivotal way to increase both access to and funding for higher education, along with public-private partnerships (MESVTEE, n.d.; MESVTEE, n.d.). Additionally, the introduction of international actors to the sector's development process has increased not only financial resources, but also ICT access and integration within the international community (MESVTEE, n.d.; MESVTEE, n.d.).

Pedagogical Innovations

- ❖ Implementation of ICTs, towards blended learning
- ❖ Internationalisation of the classroom through ICTs, collaborations, etc.
- ❖ Practical applications to real-world scenarios
- ❖ Student-centred curricula

Drivers of Pedagogical Innovations

- ❖ Government strategic planning helps to direct priority areas
- ❖ Collaboration between institutions, both domestic and international
- ❖ Local institutions

Targeted Skill Development

- ❖ Strengthen exposure to and comfortability with ICT
- ❖ Increase industry-specific skills
- ❖ Critical thinking / problem-solving
- ❖ Self-motivation and confidence

Sources of Funding

- ❖ Government
- ❖ Student fees

Faculty Attitudes Toward Pedagogical Innovation

- ❖ Faculty actively involved in the implementation of innovative pedagogies

Dimensional Change

- ❖ Discourse, socio-cultural, pedagogical, architectonic and intersubjective

Type of Innovation

- ❖ Computational thinking, experiential learning and blended learning

3.4 Overall Analysis

In this section, the analysis results are described for the visual (qualitative) analysis and quantitative analysis. For the Pedagogical Innovations category, the visual analysis diagram is displayed and described, whilst the other figures for this part of the analysis are available in Appendix 7.4.

Pedagogical Innovation

SPHEIR versus Benchmark Countries

In the visual analysis regarding pedagogical innovations (see Figure 5), it was observed that there was no real difference between the groups of countries, as both shared elements of each type of innovative pedagogy.

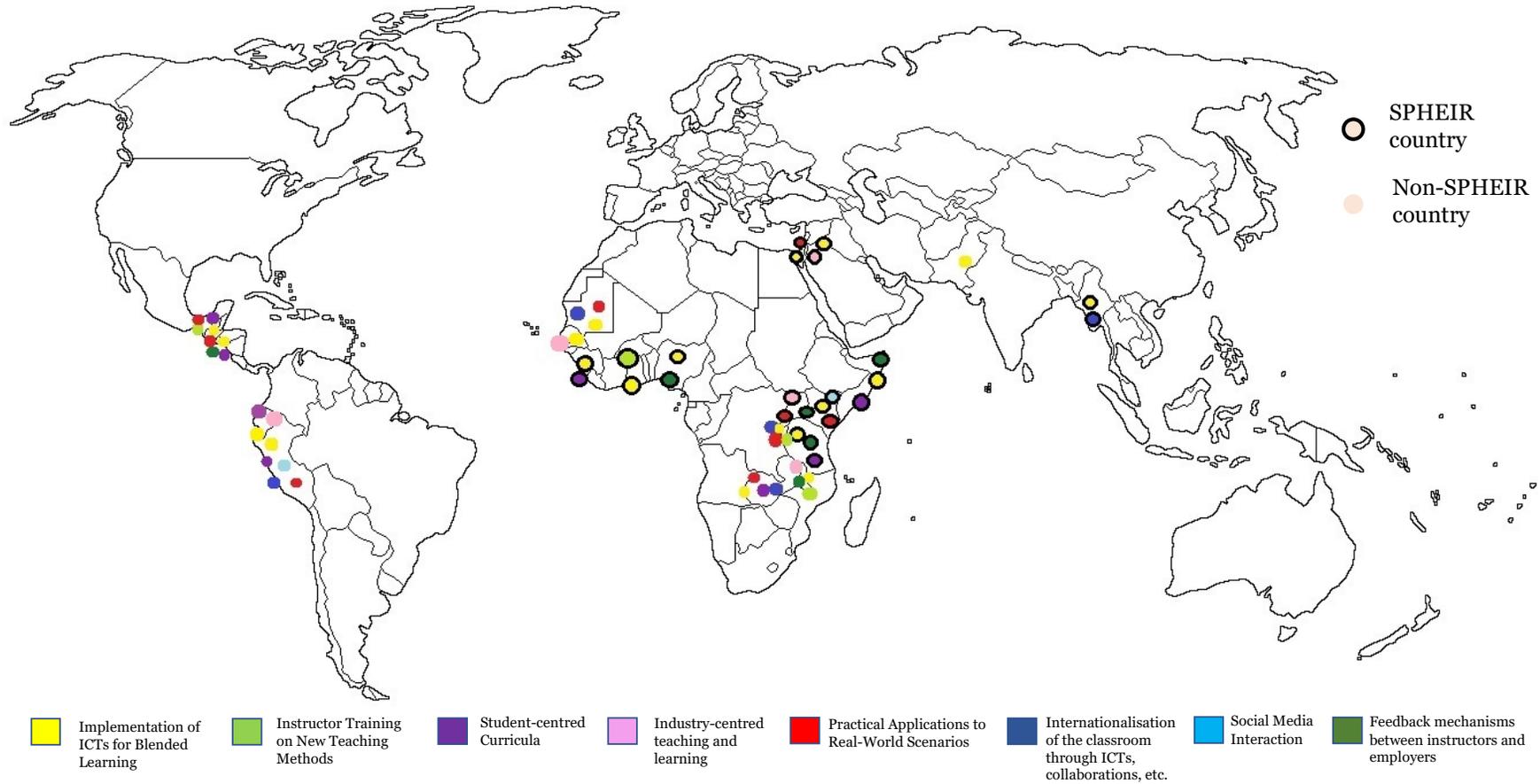


Figure 5: Pedagogical Innovations Landscape

Source: UCL STEaPP SPHEIR Group Project 2018

Adapted from: Outline-world-map.com (2009) (OBS. South Sudan is not marked out)

However, in applying the quantitative analysis it was found that some pedagogical innovation trends were more prevalent amongst one of the country groups (SPHEIR or Benchmark). As demonstrated in Figure 6, the most common pedagogical innovation trend found amongst both country groups is the implementation of ICT towards blended learning, as 19 of 20 countries holding this trend. Thereafter, the most common pedagogical innovation was the practical applications to real world scenarios, whereby almost half of all countries showed this trend. It is worth noting that this pedagogical innovation is more common in benchmark countries than in SPHEIR ones. Feedback mechanisms were also very common for SPHEIR Countries, whereas student-centred curricula were more common among benchmark countries. Additionally, there are more benchmark countries displaying the ‘internationalisation of the classroom’ trend.

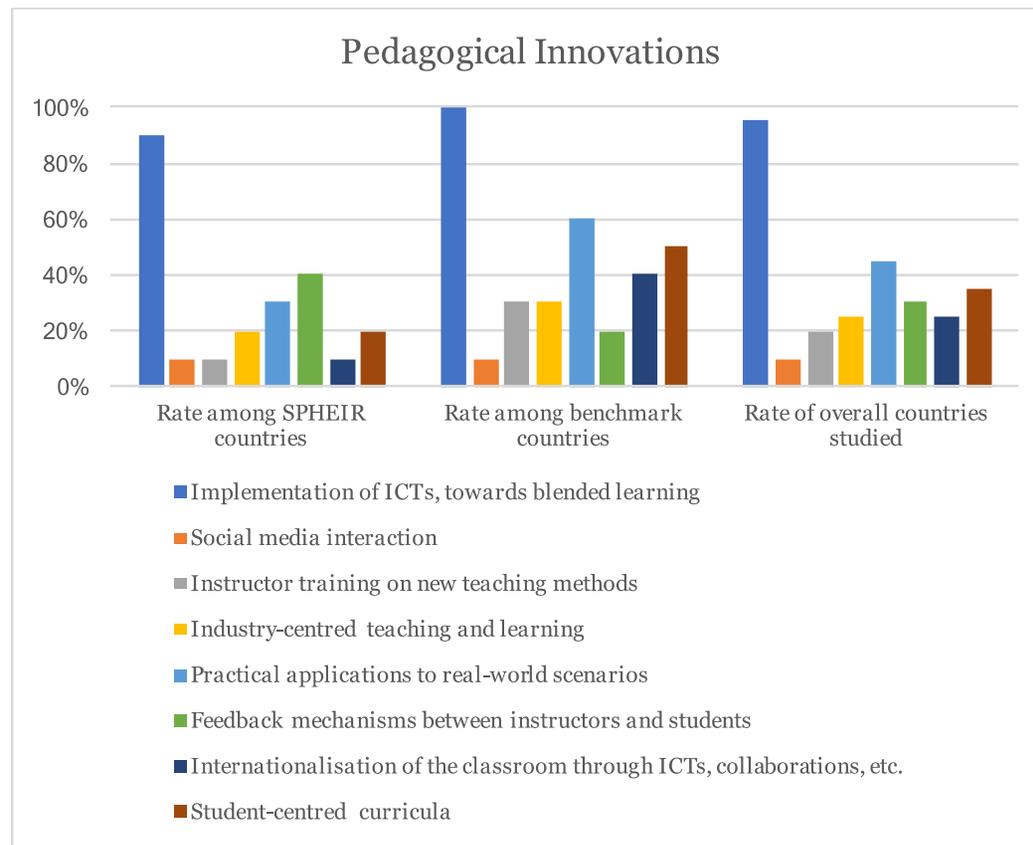


Figure 6: Pedagogical Innovations in SPHEIR and Benchmark Countries

Source: UCL STEaPP SPHEIR Group Project 2018

Regional Context

Information in this section is complemented by Figure 22 in Appendix 7.5. At a regional level, it is worth noting that all regions had ICT implementation toward blended learning. Additionally, all Latin American (LA) countries included student centre curriculum, and LA and Sub-Saharan Africa (SSA) had social media pedagogical innovations. While Asia only had ICT-based innovative pedagogies, SSA had a higher prevalence of instructor training on new teaching methods than other regions; Asia and the Middle East (ME) had none. Finally, 5 of 12 Sub-Saharan African countries used feedback mechanisms (see Figure 22 in Appendix 7.5), a pedagogy that was not found in Asia or the ME.

Drivers of Pedagogical Innovations

SPHEIR versus Benchmark Countries

Information in this section is complemented by Figure 9 in Appendix 7.4 and Figure 7 in this section. In the analysis of the drivers of pedagogical innovations, from a visual standpoint, both country groups show no apparent difference, and hold similar aspects. However, at a more specific, graph-based level, the drivers of pedagogical innovations are different between the SPHEIR and Benchmark groups studied, as displayed in Figure 7. All of the SPHEIR countries had collaboration between institutions, both domestic and international; and 8 of 10 SPHEIR countries studied showed government strategic planning in order to direct priorities areas (see Figure 7). Local institutions played a less significant role for both country groups.

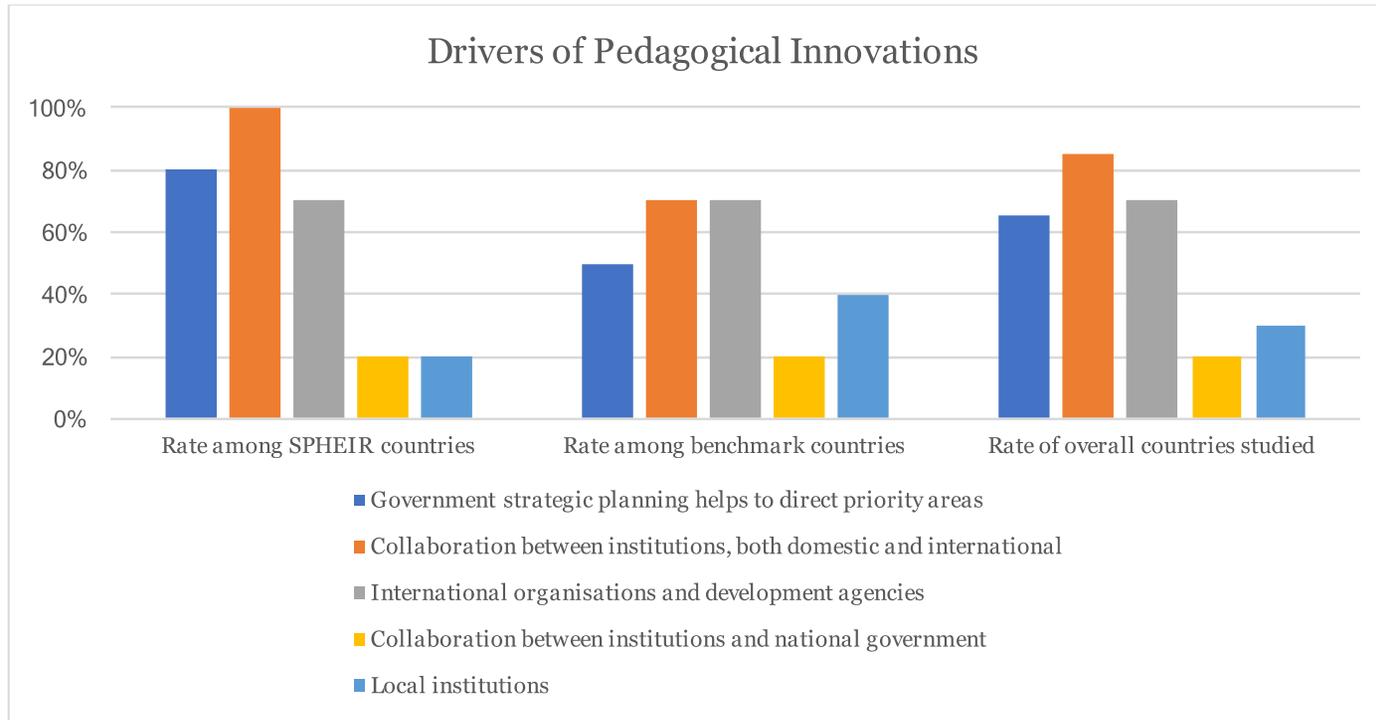


Figure 7: Drivers of Pedagogical Innovations in SPHEIR and Benchmark Countries

Source: UCL STEaPP SPHEIR Group Project 2018

Regional Context

Information in this section is complimented by Figure 9 and Figure 23 in Appendix 7.4 and 7.5. In the visual analysis, it was observed that all regions had government plans. Moreover, all regions had inter-institutional (domestic and international) collaborations. In comparing LA to SSA (the two largest regional areas), LA had fewer ‘international/development agency’ driven aspects (proportionally)- as almost every country in the SSA shared this aspect. Lastly, there were few cases in each region for which the driver was the collaboration between institutions.

Targeted Skills Development

SPHEIR versus Benchmark Countries

Information in this section is complemented by Figure 10 (Appendix 7.4) and Figure 8 in this section. For this section, it is hard to infer comparative differences between SPHEIR and Benchmark countries, as data from three countries in the benchmark group is missing. Under these given circumstances it can be said that SPHEIR countries (7 of 10) and Benchmark countries (7 of 10)² had cases regarding ‘strengthen exposure to and comfortability with ICT’ as well as increase the industry-specific skills, as the main targeted skills developed in the pedagogies (see Figure 8). Also, proportionally SPHEIR countries had more cases of ‘critical thinking’ than Benchmark countries.

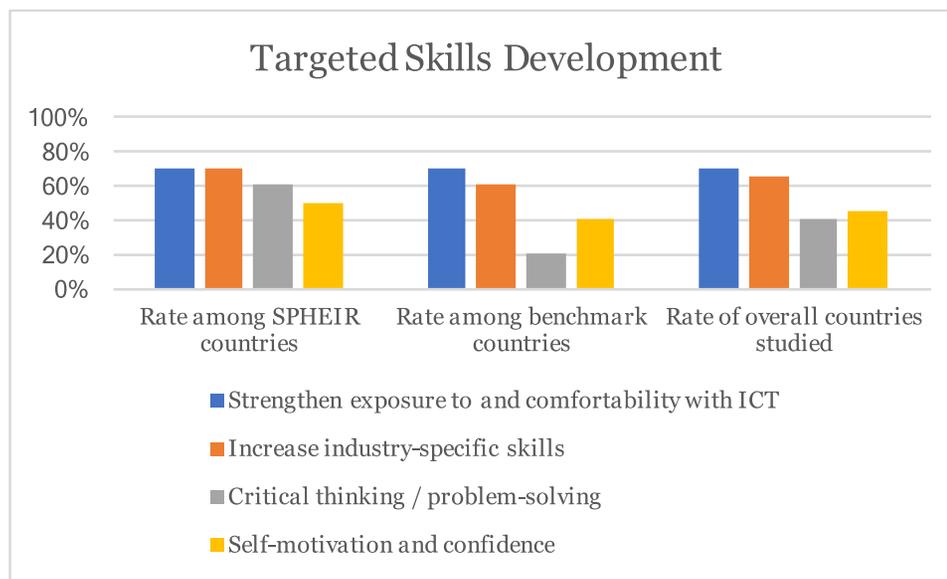


Figure 8: Targeted Skills Development in SPHEIR and Benchmark Countries

Source: UCL STEaPP SPHEIR Group Project 2018

² Data for Mauritania, Pakistan and Burundi was not available for this trend, but they were still counted toward the total number of benchmark countries

Regional Context

Information in this section is complimented by Figure 10 and Figure 24 in the Appendix 7.4 and 7.5. The four regions had countries that show trends of ‘strengthen exposure to and comfortability with ICT’ and in ‘self-motivation and confidence’. ‘Critical Thinking/Problem Solving’ was not observed as a trend in LA.

Sources of Funding

SPHEIR versus Benchmark countries

Information in this section is complemented by Figure 11 and Figure 18 in Appendix 7.4 and 7.5. Based on the visual analysis, SPHEIR and Benchmark countries share the same type trend aspects. From the quantitative analysis, it was drawn that ‘students fees’ and ‘international government and organisations’ were the most common sources of funding for all countries. Private sector funding remains a scarce trend for both country groups. A comparative difference between the country groups were found regarding ‘government’ (7 of 10 SPHEIR countries versus 6 of 10 for benchmark countries (see Figure 18 in Appendix 7.5).

Regional Context

Information in this section is complemented by Figure 11 and Figure 25 in Appendix 7.4 and 7.5. The different regions show very different trends regarding the funding landscape. For SSA countries, several sources of funding were found, the most common sources were ‘government’ (10 of 12), ‘student fee’ (10 of 12) and ‘international governments or organisations’ (8 of 12) (See Figure 25 in Appendix 7.5). All of the Asian and Middle East countries had ‘international governments or organisations’ funding and Asia showed no trend of student fees funding. All Latin-American countries had ‘student’s fees’ funding sources- many of the SSA countries followed this suit as well.

Faculty Attitude Towards Pedagogy

SPHEIR versus Benchmark countries

Information in this section is complemented by Figure 12 and Figure 19 in Appendix 7.4 and 7.5. In regard to faculty attitude toward the implementation of pedagogical innovations, it can be said that for both the SPHEIR and benchmark country groups, that both share aspects

of all three identified trends. However, SPHEIR countries showed more countries with faculty resistance (3 of 10) than benchmark countries (1 of 10).³

Regional Context

Information in this section is complemented by Figure 12 and Figure 26 in Appendix 7.4 and 7.5. From the analysis, it was observed that there are different results between the different regions. Most of the LA and ME countries showed a positive attitude towards innovative pedagogies. The ME was the only region for which the only characteristic was, ‘faculty openly involved in the implementation of innovative pedagogies’ and did not have limitations or resistance. This differs to the case of SSA countries for which the most common case was ‘faculty open to implementation but with constraints.’

Dimensional Change

SPHEIR versus Benchmark countries

Information in this section is complemented by Figure 13 and Figure 20 in the Appendix 7.4 and 7.5. Regarding this trend, the ‘pedagogical’ dimension was found in 15 of 19 countries. For SPHEIR countries, the discourse dimension was found in all countries, whereas it was only observed for 4 out of 10 benchmark countries.⁴ Also, the architectonic dimension was very common being found in 7 of 10 SPHEIR countries and 6 of 10 benchmark countries.⁵ The moral and proprietary dimensions were the trends for which lowest number of cases were observed.

Regional Context

Information in this section is complemented by Figure 13 and Figure 27 in Appendix 7.4 and 7.5. Among the SSA, ME and LA countries the most common dimensional change trend was the ‘Pedagogical’ one 9 of 12 for SSA (Burundi and Mauritania are not counted), all of the ME and all of the LA, see Figure 27 in Appendix 7.5). SSA is the only region with ‘intersubjective’ aspects and the ME and SSA had no case of moral change but LA and Asia did.

³ Data for Mauritania and Burundi was not available for this trend, but they were still counted toward the total number of benchmark countries

⁴ Data for Mauritania and Burundi was not available for this trend, but they were still counted toward the total number of benchmark countries

⁵ Data for Mauritania and Burundi was not available for this trend, but they were still counted toward the total number of benchmark countries

Type of Innovations

SPHEIR versus Benchmark countries

Information in this section is complemented by Figure 14 and Figure 21 in the Appendix 7.4 and 7.5. From a visual point of view there is no real difference between SPHEIR and benchmark countries as both groups of countries shared elements of each type of innovative pedagogy. From the graphic analysis, it can be said that for the type of innovations, computational thinking was found in 9 of 10 of SPHEIR countries and in 7 of 10 of benchmark countries (Mauritania and Burundi are not included) (see Figure 21 in Appendix 7.5), being the most common trend observed among all the countries studied- followed by experiential learning and blended learning. No trend for gamification nor in embodied learning were found and are thus not mentioned in figures toward analysis.

Regional Context

Information in this section is complemented by Figure 14 and Figure 28 in Appendix 7.4 and 7.5. The most common innovation was ‘Computational thinking’ being present in all regions, and being the only type of innovation trend in Asia. The ME did not have multi-critical literacies trend cases.

4. Discussion

4.1 Synthesis of Main Findings

In analysing the given results from the visual (qualitative) and quantitative analysis, there are a few key points and questions which are raised and should be discussed and reflected on further. Firstly, it is demonstrated that ICT implementation toward innovation in higher education is an observed global trend. Moreover, it is interesting to note that when comparing the results of trends between ‘pedagogical innovations’ and ‘targeted skill development’, it appears the ICT implementation and self-motivation (self-direction) often overlap; this is supported by case studies such as ProGreen’s online programme in Lebanon (Baytiyeh, 2017).

Secondly, an interesting relationship arises when the source of funding is correlated with the pedagogical innovation that was implemented. In the Asian region, only ICT-oriented initiatives, together with no ‘student fees’ funding, were observed. In conversation with Tristan McCowan (2018a) and in case studies from Lebanon and Myanmar (see Baytiyeh, 2017; Khaing et al., 2016), it has been stated that ICT initiatives, such as online learning and e-learning centres, may not necessarily have the most positive, impactful outcome, as they may not be very student-oriented and of high quality. In this report, it was discovered that many countries had adopted ICT policies; education programmes aligned with these policies were often concerned with expanding the reach of education to as many individuals as possible (see Asato, 2010) – in these instances, quality is often sacrificed for quantity.

In comparison to initiatives which revolve around changing attitudes and training of faculty, and making education more student-centric, it would seem that ICT initiatives require less long-term support and time. ICT seems to be a cost-efficient decision for government and universities, but it is not for students. Thus, it is of interest to discuss whether the notion of students not paying fees in Asia results in a lower leveraging power of these actors, to demand other forms of innovative pedagogies.

Using student fees as the basis for funding was observed in Latin America, Sub-Saharan Africa and the Middle East. However, whereas in the former two regions much of this funding is concentrated in smaller, more autonomous universities where student-centred and instructor-training (as well as feedback mechanisms between employers and instructors) approaches can be observed, in Middle Eastern countries such as Lebanon, the funding is manifested in prominent, publicly-integrated institutions (SPHERE, n.d.). In these institutions, though the funding source remains predominantly the same as those in Latin America and Sub-Saharan Africa, the observed pedagogical innovations were less student-centred. In the Sub-Saharan African case, as highlighted by McCowan (2018a), the student fees-funded University of Ashesi (Ghana) is often considered to be highly innovative with student-centred pedagogies. As alluded to earlier, this has not been the case for Lebanon where, arguably, prominent fees-funded universities suffer from ‘educational lock-in’ and are unable or unwilling to adapt to these different pedagogical approaches.

In further reflection of the researched literature and expert conversations, there are similarities in how governments create and approach their educational policies. A first element to be mentioned is that they tend to focus more in making the education more accessible and affordable for all, rather than focus on quality. Rather than extending this policy to education as a whole, many countries focus education policymaking on primary education, ignoring secondary or tertiary education. In those that do pursue affordability and the “right of education” for higher education institutions, the focus on affordability can actually negatively impact higher education quality by prioritising quantity over quality (Portales, 2018; McCowan 2018b). The effects of this decision are not isolated: in countries such as Kenya, Somalia and El Salvador, the mis-prioritisation of educational outcomes has resulted in curricula misaligned to the needs of local and international industry. Such misalignment has serious repercussions for national development and can further incentivise the employment of properly-educated foreign workers rather than university-educated locals (World Bank Group, 2011). In countries such as Jordan (see Gharaibeh et al., 2014), education practitioners have actively worked to reform curricula to match the needs of industry by engaging with key industry stakeholders, a trend that was observed to be fairly common amongst SPHEIR countries, and only slightly less common in the chosen benchmarks.

Regarding the pedagogies, the baseline context for most of the countries analysed is a traditional based didactic pedagogy, with crowded classrooms, a passive role of the students, the use of memorisation and repetition and a lack of training in skills such as critical thinking. However, different case studies were found whereby universities applied pedagogical innovations such as blended learning, computational thinking and experimental learning, among others. The innovations are driven by different stakeholders, frequently involving collaborations between local universities and national / international institutions and organisations, which is especially important for more isolated countries.

Hansen and Leman (2016) agreed on the importance of international collaboration in order to improve higher education; however, they mentioned it extends beyond solely collaboration, working for the development of mutual trust that generates long-term high-impact outcomes. Unfortunately,

many of the examined cases did not provide the information necessary to understand the impact. Additionally, not all of the regions observed the same actors; for instance, government was found as a common driver primarily for Middle Eastern and Asian countries. Among the motivations for those who drive pedagogies, some cases show pedagogies emerging as an answer to local problems, such as a lack of health professionals (see Kenya, Somalia). In relation to funding, the role of government was very common among SPHEIR countries. However, though governments are involved with funding education, it is for very basic purposes (see Guatemala). To generate change, loans and international partnerships are required – an initiative that does not guarantee sustainability. Unfortunately, there were very few examples of private sector involvement in financing higher education, with those found being in Asia and Sub-Saharan Africa.

Regarding which skills are fostered by pedagogies, it was commonly found that increasing exposure to and comfortability with ICT as well as increasing industry specific skills were intended outcomes of pedagogical innovations. Interestingly, the latter is highly linked with the mismatching of labour market and curricula mentioned earlier; thus, it can be said that some efforts are already taking place in order to resolve this issue, for instance in Latin American and Middle East countries. Also, for SPHEIR countries additional skills were found in the cases such as critical thinking and self-motivation and confidence. Finally, regarding pedagogical dimensions, among the most common pedagogies in all of the countries studied were pedagogical and architectonic, with the architectonic dimension being largely disrupted through the utilisation of e-learning. However, based on the results of the case studies, just a change in architecture does not lead to significant results. On the contrary, impact was most commonly observed when other dimensions changed, such as ‘socio-cultural’, where the role of students in the classroom evolves. It is interesting to note as well that discourse dimension was found in all SPHEIR countries. Further research needs to be done in order to have a deeper understanding.

Despite these innovations, the implementation of innovative pedagogies is still facing many challenges. Firstly, as was mentioned at the beginning of this section, most higher education institutions have implemented ICT initiatives, indeed the most common type of innovation among countries was computational thinking. However, a lack of university policy, culture, staff training and infrastructure hinder the success of innovative pedagogies (McCowan, 2018a). Secondly, in some countries such from Sub-Saharan Africa and Asia, there is still skepticism among academic staff towards the implementation and training in new pedagogies, especially as it pertains to technologies. Staff is more risk averse and prefers to hold on to the traditional ways of teaching and learning. According to our expert Schendel (2018) a successful innovative pedagogy is more likely observed when the staff is engaged and committed; therefore, the lack of this element in the studied cases, endangers the sustainability of the impact of the pedagogy. Although in some cases staff show this risk aversion towards change, in other initiatives, staff has been involved in the implementation of new pedagogies from the beginning, resulting in a positive attitude and involvement, which can be seen in countries such as Middle East and Latin-America. Thirdly, some higher education pedagogies are not successful because of the lack of quality in secondary education, which is directly linked with the policies fostered by government mentioned earlier in this discussion (Ramphele. and Rosovsky, 2015). Fourthly, the implementation of innovative pedagogies takes in consideration local context at economic and infrastructure level. However, the cultural level is not always considered, preventing them from being successful. Finally, the implementation of innovative pedagogies rarely generates an impact in improving the quality of education- as mentioned by our expert McCowan (2018a)- reality often differs from rhetoric, and even though there are espoused means of innovative pedagogies it does not mean that they are implemented to have, or have, an impact.

4.2 Limitations

The first limitation to be considered is the use of the University of Illinois classification system to understand the different models and dimensions of the pedagogies. Despite the framework being comprehensive and helpful, it considers many elements that cannot be easily obtained from literature in developing countries due to lack of data. For instance, information regarding the previous pedagogical models before the implementation of an innovative pedagogy. Because of that, some speculations were taken into consideration in order to obtain the insights. Also, subjective interpretation can be found among the countries as the research team were 5 people seeking 8 dimensions, some of them similar among them, and the framework is so categorical that it might miss out certain aspects. Another limitation with regards to the framework, is that it does not allow the comparison among the pedagogies in order to know which was more successful or which should be applied to which specific contexts.

A second limitation is the accessibility and reliability of the data for the studied developing countries. For instance, although some cases were written more than ten years ago, which raises questions regarding relevancy, the lack of data led limited the amount of information that can be provided. Indeed, Hornsby (2018) mentioned that for pedagogies, content becomes irrelevant every three or four years. Along the same line, some non-academic data was provided in the section “other examples of innovative pedagogies” (see Section 7.2 and 7.3 in the Appendix) in order to grasp what were the current initiatives taking place within higher education institutions, because there is not yet research for them. Also, for Latin-American countries the information available is mainly in Spanish and not necessarily published, then non-academic sources were used as well. Similarly, considering the limited information, most of the cases found do not include what is going on around student’s everyday lives, they just focus in the new pedagogy. This lack of data was not even for all the countries, as some of them counted with research available coming, for instance, from international organisations, but others such as the Latin-American ones, as was already mentioned, were very hard to find.

A third limitation is the time periods observed in the case studies. Most of them take place in short periods of time without follow-up, which makes it hard to know if a pedagogy was successful or not. For instance, they do not provide information regarding staff attitude towards pedagogies in the long term or which were the specific outcomes obtained for the students in a longer period of time.

A fourth limitation is that the pedagogies described in this report are context-based. Then, comparison towards which pedagogies were more successful, or the creation of a ranking of pedagogies, was not possible due to the different contexts. Because of the contextualisation of the findings, the results of this report cannot necessarily be applied to other countries either. However, this report does provide the foundations for future inspirations regarding the identification and eventual evaluation of innovative pedagogies, regardless of contexts. It is important to keep in mind, though, the highly contextualised nature of the results.

A fifth limitation is that the research regarding innovative pedagogies was done around classroom context. However, students can improve their learning and be influenced outside the class as well (McCowan, 2018a; Hornsby, 2018).

4.3 Further Research

The next steps for this research include, first, the validation of the information found in the dimensions of pedagogies of each country. In that context, field research is needed, including interviews with the main universities in scope, and not just literature research. Second, the inclusion of other frameworks to end up with a more contextualised framework that would allow a deeper analysis. As an alternative for the University of Illinois' framework, the analysis of the Bloom's Taxonomy of Learning (defined in Box 1) (Bloom et al., 1956) can be considered to be included. Also, regarding the framework, there is a need to find a way to compare pedagogies. As was mentioned in the previous point, the pedagogies are highly contextualised, which along with the lack of data, makes it difficult to compare them. Third, all the benchmark countries were similar in terms of development, however, there is a need to also include developed countries in order to analyse whether education as a whole is relevant, especially considering the context of the fourth industrial revolution. Fourth, it is important to note that if further benchmarks are included, it has to be considered the information is rather limited because, globally, studies are focused on Sub Saharan Africa. Fifth, there is a need to include cultural contexts within the case studies as well as the follow-up for students and their trajectories. Finally, further research can be developed in order to realise a statistically significant analysis on the correlations of the different trends.⁶

Box 1: Bloom's Taxonomy of Learning (Bloom et al., 1956)

Named after Benjamin Bloom, "the taxonomy is a set of three hierarchical models used to classify educational learning objectives into levels of complexity and specificity. The three lists cover the learning objectives in cognitive, affective and sensory domains. The cognitive domain list has been the primary focus of most traditional education and is frequently used to structure curriculum learning objectives, assessments and activities. The different types of learnings, in order of relevance are done by: creating, evaluating, analyzing, applying, understanding or remembering knowledge." (Bloom et al., 1956)

⁶ Though outside of the scope of this report, it is important to mention here that the larger context of this report, that is the evaluation of the SPHEIR programme, includes the delivery of a survey to all faculty who are implementing changes to courses or delivery modes. In this survey, exploring drivers and barriers to change would provide useful additional answers to the questions which have arisen with respect to the need to prepare teachers much better for delivering new pedagogies (See page 54).

5. Conclusion

For the given research project, the authors have investigated and assessed the scope of innovative pedagogies for Technopolis Group to assist in their evaluative work on the Strategic Partnerships for Higher Education and Reform (SPHEIR). SPHEIR is a fund based toward the transformation of higher education systems in developing countries of Sub-Saharan Africa, Asia and the Middle East by the UK Department for International Development (DFID), to produce acceleration toward growth and development by aligning the higher education systems with the needs of local and global markets (DFID, 2018). In order to achieve this outcome, the SPHEIR programme prioritises innovation in pedagogy within higher education (SPHEIR, n.d.a); however, the reality remains that globally, and especially in developing countries of focus by SPHEIR, focus has remained on broad access to primary and secondary education (Ramphele and Rosovsky, 2015).

By investigating the landscape of higher education pedagogical innovations in the selected countries, this project has aimed to understand what pedagogical innovation means for the countries in question, together with their successful and unsuccessful outcomes. This is to give insight into the contribution these types of innovative initiatives can have toward higher educational outcomes and for actors involved toward the development of countries, and if there is feasibility toward replicability- and what unsuccessful aspects should be taken to note- in the scope of further SPHEIR evaluation and application. To achieve these insights, the authors utilised a rapid evidence assessment (REA) approach, incorporating both literature resources and expert opinion; within this general research methodology, a framework was applied to categorise observed pedagogical innovations. Following this, further modes of analysis were employed to better understand trends regarding pedagogical innovations and their outcomes, both at comparison of SPHEIR countries versus the selected benchmark countries, as well as between geographical regions (Asia, Latin America, Middle East and Sub-Saharan Africa).

In conducting the research, key takeaways were observed. Firstly, ICT implementation as an innovative pedagogical approach is observed as one of the most widespread trends. However, in both literature country search and in conversation with experts (McCowan, 2018a), it was noted that ICT-implementation may not necessarily result in the best outcomes of skill development and pedagogical experience: it appears to be a cost-efficient measure of pedagogical innovation for governments and innovation drivers, though not for students. Secondly, it has been remarked that there is a general mismatch between higher education curricula and market needs, further exacerbated by highly-didactic teaching styles. However, many countries appeared responsive to this misalignment and had shown improvement of industry-specific skills. Thirdly, it should be recognised that the contextual environment in the scope of higher education pedagogical innovations is highly affected by sociocultural and socioeconomic factors, as well as the attitudes of teachers and staff. Indeed, the cases where staff was involved from the beginning resulted in positive attitudes which can result in better educational outcomes (Schendel, 2018). Fourth, even if the most common dimensions used by the countries studied were pedagogical and architectonic, higher impact was found in cases where the role of students changed through changes in the socio-cultural dimension. Finally, as emphasised by McCowan (2018a), the reality of the innovative pedagogical landscape does not often equate the surrounding rhetoric.

Limitations experienced in the research scope have been thoroughly described, including data availability, the subjectivity of the applied framework and recognised ignorance of external factors which can affect outcomes of innovative pedagogical implementations. Yet, building on these limitations, a strong foundation has been laid for the future scope of related research that builds upon the findings of this report. This could include the incorporation of additional dimensions to the applied framework that better capture the totality of innovative pedagogies, as well as an applied system of comparison to more effectively assess the relative impact between varying pedagogies. Moreover, to achieve the most robust results and understanding, it is recognised that there is a need for more current and varied perspectives, particularly from ground-level stakeholders (including students). This research has indicated the outcome that the implementation of innovative pedagogies can have toward skill development and higher education change, which should play a role toward national development. However, to achieve the best possible impact of the initiatives, it is essential to further investigate their real (and not only espoused) outcome and limitations which can be improved.

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7. Appendices

7.1. Notes from Expert Conversations

7.1.1 Interview 1: Dr. David Hornsby, Head of Department (Interim) at STEaPP, UCL. (11 July 2018)

- **On the definition of innovative pedagogies.**

I think innovative pedagogies are- well, first of all the definition is highly contextualised and specific- innovation is highly contextualised even if observed in a very unequal space. Innovation still takes place, innovation is thus, evolution in a space, innovation is a way of resolving issues and problems, particularly in an educational space it is about enhancing learning. Innovative pedagogies are thus about changing the way students learn and teaching them to think critically, and not just repeat what is a standard. It is not about replicating, it is about taking it into the next step, and do something different with that which exists.

- **On the topic of Dr. Hornsby's experience (country of experience), of examples of steps taken in the form of innovative pedagogies to enhance learning in higher education.**

My focus has been in a South African framework, and within that space, being directed toward Social Sciences and Humanities as subjects. Not exclusively however, have also worked with engineers, 'hard' scientists, technology-oriented departments etc. One of the big things in South Africa regarding pedagogical innovations has been this notion regarding transformation and societal transformation. In South Africa societal transformation entails transitioning from a white privilege system to one which is a lot more equal, where individuals will have access to opportunities no matter of colour. It's about turning the system on its head and giving black South Africans the opportunities which were only held by individuals of white colour prior. Innovative pedagogies in South Africa are therefore about reconciliation, reconciliation of the past and the country's past. Some explicit examples of that, this regards including alternative viewpoints from black scholars, as well as of what can be classified as indigenous ideas to solutions. In an international relations field, which is my expertise, we would talk about how South African tribes back in pre-colonial times, would handle peace agreements and inter-state relationships. For students learning about these methods of conducting international relations, it would entail them drawing from these examples and applying them, rather than solely focusing on western-oriented methodology from the United States or Europe. Another way in which innovative pedagogies manifest themselves in an African frame, is this big focus on skills, and development of higher order cognitive skills, problem solving, cultural humility, cooperation, team work etc. Funny enough, this would also be applicable in a European context, but in an African framework this is highly important to an innovative pedagogy space- as it gives the students the capacity to do things differently and for them to go out and innovate themselves, and to deal with that adapting environment. The baseline to innovative pedagogies, that we all accept is regarding the content which we teach- the content becomes irrelevant every three or four years, it is changing continuously- we can not solely rely on transferring information anymore. We actually, even though some transferring of information is still necessary- it is more essential to enhance the skills element amongst students which they can then apply. This involves teaching students how to adapt to changing information and apply their skills, and become critical thinkers around the information they are presented with.

- **On the topic of purpose of higher education and if has changed with innovation in pedagogy and if it has become more skills-oriented to suit societal needs and changes.**

Yes- but also I want to say 'no'- because I believe higher education has always had the purpose of fostering this skill-set and allowing students to think around problem-solving. The difference is in the way it happened- in the 60s for example, prior to the internet, we were relying on books which took very long to read and furthermore, took long to distribute and be made accessible. Nowadays, the environment is entirely different- prior to the internet there was definitely more of a content-transfer basis in higher education but that was because you could get away with it. Due to the access of information we have today, and it rapidly changing, it is not possible. So yes, universities are changing and this is changing how universities need to focus their relationships between student and teacher in a student learning environment, and definitely in a research environment.

- **On the topic of whether different universities today still have a very different purposes- as in a developing country the purpose of a higher education institution may be to be more practically oriented to meet demands of the job market rather than create an environment for self-fulfilment and experience.**

There is definitely a discrepancy between students and academics regarding the belief regarding the purpose of higher education. I believe many students attend university in order to attain the skills to get a job. Some academics are still holding on to this notion that universities are public good in their pure existence, and it is not their job to train students to get a job, because they are not technical enough in their vocation. But, that is not the reality anymore. Just looking at your own cohort, the things which you have reacted the best to in terms of the elements of the MPA, were those which you found the most practical- where you were actually gaining tangible skills- for example the finance course and the group project, the negotiations course. There is definitely that tension, but students are definitely creating that push by generating a demand. However, there is still resistance at the core of universities.

- **Regarding measuring 'innovation in pedagogy'.**

Hard one- yes, there are definitely ways of measuring innovation in pedagogy, however, it is rather a question of whether the measurements are too blunt to capture the nuance. When I look back at my degree, what I took the most away from was everything but the degree itself. It was all the extracurricular activities I had, the environment I was in, my experience in the student government- I was living my politics and sitting as a university senate, changing university policy. Those were the most formative experiences for me- however can we measure this part of the higher education experience- that is the question. You can definitely measure the number of extracurricular opportunities which are available, you can be very clear about the student experience and student satisfaction, and there are very sophisticated ways of doing that. The difficulty however is the measurement of an experience which combines both the academic and the element of the course work, as well as that of the broader institution and all those extra activities. What is the relationship there? It is very difficult to measure the full 'concept'. It is within this space between these two aspects of higher education, where the definition of 'innovative pedagogies' needs to become more precise. And this is a challenge, because we perceive innovative pedagogies to usually fall 'within the classroom'- there is very little literature on student experience

pedagogy. Doing things on an extracurricular basis is also learning, and it is part of the higher education institutional aspect, and it is a safe space to apply ideas and skills, as there is room for it.

- **Regarding institutional and classroom-linked pedagogies.**

Absolutely, we need to move beyond pedagogies solely being oriented around the classroom, innovative pedagogies refers to the whole space. More so we need greater focus on the learning space in itself- not only the classroom of course, but spaces for individuals to interact, learn, learn from each other. In student residences and spaces, you need to think about the individuals you are putting with each other, regarding where they come from and what they can take from one another- mix it up. How do you get people to understand different cultures and people, and that can happen in a resonance space- UCL are very late to the game in that aspect, as they need a major student space where individuals can become coherent.

- **In regard to terminology surrounding ‘innovative pedagogies’.**

Note: It would have been interesting to cover some island groups due to their isolation and indigenous rootings, in order to understand how that may impact the learning environment.

There are a robust set of literatures which you can engage with, however I am not highly aware of the exact references to terminology in this space especially when it comes to institutions beyond Sub-Saharan Africa. However, I would suggest focusing in on a few spaces such as Mauritius, Senegal- for retrieving examples of innovative pedagogies. In terms of terminology I would propose looking at OECD, World Bank and UNESCO reports. Terminology will however be used interchangeably, however different institutions and organisations will have different opinions regarding their definition and how it is manifested.

- **Regarding explicit examples of innovative pedagogies beyond South Africa, as for example in Sub-Saharan Africa.**

I did a review of the second decade of education a couple of years ago- but cannot pinpoint these. More so, there is a lot going on in the region, sometimes a bit too much. Those which are mentioned are mostly technology based, and this is a big issue. There is often a big belief that technology will resolve all the issues in a development setting, but there is little consideration regarding whether the technologies are actually relevant. For example, there is access to power and internet- moreover, the cost of these technologies and their use. You can still innovate, without adopting that which one may think will be an ‘innovation’ coming from another context- it has to be relevant to its space. You need to do things differently which you have got.

- **On the topic of indigenous thought coming into the space of innovative pedagogies.**

So there is big literature emerging regarding the decolonisation of higher education. There is a lot coming out, so hard to pinpoint one idea exactly. However, there are essentially three strands to it- the first one is regarding power, changing what is privileged and powerful information. To do this you have to mix up the people who are bringing knowledge into an institution as well as learning it, and thus involving individuals with more indigenous knowledge, experience and background. The second strand regards the access to a new set of literatures, and we can not

only make sure that the access is there, but the fostering of the creation of such literatures must also be in place. Part of the problem, is that, that form of indigenous knowledge is not necessarily written down or updated as indigenous knowledge and realities change as well. The third strand, is regarding how we teach. Standing up and transferring information in a lecture hall is a very old, a very colonial way of teaching in many respects, which conveys the essence of the teacher having the power in the learning space. We have to be conscience of the fact that knowledge and learning is diverse, and that experiences of these are multiple and can be incorporated together in order to help build understanding. We have to change the way in which we are teaching, and foster teaching-learning settings. If we can change those ways in which are fundamentally teaching, we can put into practice pedagogy, and that becomes a form of decolonisation and thus innovation in its context- by changing power dynamics.

- **Regarding the rate change in applying innovative pedagogies toward a decolonisation setting.** Not at all, academics and the academic field can be highly stubborn and difficult. Somewhere like South Africa, it is definitely happening quickly, because you have the pressure and realisation in post-Apartheid environment entailing that change must occur. However, in a place like the UK the change is happening at a much slower pace as the pressure is not in place. It would be very interesting to see moreover, how different institutions falling under different country-(post)-colonisation environments are adapting and applying these changes- and at which rate- and additionally, if there are any metrics for measuring this. South Africa was both colonised by the British and the Dutch, and the different institutions which fall under these different colonial-nationalities have differing ways of teaching and applying pedagogical methodologies. They have very different traditions. Witwaterstrand versus Johannesburg, have very different cultures with the former being British and the latter being Dutch- and Johannesburg is a lot more traditional and based on recitation, whilst Witwaterstrand is more liberal. This really a contrast to how Dutch universities are today as they are highly forward moving and some of the most progressive in the world- which may be partly due a traditional diaspora movement notion.
- **Any additional comments regarding measuring innovation in pedagogy.**
This a difficult one, and the metrics are not specifically outlined, however, student experience, student satisfaction, etc. can all be counted toward this.

7.1.2 Interview 2: Dr. Rebecca Schendel: Co-Investigator and Lecturer in Education and International Development, UCL Institute of Education. (12 July 2018)

- **On the definition of innovative pedagogies**

Rebecca agreed there is not a shared understanding of innovative pedagogies, depending on who you asked the definition would be very different. In order to answer our question, she first provided some context:

- There is a large body of research working about pedagogy within higher education but most of this comes from ‘Western’ contexts. The published research on HE in less-resourced contexts has tended to be much more related with “infrastructure, governance, funding, access, not what is happening in classroom in terms of how students learn and how faculty teach”
- In the last 10 years have been a change within higher education from two sides “from universities that want to think about improving higher education but also funding streams recognising it is an issue in many contexts”:
 - o Universities around the world (including developed and developing countries) have realised “teaching is not effective as it needs to be”. As a result of that there has been a higher interest in understanding what is effective.
 - o Developing agencies avoided for many years to fund higher education as was not cost effective compared with the returns coming from primary education. However, in the last 10-15 years higher education has turned into a critical role for less resources context. Thus, agencies have been started to be involved in funding HE. Examples of those agencies have been DFID.

- **On the context around the SPHEIR project**

- DFID wanted to expand their model of partnerships, not just between universities but also with other actors, through strategic partnerships including private sector, non-profit, schools, hospitals, among others.
- At the beginning of SPHEIR programme, DFID wanted to define innovation. In order to do that they invited different experts to have conversations regarding the definition of innovation. Different experts came with different perspectives as they came from different backgrounds, some closer to industry, others closer to university within developed world. Rebecca, comes from the world of public universities in Africa where the classrooms are very traditional.
- In that context, some definitions were closer to technology, others defined innovation as "things that have not even been tried yet elsewhere", others as "changing what is happening in a university classroom in a way that is quite innovative and revolutionary for the university that we are talking about" (not innovative for others).
- At the end, SPHEIR recognised innovation as all the definitions provided before as "innovation... is one of those things that is a relative term, what is innovative in one context is not in the other". In that context, the range was opened not just to technological innovations, also to innovations that stays in the traditional approach such as update the teaching and curriculum in the way that students can gain new skills.

- **On her definition of innovative pedagogies**

- Rebecca defines innovative pedagogies in higher education context as “thinking about the teaching and learning process in a different way that has been done previously” She mentioned that can have different meanings, from start something from zero to use a traditional format in a different way.

Regarding the 'pedagogical innovations' to be synonymous with 'innovative pedagogies'?

Rebecca agreed pedagogical innovations is the closer approach.

- **On Measurement of innovative pedagogies**

- Different papers measure different things. Innovative pedagogies often look for improving student learning. Which aspect of student learning you are improving depend on the innovation. There is not one single measurement. Rebecca says that student learning is the most used measurement. Depending on the reform other indicators such as employability can be measured.
- Attitude, knowledge and behaviour of faculty is “often the first thing that is detectable” before student learning change.
- When we asked Rebecca how can we know if one innovative pedagogy has been more successful than the other she said “changing faculty attitude would be something comparable. Some measurement of change of attitude/faculty behaviour of what they do in classroom is a useful indicator of whether an innovation have resulted or not...”
- Based on Rebecca experience, when innovative pedagogies do not affect student learning is because the "often faculty believe they are innovating because they are introducing the thing they have asked to introduce.... but have not fundamentally changed how they think the whole practice of teaching”.
- "Teaching is something that is both a technique but it is also an identity.” This is why faculty have to change how they see they role but at the same time the technique, otherwise they would not able to innovate.

- **Further conversations or papers**

Rebecca recommend us her paper "Adapting, Not Adopting: Barriers Affecting Teaching for Critical Thinking at Two Rwandan Universities"

7.1.3 Interview 3: Dr. Tristan McCowan. Professor and Researcher at the Institute of Education (IoE), UCL. (31 July 2018)

- **On the definition of innovative pedagogies**

There seems to be a strong wave of interest in innovation in higher education and more broadly- the notion of innovation has become a buzzword, that has extraordinarily strong support. It is hard to be against innovation- not only is it something new, it is something good- it is necessary for refreshing something. I think we need to be careful with something like innovation, so it just does not become rhetoric. At the end of the day, we should make sure it fits in- in higher education it is almost always associated with technology, and one of my concerns is that people recognise anything technological as being better than it was before. Such efforts also to tend to marginalise any non-technological innovation. I think there is a tremendous amount that needs to be done in universities all across the world that may not involve new technologies- for innovation technological innovations should be implemented not for the sake of the technology itself but to enhance the learning experience of the student and moreover, non-technological innovations should also be considered.

- **On the notion of innovative pedagogies not necessarily providing the correct support, whereby there should be an implication of maybe less technology-focused innovations, which could improve the educational environment**

There are a few examples of this- a big focus of development agencies [in education] today regards affordability. Affordability in trying to extend access to higher education at an increasingly low cost. This unfortunately means a lower quality of education also being brought on. There is thus, a concern about the affordability agenda in higher education. I can give one example which is rather interesting, regarding Kaplu in Rwanda- it is a very interesting initiative, whereby with external support an initiative was provided for students who would not otherwise be able to get into conventional universities in Rwanda. It allows the student to achieve an education through a series of leaps/online loop courses, which is then validated by a university in the U.S. This gets away from the constraints of access in Rwanda but provides a means of creating a more invigorating curricula. But what is interesting in this context is the question of unbundling- a process which higher education in many countries is undergoing- where the constituent elements of higher education are separated out and sold individually to consumers. This means that you do not necessarily need to have the package, that we take to be a university education, including your campus activities, etc. Unbundling fits very closely around 'looping' and that you release knowledge from the confines of a university course. It is an interesting model, but it is a model which has some quite deep problems with what the alternatives are that come from it and if they are necessarily as good as the 'complete' higher education experience. Kaplu in Rwanda is an example of unbundling, because it tries to get rid of all the normal 'entrappings' of a university and rather tries to deliver the same kinds of knowledge through other means- in this case through them doing online loop courses. The issue for me which was interesting however, was that they started to re-bundle. They started realising that the students in question do not necessarily have a very good background or setting to succeed only with the online courses, so then many students were given an IT lab space for them to do their courses in. Then they started realising were travelling a long way to come in to this lab, and not all students had money for transport- so then a student residence was built next to the IT lab. Then they realised the students were struggling a bit to do the online courses on their own, so then tutorial support was provided. Then before you know it, they have come back to a conventional university. What is interesting for me about unbundling is that you start to realise that you cannot unbundle everything, there is a reason for some of the conventions. Sometimes you try to innovate and then you realise, that some of the old elements were quite useful and you can re-introduce them. This [the bundled unbundled experience] now shares the aspect of blended learning and there are some examples of blended learning that provide a good combination. One thing we have done a lot here at our course at the IoE, is to have in place distant learning scholarships for an Erasmus course for students in East Africa. An we have done this on a blended model, so that students spend one term here in London, and then they spend two terms back home- so it allows for them to socialise and meet students and other professors here in London. It has been a really successful model- it would be too expensive to bring the students here for the whole of their studies, but it gives them this opportunity to attain physical interaction with their cohort and gain input from tutors in person.

- **On the topic of UCL's Institute of Education's programme and if students feel they have gained certain qualities of globalisation and internationalisation and what their general student experience is.**

We have never systematically looked at this and traced our graduates by these means. The Commonwealth Scholarship Commission does quite a lot of research on their own students and their own graduates, to understand where they have actually gone to. Here at the IoE we have not done

this systematically, but anecdotally they have achieved applicable skills, which they have applied in future endeavours, and people tend to stick and keep in contact via the formed networks.

- **On the topic of other examples of innovative pedagogies and initiatives.**

Well, I am afraid that the reality is that, most universities continue to have extremely bad pedagogy. And it is just not developing countries in Africa, it is all across the world. There is a huge way to go, even at UCL, there is a huge way to go in creating universities with very rich learning environments. A lot of academics still do not see themselves as teachers, they see themselves as experts in a specific area and teaching is some sort of ‘distraction’. We have a huge way to go globally in creating a suitable teaching environment. Having said, a lot more countries are starting to think about teaching and learning, and for example, in a project we are engaged with in Africa is one on critical thinking. Have you seen something about this regarding critical thinking in Africa countries? On a [side] note, Nigeria are in rhetoric introducing initiatives through pedagogy to achieve critical thinking, but this is not necessarily what we are seeing in practice. The only initiative I know of at a larger scale regards the entrepreneurship courses which have been made throughout the country, that bridge across the universities. There has been a demand from students to have this incorporation of entrepreneurship, however the problem is that the entrepreneurship courses which they run now have really just been talk and passively delivered, and ironically, not empowering or learner-centric. There has been a real deficiency in the actual courses provided. I think there is a big difference between rhetoric and reality.

- **On the topic of developing critical thinking amongst students.**

They are not really critical thinking courses, but what we are looking at is the way in which different types of pedagogies are more or less affecting critical thinking. And to know if this is being achieved, students are first tested coming into the class, and then they are tested again with a similar type of test when they leave the class. This is a large quantitative scaled test and the results are then measured along features of a broad pedagogical landscape, which have produced them whether that be collaborative teamwork or the general environment, with open questioning, for example. We are investigating this across 16-17 universities across different countries- Ghana, Kenya and Botswana. The depressing news regarding internal outcomes we have attained, is that critical thinking scores are relatively low, and they do not increase very rapidly. There are however, some notable exceptions. One example which is an exception is the Ashesi University in Ghana- a small private university in Ghana set up along liberal models. Very, very rich curriculum and very interaction between teachers and students. Students achieve fantastic learning outcomes and they are snapped up by great employers, because the initiatives are very good. The problem is of course that it is a very small institution, and it is a model which cannot be scaled-up or copied at a large scale. It is a very useful example in some ways, but it is not necessarily the best to advocate private, expensive higher education institutions for everybody.

- **On the topic of measuring innovative pedagogies and their innovativeness.**

It is extremely difficult to measure how innovative something is. You can measure how successful an innovation is, if you have clear set criteria. If you know what you want your students to come out with, then you can engage them and see how successful your intervention is. That is

something you could do, as long as you were careful and acknowledged, that there are many other pedagogies students are receiving and not only the ones that they receive in classes. It is tricky to measure how innovative a pedagogy is.

- **Side Note on the contextual environment.**

Moreover, it is important to think about the contextual environment when speaking of innovative pedagogies and the room for them. For example, some settings are very poorly equipped and the learning environment is over-capacitated with students- thus, there is little room to incorporate innovative pedagogies and trial them. There are other reasons for why teaching as a whole is marginalised and disincentivised. Promotion works through research, and through the quantity of teaching (rather than quality), so teachers who take on more teaching jobs will earn more. There is no incentive to teach well, but rather the incentive lies in teaching more. It is important to recognise some of the structural factors, and there are many more as well. A lecturer may out of constraints and disincentives, have to choose how they are teaching.

- **On the purpose of higher education.**

The notion of higher education is to promote human understanding through open-ended enquiry. This a phrase I have taken from Stefan Collini's book 'What are Universities for'. It is about the process of open-ended enquiry, it involves both teaching and learning aspects but also research, as well as the collective pursuit of human understanding. By these means, that is the absolute core of universities. Everything else, such as professional formation, employability, and any other instrumental purpose- comes after this. These are of course very important to people, to students coming in, and to the government, however they are products of this initial core.

- **Thoughts on attaining the input of indigenous people (in the realms of decolonisation toward innovation) into education, especially McCowan's geographical areas of work.**

In the South African case, there has been huge demand of this decolonisation, but which has differed very much from the actual course of action. I at least, am not aware of actual examples of decolonised curricula. There are of course some examples however, the University of Cape Town has for example, have some interesting examples of 'trans-languages', students are allowed to write in whichever language is their home-language, but are also able to transition between different languages. Just on the level by which language is used- there has been some interesting innovation there. The best example for me though, here and in Latin America, is the inter-country universities in Mexico, that have a trajectory of creating a very interesting dialogue between the students, faculty, academics and the indigenous communities. There is a deeper level surrounding challenging rooted disciplines, regarding the courses for example people study at university, but more prominently, it regards what we actually consider to be knowledge and how knowledge is come across. In my studies of Africa I have not come across research or examples of this being manifested at this deeper level. There is all of discussion surrounding Ubuntu, a South African philosophy and a different way of looking at morality, based on the concept of 'I am therefore we are', and is orienting some courses and the pedagogical work of some persons. However, this is the closest I have got to finding these types of integrative examples regarding viewpoints. Yet, there is more examples

of the integration of content, for example at the University of Ashesi, students take a module of African Culture. It is a specific course, and thus, the aspect does not get hidden as it can in other course, for example in engineering, which will have the same content and be taught similarly as in other countries.

- **Works and concepts mentioned by Dr. McCowan**

‘What are Universities for?’ by Stefan Collini; the Ubuntu philosophy

7.1.4 Interview 4: Paz Portales. UNESCO Education expert. (18 July 2018)

- **Purpose of Education department at UNESCO**

The main purpose of the Education department of UNESCO is to contribute to the guarantee of the right of education in all their member states. In order to do that, UNESCO works from different roles: as an idea lab, providing normative assessment, developing and strengthening the global agenda for instance through public policy analysis, strengthening the international collaboration, promoting alliances, fostering intellectual collaboration, etc.

- **UNESCO has worked in projects and documents related with innovative pedagogies:**

- UNESCO is promoting the use of OER (Open educative resources) (See: “Guidelines for Open Educational Resources (OER) in Higher Education”). OER are teaching materials, learning and research with an open license that allow the access, use, re-use and redistribution from a third party, without limits or restrictions. They can include modules, programmes, videos, measurement tools, applications, etc. The idea is that someone that is interested on that can use the resources generated by someone else. This is important for some countries with lower levels of development because they can benefit from the materials development from countries with highest resources.
- UNESCO developed a document regarding MOOC in higher education that shows different innovative teaching strategies in order to facilitate and strengthen the learning of students from different contexts.
- Network of UNESCO chairs: more than 800 chairs for higher education associated with UNESCO values. Some are related with innovative pedagogies, for instance: La Rioja University (online university).
- ICT in Education document: innovative pedagogies at school
- Mobile Learning Week: A yearly event in Paris that shows good results from technological learning for one week. The creators of innovative pedagogies with technologies visit Paris and show the results.
- Document regarding online education for Latin-America.

- **UNESCO understand innovative pedagogies in the context of the principles of the right to education:**

- The state has to guarantee the right to education that means the right to learn. The learning has to be relevant and pertinent in order to contribute citizens to develop their life projects and can contribute to the development of their countries. The state must ensure the availability of schools, teachers and educational resources; must ensure access to them in conditions of equal opportunities; must ensure the quality of these

resources so that they achieve the goal of generating relevant learning; and must ensure the relevance of these resources so that they respond to national and local needs.

- ICT and communication, as well as other innovative tools that foster learning must be available and accessible to all, and that is why they are part of the right to education.
- Innovation in pedagogy is to do something differently that achieves the goal of improving learning and thus advancing in the guarantee of the right to education. In other words, it is innovating in the way of teaching to improve learning. If a citizen does not learn, his right to education is being violated.
- **Regarding the role of technology in innovative pedagogies:**
 - Paz Portales says technology is very powerful as a tool for pedagogical innovation, but it is not the only one. By itself, technology does not imply relevant and relevant learning.
 - Technology is a tool to improve learning, but it is not an end in itself.
 - It is well known there is a global learning crisis, that has partly pushed the use of ICTs. But ICTs are tools that, used pedagogically, can contribute to innovate and improve learning, but they are not the only ones.
 - Example in which technology does not necessarily involve learning: Example of Uruguay where 1 computer was given to each student with the aim of reducing the social / digital gap, an objective that was achieved. But access to technology does not mean improve learning. In later stages, the CEIBAL plan has proposed the pedagogical use of technology and has made progress in that regard.
 - Example in which technology does involve learning: Tests in the online classroom, immediate feedback and comparison to see student evolution as an example of using technology as a tool to improve learning.
- **Examples of innovative pedagogies (without necessarily using technology):**
 - Innovate in the curriculum, for instance how to encourage soft skills
 - Pedagogies that promote education for world citizenship
 - Rethinking how to transmit content
 - In teacher training, innovate in the curriculum:
 - On how to train teachers in their disciplines
 - On how to train teachers in pedagogical strategies, that is, on how to teach
 - In how to train teachers to understand and address the diversity of students, understand the different needs and forms of learning, generate moral authority, have the ability to "communicate" demanding curricula to students who learn in different ways
- **Changes at university level**

Paz comments that initiatives to foster innovative pedagogies at the tertiary level depend more on universities and teachers than on centralized measures at the educational system level, as in the case of the school system. Tertiary students bring diverse training trajectories and to a large extent have been exposed to technology before their participation in higher education. That makes technology for them an indispensable tool and of intensive use (they are digital natives), regardless of whether the university consider it a pedagogical innovation or not. The university has the challenge of innovating with ICT, but also with other technologies and other ways of setting up careers that are attractive to the citizens of the 21st century. Maybe rethink their careers in light of the needs of these students who demand more and more skills in permanent change and transformation. Universities are forming today for careers that do not yet exist and therefore must be thought of dynamically, flexibly, openly.

These challenges require and involve innovations for the tertiary level.

- **Regarding how to measure the success of an innovative pedagogy:**

- Innovative pedagogy succeeds when it improves learning outcomes.
- Paz comments that currently standardized tests are the closest way to measure the success of a pedagogy. However, it is necessary to measure the other learnings and skills that are required in the 21st century. Another way to measure the success of innovative pedagogies is through classroom assessments. International organizations that conduct standardized tests such as UNESCO, the OECD and others are developing assessment tools to address the other (non-disciplinary) learning. The purpose is to have feedback that allows teachers and decision makers to learn from what helps and does not help learning and take innovative measures to break the gaps in learning, skills, knowledge, skills, etc.

7.1.5 Interview 5: David Vásquez. National Programs and Strategies to Increase Youth Employability, Plan International - Ecuador. (01 August 2018)

- **Regarding the definition of innovative pedagogies:** Innovative pedagogies is a process in which all actors involved in the learning process are constantly developing concrete actions to renew this process according to today's needs. It involves improvement of current practices and the generation of new ones. In the case of students and teachers, both reflect on their strengths and identify areas of improvement and opportunity, they reach out to peers and look for potential content overlap and connections, and they identify and learn new ways to approach and solve problems.
- **Regarding the definition of innovative pedagogies, specifically for developing countries:** In the case of Ecuador, the definition would include the Ministry of Education and the Secretary for Higher Education as main actors in the innovation process, and it would examine their role (supporters / obstacles). The new definition would take into account their role in capacity-building of teachers, definition of contents and the skills on demand, any kind of support to research.
- **Regarding the 'pedagogical innovations' to be synonymous with 'innovative pedagogies?'** I consider Innovative Pedagogies more comprehensive, as I see Pedagogy as a group of educational practices that are articulated, have sense together, and can change towards innovation. Whereas pedagogical innovations relate to specific changes in some of those educational practices, within a common pedagogical process.
- **Regarding further recommendations, sources, things we should keep in mind during our research.** I noticed in your framework that you do not have a specific emphasis in the assessment aspect. By finding innovations in the way you measure success in students, professors and universities, you can create a ripple effect in the final outcomes. Exams and rankings are not the only, nor the most successful way to measure if education is good. You should put greater emphasis in that aspect.

As for innovations in the curriculum, keep in mind the bigger challenge does not rely on how to adapt the content to industry needs, but how to adapt pedagogies to the new topics, ways of thinking and ways of acting per industry needs. In developing countries, innovations tend to fail because they may not take into consideration behavioural traits or social norms that hinder students, professors and institutions to have a proper adaptation and culmination to the bigger result. To tackle this issue, I encourage to explore two methodologies that can be embedded into higher education pedagogy innovations. The first one is *growth mindset* by Dr. Carol Dwek (See Box 2) and the second one is *Grit* by Dr. Angela Duckworth (See Box 3). Although they tackle very different, but very relevant issues, they both conclude that resilience is the ultimate objective to achieve a hard objective.

Box 2: Growth Mindset (Dwek, 2006)

The opposite of a growth mindset is a fixed mindset. In the later, “people believe their basic qualities, like their intelligence or talent, are simply fixed traits. They spend their time documenting their intelligence or talent instead of developing them. They also believe that talent alone creates success—without effort” (EducationWorld, 2018). In contrast, people with a growth mindset “believe that their most basic abilities can be developed through dedication and hard work—brains and talent are just the starting point. This view creates a love of learning and a resilience that is essential for great accomplishment” (EducationWorld, 2018).

Box 3: Grit (Duckworth et al., 2007)

Dr. Duckworth “describes grit as having two elements – passion and perseverance. Passion is defined not as the intensity of one’s interest, but rather the consistency of that interest over very long periods of time – years, decades or even a lifetime. Perseverance on the other hand, relates to the tenacity with which we approach our goals – the ability to carry on through times of frustration, boredom, ambiguity and pain”. There are four steps to cultivate grit (O’Reilly et.al. 2016):

1. *Discover and develop your personal interests*
2. *Exercise deliberative practice: be better than yesterday*
 - i. *Set a stretch goal*
 - ii. *Focus*
 - iii. *Seek feedback*
 - iv. *Reflect and refine*
3. *Find your purpose*
4. *Hope: to understand not everything is under your control.*

To finalise, I would recommend you read:

- Top 50 cases of effective innovations in education (Inter-American Development Bank, 2017).
- Teachers as Designers of Learning Environments -The Importance of Innovative Pedagogies (Paniagua et.al. 2018)
- Map of education innovations (SUMMA, 2018)
- IPPL: Innovative Pedagogies for Powerful Learning (OECD, 2018a)

7.1.6 Interview 6: Dr. Javier Tourón⁷. Innovation and Education Development Vice-rector at La Rioja University -Online University. (27 July 2018)

- **Regarding innovative pedagogies definition**

If we analyse separately the two terms, pedagogy and innovation, we can focus on several specific aspects of each one and then see it together. In one hand, the pedagogy aims to study education, and education is aimed at improvement, personal and academic development through intentional actions of educators, which are usually established in educational programs. The pedagogy is the science that studies the methodologies or techniques in order to carried out the education and that can be valued in some results. In the other hand, the concept of innovation is understood as something new, something unique but not a simple change or a novelty, it is something that reach desirable objectives. It is a new contribution that seeks to solve a problem or need. It is a different way of working or a contribution of human or material resources, organizational processes, etc. that foster the achievement of some objectives.

In summary, if we join both concepts, innovative pedagogies, would imply the contribution of a novelty, in the process or methodological, human or material resources to develop a quality higher education. An innovative pedagogy will have academic objectives and the development of professional competences as purpose. In any case, it should always be subject to an evaluation and review of the processes or novelties, making an evaluation of both the results and the process.

- **Regarding innovative pedagogies definition in the context of Higher Education in developing countries.**

The definition would not change. The previous analysis applied for higher education and for other educational systems.

- **Regarding measurement of innovative pedagogies**

First, it should keep in mind the objective pursued, the needs or problems that want to be solved. Then, assess whether these results have been achieved. For this, it is essential to analyse the development, intermediate results or the incorporation of elements that were not contemplated at the beginning: If it is met in time, lags or flexibility, partial efficiency, the satisfaction of those involved, working environment, consistency in the institution. And finally, evaluate the effectiveness, efficiency, efficacy, satisfaction and impact.

- **Examples of innovative pedagogies in developing countries**

Specifically, in Spain there are several groups working on this area. An interesting example is that of Professor Alfredo Prieto at the University of Alcalá. It could be interesting to connect with and see so blog: <http://profesor3punto0.blogspot.com/?m=1>
Also in Unir we have a lot of activity in the group of Active Methodologies and Mastery Learning (<http://gruposinvestigacion.unir.net/maml/>)
We must also mention the intense activity of iTED (<http://research.unir.net/ited/>)

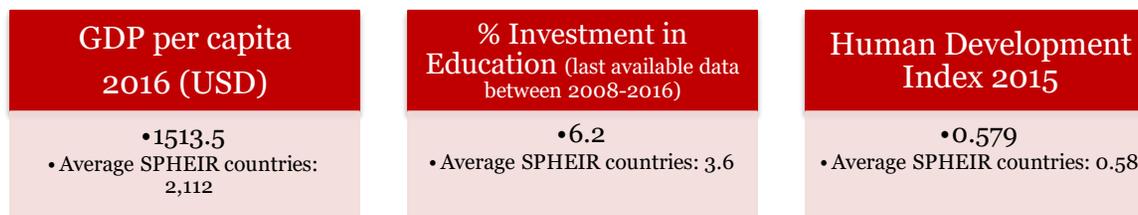
⁷ The information presented for this expert was obtained via e-mail

7.2. Research Framework Applied to SPHEIR Countries

Interpreting the Country Research

Sections 7.2 and 7.3 delve deeper into the investigations of innovative pedagogies in the selected countries. At the top of each country study, a series of three boxes provide information regarding GDP per capita (2016 USD), % investment in education and the human development index score for the country in 2015. Following these boxes, an analysis of the higher education context aims to explain the tertiary education context in the selected countries, including but not limited to: government policy, historical events, previous experiences with pedagogical change among other topics. Next, the pedagogical innovations section provides a synopsis of the case studies examined for each country, typically (but not always) including information such as what university / -ies took part and significant collaborators. The first table provides the baseline context for higher education in that country, in accordance with the University of Illinois framework. It is important to note that, in some cases, what is observed at the institutional level correlates strongly with what is observed at the classroom level; therefore, variation may be limited in some of the country analyses. Additionally, for some countries there was information lacking regarding certain aspects of the dimensions or models. The second table provides information on the identified pedagogical innovations, in a hybridised and simplified version of the UoI framework. In some instances where detailed case studies were not available, the only examples are “Other Examples of Innovative Pedagogies,” which are instances of

7.2.1 Ghana



Higher Education Context

Ghana’s institutional landscape is from a general perspective, copious in number. In 2012, there were 9 Public Universities, 6 Public Professional Colleges, 54 Private Universities, 10 Polytechnics and one regionally owned university. The first public university, the University of Ghana, Legon, was established in 1948 (Jowi et al.2013.). The country’s development agenda are fed by the joint efforts of these institutions’ research and innovation (Jowi et al.2013.). The Education Sector Performance Report (ESPR, 2013) indicates “that education in Ghana is mainly financed by the Ministry of Education (72% in 2008), the GET Fund (9.5% in 2008), internally generated funds by institutions (9% in 2008) and multilateral and bilateral donors (9.5% in 2008).” Education expenditure constituted 25.8% of the total expenditure of the Government of Ghana in 2011, which also was its largest area of expenditure (Jowi et al. 2013.). “However, a large segment of the educational expenditure goes to primary and secondary education and over 90% of this budget goes towards salaries or operational costs, and not research” (Jowi et al., 2013.).

There are two major challenges Ghana faces regarding higher education: capacity and its relevance. Regarding the capacity issue, it is estimated that between 1983 and 1996, the total enrolment in higher education grew 162% (Ntim, 2015). Though Ghana came on par with the wider African continent (11.6%) in terms of its gross enrolment “in higher education which rose from 8.4% in 2008 to 12.2% in 2012, it falls below the average of lower-middle-income countries (22.9%)” (Guerrero, 2014). An example is seen at the University of Ghana. Even though it is the largest university in the country, it cannot provide residential status to more than half of their student population. Moreover, lecturers often have to cater to more than 1,000 students in their courses negatively impacting the quality of education, and due to poor working conditions, the best talents become professors abroad (Ntim, 2015). A mismatch between massive student intake and dwindling number of academic staff and a poor infrastructure has contributed to undermining the core values of what universities stand for: pedagogical quality, equity and effective student assessment (Ntim, 2015).

Regarding the relevance issues, the 2011 UNCTAD8 Review on Science, Technology, and Innovation Policy concluded that the “coverage and technical content of education does not respond to investors’ requirements”. Due to insufficient collaboration between higher education institutions and the private sector, Ghana’s higher education policies have been reported as not modernized or aligned to economic or human development goals (UNCTAD, 2011).

The recently adopted national science and technology education policy 2017-2020 strongly advises an upgrade to the science and engineering content in the academic curriculum (MESTI, 2017). However, it does not have any emphasis of the pedagogical reforms needed in order for this focus to be successful. Other educational reforms exist, but they are mostly focused on governance and budget.

Pedagogical Innovations

Case study 1: Assessing the effectiveness of distance education in Ghana: A multi-site case study (Kpinpuo, 2018) complemented with **The Growing of Online Education in Sub Saharan Africa: Case Study Ghana** (Kotoua, S., et. al. 2015)

The purpose of this research project was to evaluate four public university-operated distance education programs in Ghana (DEP1, DEP2, DEP3, and DEP4) to determine: level of accessibility, affordability, and equitable distribution of their services. The main findings included:

- i. A face value assessment of annual enrolments for DEP1, DEP2, DEP3, and DEP4 suggested that, collectively, the distance education programs have increased access to university education in Ghana from 33% to 62%. Distance learning contributed 58% of the total number of new admissions and applicants who failed to gain access to university education dropped drastically from 63% to only 13%.
- ii. Distance education has brought much financial relief to government and public university administrators, but apparently not to the distance learner. The case study presents concrete examples on how this form of pedagogy has become known as the “World Bank” of their host universities where only the degree distance learner who is yet to be relieved financially. While program records suggested that distance learners paid a bit less than the traditional student, the student survey provided evidence to the contrary. When travel expenses and hotel charges were factored into the cost incurred by the distance learner, distance education for degree programs was found to be a lot more unaffordable, especially for the degree programs. This was confirmed by 78% of survey participants when they indicated that the fees they paid were either high or too high.
- iii. Although the Ghanaian DEPs have contributed considerably to increased enrolments in higher education in the country, the challenges that they face have rendered them quite ineffective in the pursuit of the three stated objectives.

- a. *Success factors*: Commitment from all parties involved, decentralized services, affordable non-degree programs, high-enrolment of non-degree programs and self-funding programs.
 - b. *Challenging factors*: Limited access for degree seeking distance learners, Inequitable distribution of access, unaffordable fees for degree programs, absence of the use of appropriate technology, unsatisfactory completion rates, limited number of rented LCs, inadequate personnel with training in non-traditional delivery systems.
- iv. This evaluative study has revealed that the implementation of distance education in Ghana has only been 25% successful. The challenges listed above accounted for the program's 75% failure. To improve the system, the study recommends to (a) implement program planning and development, (b) prioritizing affordability (c) Setting S.M.A.R.T. objectives and (d) adopting non-traditional activities.

Case study 2: Pedagogical Reflections on a Blended Learning Environment in Ghanaian Universities

From: Gyamfi, 2014

Due to the large class sizes in most tertiary institutions, communication skills, one of major skills that employers in Ghana look out for in the tertiary graduate has been affected due to the way the course is taught in tertiary institutions. In the attempts to increase ICT tools to make education more accessible and less crowded, there are concerns on how to address the development of soft-skills such as communication skills.

The study thus, examines how the use of blended learning environment could facilitate the effectiveness of the teaching and learning of communication skills from the perspectives of both students and lecturers. The term, blended learning therefore is the description of the effort to bring the best sides of the face-to-face and ICT-mediated teaching and learning environments together. There are four different concepts of blended learning, excerpted below from Driscoll (2002):

- i. The “combination mix modes of Web-based technology such as live virtual classroom, self-paced instruction, collaborative learning, streaming video, audio, and text to accomplish an educational goal” (Driscoll, 2002)
- ii. The “combination of different pedagogical approaches for example, constructivism, behaviourism, cognitivism to achieve optimum learning outcome with or without instructional technology” (Driscoll, 2002)
- iii. The “combination of various instructional technology such as videotape, CD-ROM, Web-based training, film” with the traditional face-to-face instructor led teaching and learning (Driscoll, 2002)
- iv. The combination of “instructional technology with actual job tasks to harmonize learning and working” (Driscoll, 2002)

Ghana	Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	Classroom based learning Strong focus on distance learning via ICTs (online classrooms)	Verbal communication accompanied by written materials (i.e. textbooks, handouts, blackboard)	Teacher remains leader of classroom and exerts power over students in the learning space	Students maintain a 'learner' identity, by which their external experience are given little attention in the learning space	Teacher controls the learning environment and are the sole actors in the classroom or laboratory, turning the students into theatre spectators.	Material is learned primarily through memorisation and recitation	Pedagogy is based on the core purpose of teaching, learning and assessment. Learning is assessed through exams and other forms of topical knowledge inquiry	Purpose of H.Ed by Dr. Kwame Nkrumah: "Our whole educational system must be geared to producing a scientifically minded people"	X		
Classroom	Crowded lecture halls (~50-1000 students) ICTs infrastructure is not enough, old equipment or non-existent	Students just listened in silence, looked at the overhead projector screen or chalkboard and took some notes while the lecturers spoke.	Teacher remains leader of classroom and exerts power over students in the learning space	Straight lectures do not stimulate do they facilitate student connections with their society and economy. This is a major contribution to unemployment	Students have no opportunities to ask questions, discuss, critique, problem solve or challenge what they are being taught.	Lecturers do pose questions, but they consciously answered them without giving the students opportunities to offer their own perspectives.	Straight lectures do not stimulate intellectual curiosity and creative development.	To be as inclusive as possible, to facilitate poverty alleviation and promote rapid social and economic growth	X		

				/entrepreneurial rates							
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Sources: (Ntim, 2015) ; (Ng'ethe et al., 2003).

Innovative Pedagogy Case Studies					
Ghana	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Assessing the effectiveness of distance education in Ghana: A multi-site case study</p> <p>(Kpinpuo, 2018)</p> <p>Complemented with case study of Kotoua, S., et. al. 2015</p>	<p>Dimensions Covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Pedagogical <p>Type of innovation</p> <ol style="list-style-type: none"> 1. Blended learning 2. Computational thinking 	<p>The working class can further their studies to access promotions or better salaries while working. It enables parental flexibility for students with young children. It opens opportunity for people who live far away from campus who cannot travel.</p> <p>Cost efficiency in transportation from students and professors and facilities infrastructure of universities.</p>	<p>Preference for traditional systems rather than e-education which lacks to low enrolment or drop-out</p> <p>Lack ICT infrastructure.</p> <p>Universities unsustainably rely on foreign donors</p> <p>Lack of qualified professors and their working conditions are always a subject of strike.</p>	<p>Students with time or mobility restrictions (such as fulltime jobs, parenthood, living away or mobility disabilities) did not had any option to receive higher education and tuitions costs were exceptionally high.</p> <p>The higher education model is highly traditional, inside four walls, with very crowded rooms and poor infrastructure. The government also do not have the financial capacity to build more universities from scratch.</p>	<p>The program failed 75% in achieving its objectives. Although it is more cost efficient, the benefits are for the government and institutions. The students do not see this.</p> <p>Enrolment to education did increased, however, quality and equity were difficult to measure in proving a significant progress.</p>

<p>Pedagogical Reflections on a Blended Learning Environment in Ghanaian Universities</p> <p>From: Gyamfi, 2014</p>	<p>Dimensions Covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Discourse 3. Intersubjective 4. Pedagogical <p>Type of innovation</p> <ol style="list-style-type: none"> 1. Multi-critical literacies 2. Blended learning 	<p>Students had a significant improvement in all the four communication areas evaluated. By being able to use their own existing equipment while still having access to the professors, the ubiquity of learning facilitated the achievements of the pedagogical goals of the course.</p>	<p>Only one soft-skill was studied: Communication. With the adoption of the blended learning environment as an innovative tool for the improvement of student performance, there should be further study into the impact of blended learning environment in other subject areas in the universities to further enhance the validity of the findings from this research.</p>	<p>With 100% physical classes: Many students left out of school due to capacity constraints or receiving classes in extremely crowded spaces</p> <p>With 100% e-learning classes: Many students failing classes and/or not developing the soft skills needed to thrive in their lives post-graduation. They did not</p>	<p>In a blended environment: bring the best sides of the face-to-face and ICT-mediated teaching and learning environments together. It provides systemic changes in four main dimensions:</p> <p>Pedagogical dimensions Learning dimension Role dimension Locus dimension</p>
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Other Examples of Innovative Pedagogies	
<p>Mathematics Teacher Training.</p> <p>From: Clay, 2016 and AIMS, 2015</p>	<p>Excerpted from Clay, 2016 and AIMS, 2015:</p> <p>“The African Institute for Mathematical Sciences (AIMS) is a pan-African network of centres of excellence enabling Africa’s talented students to become innovators driving the continent’s scientific, educational and economic self-sufficiency. Although it has many lines of actions to achieve this purpose, one in specific involves innovative pedagogies: The Mathematics Teacher Training AIMS is committed to building the pipeline of students progressing to secondary and tertiary mathematics and science education, and to decrease the failure and drop-out rate of mathematics students at all levels. Through innovative pedagogical approaches, the use of technology, and continually updated curricula, AIMS is focusing on strengthening the mathematics teacher capacity and reaching as many students in Africa as possible.”</p> <p>“In Ghana, it was a 5-day residential course where 50 teachers the Kwahu Afram Plains North District gathered to work on mathematics together from 8am to 8pm. Learning is centred on guided discovery, with an emphasis on understanding, mathematical thinking, discussion, collaborative learning, and challenges - rather than just mechanical practice. Learning how to learn and to take responsibility for one’s own learning is stressed throughout the courses. Unfortunately, no case studies have been conducted to measure the successes and learning of the trainings.”</p>
<p>Other case studies</p>	<p>Case study 4: Implementation of e-Learning in Ghanaian Tertiary Institutions (A Case Study of KNUST) (Marfo, 2010)</p> <p>Case study 5: Transforming Teaching and Learning at University of Ghana through Community Service-Learning: Listening to the Voices of Students (Tagoe, 2014)</p> <p>Case study 6: Improving educational quality and learning outcomes in Ghana: Evidence from three randomized control trials (SREE, 2018)</p> <p>Case study 7: The Fast-track Transformational Teacher Training (FTTT) Program (SREE, 2018)</p>

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7.2.2. Jordan



Higher Education Context

Unlike many developing countries in which SPHEIR is active, Jordan is not operating from an area of a new, severely underdeveloped higher education sector. Though it certainly is not competitive with many western institutions, the Jordanian higher education sector is well-developed for the region. Additionally, the nation's higher education sector has been the recipient of numerous international financial loans and partnerships geared towards increasing the efficacy, efficiency and relevance of Jordanian higher education institutes. Nevertheless, Jordanian higher education institutions continue to be plagued by issues of quality and efficiency; employers have consistently cited the low technical skills of graduates and overly-theoretical nature of university education that continue to make foreign-educated labourers more attractive alternatives (World Bank Group, 2011). Many international reports blame the low computer literacy rates of instructors as well as the limited ICT adoption of many public universities for the low skill development of Jordanian graduates (Tubaishat et al., 2006).

The government has consistently identified higher education improvement as paramount for national development, though the nearly-annual plans and strategic revisions hint at the government's uncertainty regarding the sector's role in the development process ([UNESCO, 2017](#); [Mahafzah, 2017](#)). The dynamic nature of education planning in Jordan alludes to the government's dedication towards improving the higher education landscape in Jordan, often with the help of international organisations (Tubaishat et al., 2006). Most recently, the Ministry of Education (MoE), in collaboration with UNESCO and the International Institute for Education Planning, has developed the Education Strategic Plan (ESP) 2018-2022, alongside the National Human Resources Development Strategy (NHRDS) 2016-2025, in an effort to develop the nation's knowledge economy base ([UNESCO, 2017](#)). Regarding higher education specifically, these plans include establishing a unified admissions process, modernising the Tawjihi (the university entrance exam), modernising university curricula, strengthen governance and upgrading ICT infrastructure (Economic Policy Council, 2018).

Issues persist, however, in the environment in which higher education operates that make pedagogical reforms difficult. Perhaps most significant is an underperforming economy and uncertain labour market statistics that make it difficult for universities to innovate their curriculum towards more efficient academic programmes ([Mahafzah, 2017](#)). Subsequently, the pedagogical approach within Jordan has remained rather traditional. Though there are curriculum reforms in progress, the system is still, at its core, based on the instructor being the central transmitter of information within the classroom ([Badran, 2014](#)). The current pedagogical approach is also considered to be overly theoretical and lacking in applicability – with many

students majoring in education, humanities and non-technical fields far in excess of what the labour market commands, the ‘typical’ Jordanian degree is not considered to be in alignment with industry demands (World Bank Group, 2016; World Bank Group, 2011).

Pedagogical Innovations

Case Study 1: Matching Programme Curricula with Industry Needs

From: Gharaibeh et al., 2014

In recognition of the mismatch between industry needs and programme curricula, Gharaibeh et al. restructured the Masters Programme in Telecommunications Management at Yarmouk University, in close consultation with industry practitioners. Involved in the project was Yarmouk University (Jordan), German Jordanian University (Jordan), Dublin City University (Ireland), Hashemite University (Jordan) and Universidad Politécnica de Valencia (Spain). A house of quality (HOQ) approach was utilised to prioritise the responses from industry practitioners as what was most pertinent for the curricula, which was then compared with what was most important for professors. While there were disagreements between what industry practitioners identified as necessary and what professors determined to be most important, a well-rounded practice-based curriculum was developed that, hopefully, will better enable master’s students to find employment in telecommunications.

Case Study 2: Integrating ICT into Classroom Learning

From: Tubaishat et al., 2006

ICTs were integrated into learning processes at the University of Science and Technology (JUST) in Jordan and Zayed University in the UAE. The implementation of ICTs aimed to increase student motivation and confidence and better enable them to take part in the learning experience. Similarly, in both contexts, but particularly in Jordan, close the gender-equality gap in classroom engagement and representation was imperative. Increasing students’ comfortability with ICTs was also an aim of the project. By incorporating ICTs, researchers believed this would ‘level the playing field’ and enable those students who are typically less engaged in the classroom to speak up and offer their insights. Results indicate this was very much so the case as students, particularly women, felt more able to voice their opinions; furthermore, most students reported an increased comfortability with ICTs.

Jordan	Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	Classroom-based learning	Verbal communication accompanied by written materials (i.e. textbooks, handouts, blackboard)	Teacher remains leader of classroom and exerts power over students in the learning space	Students maintain a 'learner' identity, by which their external experience is given little attention in the learning space	Teacher controls the learning environment and decide how class time is spent	Material is learned primarily through memorisation and recitation	Learning is assessed through exams and other forms of topical knowledge inquiry		X		
Classroom	Crowded lecture halls	Verbal communication accompanied by written materials (i.e. textbooks, handouts, blackboard)	Teacher remains leader of classroom and exerts power over students in the learning space	Students maintain a 'learner' identity, by which their external experience are given little attention in the learning space	Teacher controls the learning environment and decide how class time is spent	Material is learned primarily through memorisation and recitation	Learning is assessed through exams and other forms of topical knowledge inquiry	The curriculum is to provide a base foundation that enables students to enter the labour market	X		

Sources: Tubaishat, A., Bhatti, A. and El-Qawasmeh, E. (2006); World Bank Group (2011); and Badran, A. (2014).

Jordan	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Matching Programme Curricula with Industry Needs</p> <p>From: Gharaibeh et al., 2014</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Epistemological 2. Pedagogical <p>Type of innovations</p> <ol style="list-style-type: none"> 1. Experiential learning 	<p>After surveying field workers, programme directors were able to design curriculum to match the stated needs of the telecoms industry.</p>	<p>Many professors in the programme still believe certain topics and subjects bear relevance to the industry, though industry practitioners did not identify them as necessary. This created conflict in designing the curriculum where sacrifices had to be made for the sake of appeasing university administration.</p>	<p>The old, didactic model based on rote learning and memorisation shifted to a partially authentic model through the inclusion of practical experiences.</p> <p>However, teaching styles were not necessarily modified to facilitate a categorical shift from didactic to authentic.</p>	<p>Students are provided with an idea of industry needs as well as a sense of security in choosing a career path as they know their programme is responsive to industry.</p>
<p>Integrating ICT into Classroom Learning</p> <p>From: Tubaishat et al., 2006</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Discourse 2. Epistemological 3. Pedagogical <p>Type of innovations</p> <ol style="list-style-type: none"> 1. Computational thinking 	<p>Students were able to increase their ICT literacy, which is a skill that Jordanian industries have identified as imperative for future growth. 60% of students agreed that the incorporation of online learning improved their technical skills.</p> <p>Students are exposed to new computer software.</p> <p>75% of students agreed that using ICT made them more confident in expressing their ideas and opinions.</p>	<p>Students still had difficulties accessing materials away from university.</p> <p>A majority of students did not utilise emails to communicate with professors, which limited the ability of students to receive help when necessary.</p>	<p>Old model was didactic, based on rote learning and memorisation.</p>	<p>Students were able to increase their ICT skills and knowledge base to make them more marketable to future employers.</p> <p>Female students felt more confident in participating in classroom activities</p>

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7.2.3. Kenya

GDP per capita 2016 (USD)	% Investment in Education (last available data between 2008-2016)	Human Development Index 2015
1,455.4 Average SPHEIR countries: 2,112	5.3 Average SPHEIR countries: 3.6	0.555 Average SPHEIR countries: 0.58

Source: World Bank, 2018; UNDP, 2018

Higher Education Context

Kenya has been part of the several developing countries that has expanded their higher education enrolments more rapid that its quality due the late development of education sector (McCowan, 2018). For instance, the University of Nairobi, the first university in Kenya, have had a tremendous growth in the XXI (Republic of Kenya, 2015-2017 cited by McCowan 2018; McCowan, 2018). Also, private institutions have increased, reaching 20, through the strategy to target elite students without enough qualifications (McCowan, 2018; Syombua, 2012). Similarly, public institutions have grown due to several technical centres turning into universities, reaching 31 (Kenet, 2018 McCowan, 2018). Even if the supply side has increased, this unprecedented grow in the demand has resulted in students without other choice than enter to universities in other countries (Ministry of Education, Science and Technology, Republic of Kenya, 2018; Barasa, 2017).

In addition, Kenyan universities after their independence, were asked to contribute to the development of its nation (Yesefu, 1973, cited by Chege, 2015), a mission that has not been accomplished yet due to a lack of clear vision (Aina, 2010 cited by Chege, 2015). At the same time, higher education system shows many challenges: 1) the amount of resources is not even meeting the minimum requirements (McCowan, 2018); 2) There is a lack of infrastructure and equipment, lack of academic staff and engagement and inequality (Voeller, 2017; McCowan, 2018); 3) The demand of jobs is bigger than the supply (Wanzala et al., 2016); 4) There is a mismatching between labour market and curriculums (Wanzala et al., 2016).

The current traditional pedagogies consider in average one lecturer per 70 students but it can reach more than one lecturer per 1.000 generating the impossibility of one on one interaction and a huge disengagement from students (Chege, 2015; McCowan, 2018; Mbogho, 2017). The teaching style is dictation of non-updated notes with big workload for the students avoiding critical thinking and knowledge ownership (Mbogho, 2017; Chege, 2015; Freire, 1993 cited by Chege, 2015). Another problem in Kenya is the lack of pedagogical culture and the aversion to change among the staff (McCowan, 2018). Also, corruption is an important problem within universities as some degrees are sold for certain institutions (McCowan, 2018).

Kenya is still facing many challenges towards Education. However, it presented the Vision 2030 document that prioritise higher education at national level, especially for innovation, skills and technology (Chege, 2015; Republic of Kenya, 2007 cited by McCowan, 2018). Also, higher education institutions have answered to the increase of demand changing some pedagogies, for instance moving from a face-to-face methodology to a more digital one such as e-learning (Barasa, 2017). Also, there are other stakeholders such as centres of excellence that are supporting quality in higher education. (McCowan, 2018). However, there is still a lack of research to say those changes have produced a positive result (Barasa, 2017).

Pedagogical Innovations

Case Study 1:

Developing and implementing a Paediatric Emergency Care Curriculum for Providers at district level Hospitals in sub-Saharan Africa: A Case study in Kenya (Fant et al.,2017)

The following case study focus in the design and implementation of a new curriculum in paediatric Emergency medicine (EM) of a new residency programme at Maseno University in Kenya in partnership with the Massachusetts General Hospital Centre for Global Health and Humans Rights. The reason why because the creation of this curriculum is to solve the lack of physicians and clinical officers (the professionals that assist a child when arrives at hospital) with formal training in the topic, considering the high rates of children mortality in Kenya.

The curriculum was piloted in 2015-2016 between 3 physicians in residence programme and 4 clinical officers. The topics were designed based on literature reviewed and panels with stakeholders and experts. The curriculum included didactic lectures with case-based discussions and hands-on medical simulation under the scenario of limited resources in rural areas. A shipping container at Hospital was used instead of a traditional classroom. After each module, mutual face to face and written feedback was considered from participants and facilitators. The results show a unique curriculum for Sub-Saharan Africa can be implemented. The students positively valued the content, highlighting the use of feedback and the methods used as a better way of learning. Element to improve was the high amount of lecture time. As limitations, the case study is very context-base with a small sample, limiting its replicability in contexts outside Sub-Saharan Africa. Also, the pilot did not measure whether the students learned the contents.

Case Study 2:

Status of e-Learning Quality in Kenya: Case of Jomo Kenyatta University of Agriculture and Technology Postgraduate Students (Hadullo et al.,2018)

Most of the higher education institutions in Kenya have started to integrate e-learning modules to their curriculum. However, many of them lack the enough infrastructure in order to ensure good results in their students. In that context, this case study aims to analyse the results of e-learning implementation in Jomo Kenyatta University. The study was conducted in 2016 to 200 participants between postgraduate students, instructors and e-learning director, through a mix of survey methods.

The experience overall is not well evaluated. Students valued the most basic aspects of the e-learning course such as the layout or general course information, but the most critical aspects were poor evaluated. Some of the findings are a lack of administrative backup to answer problems, lack of training and motivation within the staff, lack of interaction between trainers and students, and students themselves, and a low relevance of the content. Interestingly, more than half of participants agreed the university lacks a e-learning culture, policies and the infrastructure to implement the on-line modules. The results of the study match with the original hypothesis of the author. Similar conclusions are shown by Taurus et al. (2015) but adding two more difficulties towards e-learning implementation in Kenyan universities: the bad quality of internet connection and the exigence to the staff to develop their e-learning modules in a short time.

Case Study 3:

Effectiveness of digital technology in teaching of literature in Kenyan universities: A case study of Pwani University (Barasa, 2017)

The 20% of the staff of Pwani University use e-learning as a pedagogy. The study was conducted to understand the effectiveness of the current digital technologies implemented in Pwani University. The methodology included in-depth interviews, focused group discussions and questionnaire for 32 participants from Pwani University among students and staff. The results show that even some of the staff have integrated voluntarily e-learning and even students use digital tools to learn or to socialise, the lack of university policy and lack of training for lecturers negatively affect the effectiveness of those pedagogies.

Case Study 4:

Students' experiences in using Haiku Learning Platform to promote problem-based learning in a blended classroom in Kenya. (Gitonga et al., 2017).

This case study shows the results of the use of Haiku platform, an online social application for the mutual connection between teachers and students in order to learn, communicate or share. The platform was implemented in a blended course in education for 15 PhD students in Kenyatta University in Kenya that has already implemented e-learning. The course was designed in a problem-based learning methodology and provided prior knowledge and tasks in class to the use of the platform. The process in the platform was designed to provide collaboration between groups in a first stage promoting collaborative skills, then to provide the capacity for all the teams to constructively critique between them and communicate different ideas fostering critical thinking, and then to use that insights to add them into a new discussion, fostering problem solving.

The results were very positive. The main outcome is the feeling of ownership and content relevance from the PhD. students. The students evaluated well the use of problem-based learning as they were involved in the process of the problem solving. Also, they were interested to see the answers of the other groups regarding their ideas. Some of the problems were related with the use of new technology at the beginning.

Kenya	Kenya Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	Classroom based learning with overcrowded classrooms. Lack of infrastructure	Verbal communication from one professor to many students. No one-on-one interaction	Corruption is part of the higher education system giving to students “power” above the lecturers to buy their degrees	Students and staff are not engaged due large class sizes	Students not encourage to collaborate It is avoided the knowledge ownership of the students	Traditional examination	Lecturers avoid change towards pedagogies Lecturers use the same notes for many years. Big workload for students.	In theory, the purpose of higher education is to support Kenya development. In reality, curriculum mismatch public and private sector necessities	X		
Classroom	Classroom based learning with overcrowded classrooms. E-learning is common in some universities	No one-on-one interaction Some lecturers prefer to just dictate notes. Obsolete equipment	Corruption is part of the higher education system giving to students “power” above the lecturers to buy their degrees.	Students are not encouraged to interact as classes are huge generating disengagement from students. Lack of engagement from staff.	Lecturers decide whether or not implement new pedagogies such as digital ones. Teacher Centred method	Traditional examination	Lecturers avoid change towards pedagogies Some digital pedagogies have been applied.	Some universities lack of a policy and a purpose towards the implementation of new pedagogies.	X		

Source: McCowan (2018); Voeller (2017); Chege (2015), Chege (2013), Mbogho (2017), Wanzala and Kariuki (2016), Barasa (2017)

Kenya	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Developing and implementing a Pediatric emergency Care Curriculum for Providers at district level Hospitals in sub-Saharan Africa: A Case study in Kenya</p> <p>From: Fant et al. (2017)</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Discourse 3. Socio Cultural 4. Epistemological 5. Pedagogical <p>Type of innovation</p> <ol style="list-style-type: none"> 1. Experiential Learning 2. Multi/Critical Literacies 	<p>→ The students well evaluated the verbal and written feedback, hands-on simulation and case examples as well as content.</p> <p>→ It is feasible to implement a postgraduate curriculum towards paediatric EM with this core module.</p> <p>→ It adapts to limited resources, a reality in Kenya</p> <p>→ The curriculum was appropriate for physicians and no physicians</p> <p>→ The classes took place in a shipping container at the Hospital.</p>	<p>Participants were concerned the sessions included a lot of lecture time.</p> <p>The sample was too small and very contextualised so it is replicability to different contexts than Sub-Saharan Africa is limited.</p> <p>The pilot did not measure whether the students learned the contents.</p>	<p>There is no information available to identify the previous model. The new model is an Authentic pedagogy model as it if focused in student experience. It gives more importance to the contribution of students and a deepen the relationship between lecturer and student.</p>	<p>The new model includes didactic lectures, with case examples and hands on simulation as well as interaction between lecturers and students through active feedback.</p>
<p>Status of e-Learning Quality in Kenya: Case of Jomo Kenyatta University of Agriculture and Technology Postgraduate Students</p> <p>From: Hadullo et al., (2018)</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Discourse 3. Social-Cultural <p>Type of innovation</p> <ol style="list-style-type: none"> 1. Computational thinking 	<p>Students like the layout and course information as well as reminders of the courses.</p> <p>Students value the online library as a way of social support</p> <p>Students had a good experience with the use of internet and computers</p>	<p>→ The students were not satisfied with the experience, especially for the feedback provided (was non-constructive) as well as with the structure of the course, also they were concerned for the lack of: relevant material, interactive methods and interaction with classmates and instructors</p> <p>→ The university did not provide administrative support to answer problems.</p> <p>→ Half of the staff was not satisfied with the training in</p>	<p>Didactic pedagogy as was traditional one without e-learning alternatives.</p> <p>The new model stays didactic. Even if the new model incorporates e-learning, the students did not perceive a good overall learning experience.</p> <p>Unfortunately, the lack of funding, culture, policy and infrastructure prevented to have a successful initiative.</p>	<p>The new element of the model is the incorporation of e-learning courses with the use of computer/internet with on-line material and few digital social supports but without the minimum elements required to reach a successful pedagogy.</p>

			<p>LMS nor with incentives provided.</p> <p>→More than half of participants agreed the university lack of policies, culture, infrastructure and funding to implement e-learning.</p>		
<p>Effectiveness of digital technology in teaching of literature in Kenyan universities: A case study of Pwani University</p> <p>From: Barasa, 2017</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Moral 3. Proprietary <p>Type of innovation</p> <ol style="list-style-type: none"> 1. Computational thinking 	<p>Students are familiar with digital technologies as a way of auto-learning in specific subjects and for connection and socialisation reasons.</p>	<p>Pwani University does not have a digital learning policy</p> <p>The staff lack of know-how regarding digital skills and this is something criticised for the students</p> <p>The digital integration in learning and staff is still poor.</p>	<p>Didactic. Modules did not include e-learning as a pedagogy.</p> <p>The new model remains didactic as there are not significant changes generated in learning and teaching process.</p>	<p>The new model just includes e-learning.</p>
<p>Students' experiences in using Haiku Learning Platform to promote problem-based learning in a blended classroom in Kenya.</p> <p>From: Gitonga et al., 2017).</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Socio-cultural 2. Proprietary 3. Architectonic <p>Type of innovation</p> <ol style="list-style-type: none"> 1. Experiential Learning 2. Multi/Critical Literacies 3. Blended Learning 	<p>The PhD. students manifested a feeling of ownership a good satisfaction regarding the content.</p> <p>The students evaluated well the use of problem-based learning</p> <p>Students were interested to see the answers of the other groups regarding their ideas.</p>	<p>Some of the problems were related with the use of new technology at the beginning.</p>	<p>The previous experience incorporated e-learning but there is no enough information to identify the model.</p> <p>The new model is a transformative one as students are integrated as protagonists and leaders of the learning and teaching process</p>	<p>The new model incorporates problem based learning methodology, also it fosters collaboration skills, team work, critical thinking and problem solving. It is a blended pedagogy.</p>

Other Examples of Innovative Pedagogies

<p>Curriculum reform at national level</p>	<p>There are several educational reforms taking place in Kenya. The first one is that universities have to focus in the student's skills rather than in examinations results. In that context, instead of having a national test for university, the enrolment will depend on results of different and continuous tests. Universities will have to incorporate new values such as diversity and respect. Those changes will generate change in the epistemological and socio-cultural dimension if they are effectively applied. Despite the changes, the lecturers are very sceptical that a positive change will be generated, instead they think the quality can be</p>
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7.2.4. Lebanon



Higher Education Context

Lebanon has the oldest universities in its regional area, which share a prestigious status- there are currently 47 higher education institutions operating in Lebanon, of which all except the Lebanese University are private institutions that were founded in the late nineties as the private sector flourished after the civil war between 1975 and 1990 (SPHERE, n.d.). In 1961, the main law regulating private higher education- the Higher Education Act produced by the Ministry of National Education and Fine Arts (MNEaFA)- was passed in Lebanon, and thereby, a Council on Higher Education was established to rightly license new higher education institutions (El-Ghali et al., 2011; [World Bank, 2012](#)). The Ministry of Education and Higher Education (MEHE) is in charge of the management of the higher education sector which is divided into non-vocational higher education and vocational higher education (SPHERE, n.d.). A Strategy for Higher Education was developed in Lebanon in 2007, covering areas such as quality assurance, law regarding higher education public higher education, and structuring the directorate general of higher education and research (SPHERE, n.d.). Furthermore, there is a team of Higher Education Reform Experts (HERE) in place to contribute to the modernisation of higher education in Lebanon ([SPHERE, n.d.](#)). Additionally, in 2017 the Lebanese team collaborated with the Syrian NEO to coach directors and presidents of Syrian higher education institutions regarding pedagogical tools, the Bologna Process and the European Higher Education Area. In the same year, some Lebanese HERE team members also participated in a seminar concerning Qualifications Framework in Jordan, with the Jordanian NEO and Jordanian HERE members ([SPHERE, n.d.](#)).

Enrolment rates into the Lebanese higher education system have increased over the past years, yet this has not been accompanied by required administrative and legislative reforms (Hasrouny, 2011). Yet, Lebanese universities must reform to keep up with the demands of higher education today to meet needs of the global knowledge-based economy and upkeep a comparative standard to other countries in the region, as educational hubs

have developed in the Gulf and countries such as Jordan are implicating measures to transform and renew their higher education systems (Hasrouny, 2011). Moreover, in regard to the surrounding unstable environment brought on by the Syrian civil war there have been tens of thousands of Syrian university students and faculty staff have fled to neighbouring countries such as Lebanon (IIE, 2014)- putting pressure on the higher education system. Other concerns regard the national policy landscape surrounding higher education which has been described as vague, and resulted in weak educational administration in new institutions and lacking rigour in quality assurance and accountability (El-Ghali *et al.*, 2011)- additionally, without a strong coordinating role by the government it has allowed for individual sporadic institutional development. Significantly, research and scientific development in higher education had for long periods been neglected due to war and political instability in the country- which caused brain drain, the lack of investment into research and research infrastructure (El-Ghali *et al.*, 2011). This has hindered transformation to the system and caused difficulty in local people recruitment to engage in work and study there (Hasrouny, 2011). However, as of 2011, El-Ghali *et al.*, reported that there had been initiatives taken toward the enhancement of the Lebanese research sector through the partnership between Lebanese higher education institutions and international institutions and furthermore, Lebanon's overseeing bodies have recognised universities need to be committed to research, as well as to providing an increasing choice in study with taught skills applicable to the employment market.

Pedagogical Innovations

Due to issues expressed in trends for higher education in Lebanon, many institutions have tried to address these through engaging in strategic planning activities (El-Ghali *et al.*, 2011). However, even if espoused, there is a need for effective implementation of the plans in place (El-Ghali *et al.*, 2011).

Case study 1: ProGreen Cross-Country Online Programme

In 2016, Baytiyeh (2017) explored the educational experiences of engineers enrolled in the cross-country joint online ProGreen diploma programme, provided through the collaboration between the American University of Beirut (AUB), the Lebanese American University (LAU) and the American University of Cairo. Launched in 2015, the ProGreen programme is aimed at professionals in the engineering sector who want to gain specialisation in the fields of renewable energy, green buildings and water management (Baytiyeh, 2017). The goal of the ProGreen programme is to expand into numerous countries and institutions in the region and has the aim of providing students with a focused programme to enhance technical and decision-making skills in the given subjects (Baytiyeh, 2017). The programme uses a cloud-based system with Moodle, and as of 2016, 65 engineers were enrolled in the ProGreen programme (Baytiyeh, 2017). Baytiyeh (2017), was able to survey 48 of these who were working engineers, regarding the social, teaching and cognitive presence of the programme- as, as of 2017, regarding the enrolment rates of students in online programmes in the Middle East, there was no data available (Baytiyeh, 2017).

The study revealed that the behaviours which were nurtured and the skills which were acquired through the programme could be classified to belong to the realms of: sense of belonging, self-actualisation, interaction, instructional guidance and self-directedness (Baytityeh, 2017). 29% of surveyed participants “rated their experience in the online programme as poor to satisfactory, 25% rated it as good and 46% rated it as very good to excellent” (Baytiyeh, 2017). The results indicated however, that students formed their own educational community and sense of belonging without instructor influence (Baytityeh, 2017).

Case study 2: Flipped Lectures in Engineering

Teaching styles in Lebanon remain quite traditional- lecture-centred, with a strong focus on theories and memorisation- despite the Lebanese higher education institutions holding a prestigious status in the geographical region (Baytiyeh and Naja, 2016). This type of pedagogical style, has to the most part not facilitated critical thinking and problem-based learning, which flipped lectures try to achieve (Baytiyeh and Naja, 2016). Thus, in 2016 a study was carried out in which a flipped lecture-style model was applied to the Dynamics of Structures module of the engineering programme taught at the Lebanese University to half of the students taking it in one particular term, and the results in assessments compared to a group of students who were taught with the traditional approach, during the same timeframe (Baytiyeh and Naja, 2016). These assessments included 12 quizzes, a midterm and a final exam- and moreover, the students provided feedback of their learning experience at the end.

In the flipped model, students were presented with voiced-over powerpoints which went through the lecture materials- these were uploaded on the professor’s website together with weekly assigned readings and homework problems- all of which were to be reviewed and completed ahead of class (Baytiyeh and Naja, 2016). And in class, students were given quizzes, made to do presentations on the spot, together with participating in group discussions and open class discussions, guided and monitored by the professors (Baytiyeh and Naja, 2016). The results from the assessments and feedback showed that students in the flipped lectures, first performed worse in the assessments, but thereafter improved their scores, once having adapted to the new learning system (Baytiyeh and Naja, 2016). The students having experienced the flipped lectures had however, developed better critical thinking skills in the engineering practice and expressed that the flipped lecture style allowed for autonomy in their learning experience, and the enhancement of their critical thinking and teamwork skills, together with self-confidence (Baytiyeh and Naja, 2016). Limitations to the trialling of the innovative pedagogy toward understanding its implications included the limited number of students enrolled in the course, together with the methodology of collecting data to understand the impact which used open-ended questions and are not enough to generalise findings. (Baytiyeh and Naja, 2016).

Case study 3: The Medical Volunteer Research Programme

The Medical Research Volunteer Programme (MRVP) was established at the American University of Beirut (AUB) in 2013, and targets undergraduate students who are interested in taking on a medical research field and allows them to gain active experience and to learn from experts in the field (Dagher et al., 2016). In the programme students get assigned to researchers and become part of research teams through which they aid and observe

at a volunteer basis (Dagher et al., 2016). The programme is furthermore aimed at developing the higher institution's research initiatives, which are in general not nearly developed enough at a national level, by students gaining research exposure (Dagher et al., 2016). Success of the programme was analysed through information gathered from both students and faculty participants in the programme, as well as satisfaction assessed by Dagher et al. in 2016.

The results from Dagher et al.'s (2016) study showed that out of students surveyed who finished the programme in 2015, approximately 90% of these found the programme effective, rating the programme with a 4 or 5, with 5 being the highest level of effectiveness. Between 2014-2015, no students rated the programme with a 1 or a 2 and between the MRVP round between 2014-2015, faculty rated the programme with a 3 or above (Dagher et al., 2016). However, challenges remain with the programme as there have been fewer registered students for the MRVP programme during the years (Dagher et al., 2016). Moreover, the MRVP has had trouble upgrading its internet portal, sustaining student and faculty commitment, as well as retrieving follow-up feedback from students (Dagher et al., 2016). Also there is a lack of sufficient projects and registered faculty members, which leave unmatched applicants for every call cycle (Dagher et al., 2016). To promote student commitment a 1000\$ award was introduced in the scheme in 2016, to be awarded annually to a student awardee to an AUB Biology or Chemistry student demonstrating outstanding capabilities especially in the field of biochemistry (Dagher et al., 2016).

Lebanon	Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	Higher education occurs within the physical infrastructure of the higher education institutions in Lebanon to the most part.	Not up to international standards (but quality varies between institutions)-lacking a proper academic atmosphere, limited course choice, suitable facilities and tuition fees have increased. There is lacking implemented regulation surrounding the organisation of placements and training periods.	The relationships differ between universities, however, the relationship between alumni and staff is usually strong and students are requested to provide feedback at the end of their modules and course, strengthening institutions' internal quality assurance systems.	The different universities have different cultural aspects with some having an American pedagogical approach and some a French. There is a strong degree of internationalisation as Lebanon's higher education institutions are involved in the Erasmus+ programme.	Students can take on specific roles in committees within institutions and there are student associations at almost every higher education institution. Yet, there is no student union at a national level, and the elections for the boards of educational associations are often neglect student opinion.	Dependent on the institution and course-however, in general most Lebanese universities and especially the Lebanese University (French system) holds a more traditional, lecture-centred style of pedagogy.	There have been concern of the higher education system not being very student-centred, and as of 2011 steps were being taken to align the higher education system choices and curricula according to market and economy demand.	The role of higher education in Lebanon is also perceived to be the advancement of knowledge through scientific development and research. The role has moreover, become viewed by the Lebanese society to be to develop graduates who can drive the economy and the country's service sector.	X	X	

Classroom	The pedagogical experience occurs to the most part within the physical infrastructure of the higher education institutions- in lecture halls, laboratories, etc.	The pedagogical experience is said to not be up to international standards, but varies between different institutions.	Teaching staff and students are stated to have a close relationship, whereby feedback and input from students is highly valued.	The culture and cultural influence within classrooms is highly varied between the varying universities, but remains international.	The pedagogical environment in the classroom is influenced by the institutional power structure- whereby different culture-oriented universities have different environments and different universities encourage varying degrees of student representation.	It is highly varied depending on the university system in place- however, a more traditional and lecture-centred form of teaching has been described as being general in Lebanon and especially being reported for the Lebanese University which has a French system in place.	Teaching has been described to not be student-centred enough, yet curricula are undergoing updates to better match the demands of the knowledge-based economy.	The role of higher education teaching has been described as to enhance knowledge through scientific advancement and research.	X		
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Sources: edarabia.com, 2011; Ministry of Education and Higher Education and European Commission TEMPUS, n.d; [SPHERE, n.d.](#); Baytiyeh and Naja, 2016; El-Ghali et al., 2011.

Lebanon	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Case study 1: ProGreen Cross-Country Online Programme</p> <p>From: Baytiyeh, 2017.</p>	<p>Dimensions Covered:</p> <ol style="list-style-type: none"> 1. Discourse 2. Pedagogical 3. Architectonic 4. Socio-Cultural <p>Type of Innovation:</p> <ol style="list-style-type: none"> 1. Computational Thinking 	<p>In 2016, from a study by Baytiyeh (2017) regarding the student experience of the ProGreen programme it was indicated the skills acquired included a sense of belonging, self-actualisation, interaction, instructional guidance and self-directedness. Additionally, 71% of students surveyed described the programme as either good, very good or excellent.</p>	<p>29% of surveyed students from Baytiyeh's study (2017) of the programme in 2017, rated it as either poor or satisfactory and the beneficial acquired skills from the programme- in regard to sense of belonging- was developed without the instructor of the programme playing a role toward this.</p>	<p>In general, higher education systems in Lebanon are characterised by a didactic model of pedagogy, yet for the given initiative there was no information directly describing a transition from this model.</p>	<p>Long-distance and flexible learning for additional skills for professionals was developed and students reported that the systems allowed for them to experience self-actualisation and self-directedness, instructional guidance, student interaction and a sense of belonging.</p>

<p>Case study 2: Flipped Lectures in Engineering</p> <p>From: Baytiyeh and Naja, 2016.</p>	<p>Dimensions Covered:</p> <ol style="list-style-type: none"> 1. Discourse 2. Pedagogical 3. Epistemological <p>Type of Innovation:</p> <ol style="list-style-type: none"> 1. Blended Learning 	<p>The format of flipped lectures, in comparison to the traditional sole lecture-centred approach, entailed students learning the material of the lectures and associate homework at home, then applying this knowledge to tests, problem-solving and presentations in class. This format allowed for students to achieve better critical thinking capacity, learning autonomy, self-confidence and teamwork skills.</p>	<p>The limited number of students taking the module and who went through the flipped-lecture trial entails that a more generalised impact of the initiative could not be determined- moreover, in study of the initiative, it was indicated that students first performed worse in their assessments, during the adaptation phase to the innovative pedagogy.</p>	<p>The pedagogical model was prior didactic- with a strong focus on memorisation and lecture-based learning. This initiative promoted a highly transformative pedagogical style.</p>	<p>Improved critical thinking skills in the application of solving engineering-based problems, and increased self-confidence, self-discipline in learning and teamwork skills amongst students.</p>
<p>Case study 3: The Medical Volunteer Research Programme</p> <p>From: Dagher et al., 2016.</p>	<p>Dimensions Covered:</p> <ol style="list-style-type: none"> 1. Discourse 2. Architectonic 3. Pedagogical <p>Type of Innovation:</p> <ol style="list-style-type: none"> 1. Experiential learning 	<p>The efficacy of the project has been shown to be high- whereby when measured in a ranking system of 1-5, with 5 sharing the highest degree of efficacy, in 2015- 90% of students gave the programme a 4 or 5, and in the programme round for 2014-2015, all faculty involved rated the programme with a 3 or above.</p>	<p>There have been fewer students registered to the programme over the years since its foundation and sustaining student and faculty commitment has shown to be tricky. Additionally, there is a lack of faculty involved and number of practical spots- leaving students unmatched for every cycle and on a technical note, challenges have been indicated toward upgrading the associated internet portal and getting student and faculty feedback.</p>	<p>Integrates a highly authentic model.</p>	<p>The students gain authentic and practical experience in the medical research field, which contributes to them developing their goals and plans- and there is a contribution toward the AUB's research initiatives.</p>
<h2 style="margin: 0;">Other Examples of Innovative Pedagogies</h2>					
<p>Introduction of clickers at the American University of Beirut (Organic Chemistry)</p>	<p>In 2009, the American University of Beirut (AUB) introduced clickers as part of a personal investigator's (PI) organic chemistry class, as a tool to answer in-discussion multiple-choice questions. The questions are often timed and the answer outcome displayed visually, so all students can compare how they answered to their peers. From the response rate observed, the PI can either clarify material or proceed with the lecture. The PI decided the expand the element of clickers beyond classrooms into international organic competitions held at the AUB, due to their usefulness and efficient means to answer questions. (Khalil et al., 2015)</p>				

**An international
Organic Chemistry
Competition**

Organic chemistry competitions were launched at the AUB in 2011, for the subject to be encouraged and to attract excitement and instil a means of competition. The Organic Chemistry Competition held in 2011 was established with the help of funding and support from IUPAC and UNESCO and was open to all students in Lebanon- bringing together students from six universities who qualified. Due to the success of the first event, the second competition event held in 2012, saw a geographical expansion of participation, and included students from the Middle East and North Africa Region (MENA). This competition was held under the patronage of the Lebanese Commission for UNESCO, together with MEHE. The third competition saw an even further participation expansion, with the event being advertised in 156 universities across the world and was furthermore funded by an increasing and internationally wider breadth of societies and organisations, including the Royal Society of Chemistry (RSC) and McGraw-Hill Education (Khalil et al., 2015).

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7.2.5. Myanmar



Higher Education Context

International isolation throughout the 20th century stunted Myanmar’s higher education development and prevented the international exchange of students (Win, 2015; IIE, 2013). Recently, international actors including Australia, Japan and the U.S., have assisted the government with the restoration of many of the nation’s universities, most notably the University of Yangon (UNICEF, 2012; Win, 2015; Esson and Wang, 2018; IIE, 2013; McKenzie, 2013; Weng, 2013; Esson, 2018). The Ministry of Education (MoE) has been restored as the principal provider of education, putting forward a vision to “create an education system that will generate a learning society capable of facing the challenges of the knowledge age” (Win, 2015).

In 2015, the MoE had recognised 163 higher education institutions of varying degree-awarding capabilities. While 66 institutions remain under the control of MoE, under the University Education Law of 1973, the remaining 97 are split between other government ministries (incl. Health, Science and Technology, Defence and others) (Win, 2015). The inclusion of other ministries within the management of institutions is meant to ensure that a breadth of individuals and sectors are able to contribute to the nation-building process, though a lack of coordination hinders the ability to plan and implement policies for the sector’s development (Win, 2015). Alongside the MoE, the Universities’ Central Council (UCC), the Council of University Academic Bodies (CUAB) and the National Education Committee manage the higher education policy environment, including the realisation of the Thirty-Year Long-Term Education Development Plan (begun in 2000-01) and the 2012 National Development Plan for Higher Education (Chongcharoen and Daungkaew, 2016; Win, 2015). These plans have seen an increase in higher education financing, though not without controversy: there are concerns that government financing has crowded out other investors while simultaneously centralising control of the sector within the national government (IIE, 2013; Win, 2015).

Though there has been an increase in policy action and funding, reformation within higher education institutions has been superficial. There still remains hindrances to international exchanges (Win, 2015). Moreover, much funding has gone to small ‘ambience’ improvements, such as decorations and painting; as academic faculty and staff have been left out of most policy and reformation discussions, the goals and aims of these reformation initiatives remain unclear and leave much of the university bodies disconnected from their roles in the sector (Esson and Wang, 2018). Multiple studies have found that classrooms lack necessary infrastructure, trained staff, equipped facilities and updated curricula (IIE, 2013; Win, 2015; Esson and

Wang, 2018). Furthermore, the ideological mindset remaining from the military rule is said to be a substantial barrier to the sector's development, with a strong hierarchical structure and culture causing inefficiency in the administrative and everyday tasks (Esson and Wang, 2018).

Pedagogical Innovations

Case study 1: Inter-Institutional e-Library

In 2013, and funded in part by the Open Society Foundation's Higher Education Support Programme, the Electronic Information for Libraries (EIFL) and the MoE began to work together to create an inter-institutional collaborative eLibrary project (Nyein, 2016). The project has grown to include the University of Yangon, Mandalay University, Yangon University of Economics, West Yangon University, East Yangon University, Yadanabon University and Dagon University (Nyein, 2016). Overall, the project aimed to increase the access to academic resources and ensure their effective use within higher education. Low bandwidth, unreliable electricity, and financial limitations, as well as the lacking of librarians' absorptive capacities and a collaborative and overseeing capacity to manage ICT integration hindered the project (Nyein, 2016).

Beginning first with library staff, who passed on their newly-acquired skills, faculty and students were also trained monthly in the use of e-library resources and how to best use it through enhanced IT-literacy skills (Nyein, 2016). Together with the newly-established Myanmar Academic Libraries Consortium, which worked to increase librarians' e-resource management and licensing skills, the librarians were encouraged to spread awareness of the project to increase its usage (Nyein, 2016). By 2016, 166,000 students and 4,000 academic staff had access to the e-library, which possessed 140,000 e-books and 15,000 e-journals (Nyein, 2016). The expansion of universities' ICT infrastructure and internet bandwidth has accompanied the project, further expanding open-access platforms for e-resources (Nyein, 2016). The project is furthermore said to have resulted in a huge increase in confidence, capacity and skills in librarians and a close network between librarians, faculty and students has also been established as a result (Nyein, 2016).

Case study 2: E-learning Centre

In 2012, an e-learning centre was established by the ASEAN-Korea Cyber University (ACU) at the University of Technology (UT) Yatanarpon Cyber City with the goal of increasing student participation and ICT capabilities through regional collaborations throughout ASEAN (Khaing et al., 2016). The Korea International Cooperation Agency provided necessary training for staff in e-learning and setting up a studio room, facilities and a Learning Management System (LMS) (Khaing et al., 2016). In 2016, UT is the only e-learning centre under the Ministry of Science and Technology (MOST) and will be the main centre of e-Learning contents distribution in Myanmar.

The programme was successful at using in-house content developers and providing them more exposure, as well as increasing the flexibility of content delivery so that students could more easily adapt to the academic environment (Khaing et al., 2016). 60% of students sampled indicated the e-learning system was easy to use, and 57% indicated satisfaction with the project with a preference toward e-learning expansion. However, the project was

hindered by low bandwidth and internet speed, as well as instructors' unwillingness to integrate new technologies; language barriers were also problematic and the quality of the e-learning material was questionable (Khaing et al., 2016). Additionally, 62% of students stated a preference for interaction between learner and instructor, which they foresaw as a problem with e-learning. There was concern about the e-learning system not being cost-effective and not being the ultimate tool for skills delivery- 62% of students surveyed stated that they would see difficulty in establishing interaction between learner and instructor- which they would have liked to have (Khaing et al., 2016). 43% of students indicated they preferred both project-based and simulation/practicing based learning and furthermore, it was stated most instructors were seen as not being satisfactory in providing e-learning operations (Khaing et al., 2016). The instructors themselves indicated this was due to them having limited time to offer their students or no experience in the area (Khaing et al., 2016).

Myanmar	Baseline Context							Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemological	Pedagogical	Didactic	Authentic	Transformative
Institutional	<p>Learning takes place within academic buildings that sometimes lack stable electricity supplies as well as adequate ICT equipment</p>	<p>Verbal communication accompanied by written materials (i.e. textbooks, hand-outs, etc.)</p> <p>A lack of ICT equipment limits the extent to which information can be easily brought into the classroom</p>	<p>There is little interaction between students and faculty, and the power distribution weighing toward the faculty is manifested in the didactic mode of pedagogy</p>	<p>Due to limited resources and opportunities, professors suffer from low morale</p> <p>The elite are over-represented in the classroom as education remains unattainable to many marginalised groups</p>	<p>Higher education remains quite centralised with heavy oversight from government</p> <p>Government limits data available to faculty and students</p>	<p>Rote memorisation and learning are the basis by which students are expected to learn</p>	<p>Lack of standard assessment and measurement enable cheating on examinations</p> <p>Curricula are further outdated, contributing to graduates experiencing high unemployment rates post-graduation</p>	X		

Classroom	Learning takes place within academic buildings that sometimes lack stable electricity supplies as well as adequate ICT equipment	Verbal communication accompanied by written materials (i.e. textbooks, hand-outs, etc.) Lack of ICT equipment	There is little interaction and close-bond formation between teaching faculty and students	Unmotivated professors Over-representation of students from elite backgrounds	Government limits data available to faculty and students	The pedagogical style is didactic-with a 'call and response' type of format	Curricula are outdated and sometimes lacking for certain subjects	X		

Sources: IIE, 2013; Win, 2015; Esson and Wang, 2018

Myanmar	Innovative Pedagogy Case Studies				
	Classifications	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Inter-University e-Library Project for Improved Access to Updated Resources and Enhanced Learning and Teaching</p> <p>From: Nyein, 2016</p>	<p>Dimensional Change:</p> <ol style="list-style-type: none"> 1. Discourse 2. Socio-cultural 3. Intersubjective 4. Pedagogical <p>Type of Innovation:</p> <ol style="list-style-type: none"> 1. Computational Thinking 	<p>The development of the library has seen substantial growth- as of 2016 there were 140 000 e-books and 15 000 e-journals available, more than 166 000 and 4000 academic staff had access to these, there was an update to complementary physical infrastructure, a heightened degree of internationalisation and capabilities from training, and encouraged further investment into ICT and technology infrastructure</p>	<p>Even though improved with the course of the project, there were challenges present in the form of ICT and electricity infrastructure and financial limitations to the development of libraries</p>	<p>The general model in Myanmar is didactic and this initiative highly promoted a transformative model- as librarians, faculty and students became engaged with their material and there was an essence of learning for passing information on</p>	<p>The project resulted in improved infrastructure, enhanced capacities and knowledge amongst faculty, students and librarians- with these sharing a sustainable dimension as persons were trained to pass and teach the knowledge learned, increased confidence and provided evidence for investment into technology infrastructure</p>

<p>e-Learning at the University of Technology in Yatanarpon Cyber City of Myanmar</p> <p>From: Khaing et al., 2016.</p>	<p>Dimensional Change:</p> <ol style="list-style-type: none"> 1. Architectonic 2. Discourse 3. Socio-Cultural <p>Type of Innovation:</p> <ol style="list-style-type: none"> 1. Computational Thinking 	<p>The project had expertise in place to begin with through involved in-house developers and in the process of the project trained staff in the ICT space. Additionally, it created a flexible mode of teaching and learning and increased the adaptability of students to their academic environment</p>	<p>Limited bandwidth and internet speed</p> <p>Unwillingness amongst teachers to adopt new technologies and a language barrier between teachers and students</p> <p>e-learning material often did not enhance critical thinking and students indicated they had trouble establishing a connection with the instructor and preferred more interactive teaching-learning styles</p> <p>Instructors indicated they had a lack of experience with e-teaching</p>	<p>The original model in Myanmar is didactic, however this study did not give note of a change in this model</p>	<p>Higher flexibility and adaptability in learning and teaching, together with increased ICT capacities amongst staff</p>
<h2 style="margin: 0;">Other Examples of Innovative Pedagogies</h2>					
<p>University of Yangon and American Universities Collaborations (2012)</p>	<p>In 2012, the U.S. and Myanmar launched an IIE higher education initiative partnership- with the aim to increase development capacities across higher education institutions in Myanmar. In the realms of this partnership ten U.S. colleges and universities are planned to partner with counterpart universities in Myanmar (IIE, 2013). The project covers the socio-cultural, pedagogical and discourse dimensions- the initiative will bring a high degree of internationalisation, with new realms of possible activities and educational materials, as well as support in updates to curricula.</p>				
<p>Involvement in Erasmus+ Programme</p>	<p>Myanmar benefits from a range of initiatives through its development cooperation with the EU- including modernisation of its curricula, update to its infrastructure and education system, training of staff and teachers- as well as benefitting from EU's Erasmus+ programme. In 2017, 15 Myanmar universities were running collaborative projects with universities in Europe and Southeast Asia under the Erasmus+ programme (EEAS, 2017). The project covers socio-cultural, pedagogical and discourse dimensions.</p>				
<p>University of Yangon and University of Manchester Collaboration</p>	<p>A collaborative project has been launched at the University of Yangon regarding an online and offline library database project together with the University of Manchester (Esson and Wang, 2018).</p>				

University of Yangon and University of Cologne Collaboration	A collaborative project was launched in the form of a centres of excellence collaborations between the University of Cologne and the University of Yangon (Esson and Wang, 2018).
University of Yangon and Open Society Foundation Collaboration	A visiting academic programme between the University of Yangon and the Open Society Foundation has been launched (Esson and Wang, 2018).
University of Yangon and Chung Aung University Collaboration	A joint ventures collaboration between the University of Yangon and Chung Aung University, as well as between the University of Yangon and John Hopkins University (Esson and Wang, 2018), have been launched.

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7.2.6. Nigeria

GDP per capita 2016 (USD)	% Investment in Education (last available data between 2008-2016)	Human Development Index 2015
• 2,175.7 • Average SPHEIR countries: 2,112	• N/A • Average SPHEIR countries: 3.6	• N/A • Average SPHEIR countries: 0.58

Higher Education Context

In 2017, Nigeria had over 504 higher education institutions in Nigeria (Nuc.edu.ng., 2017). under the oversight at a federal, state or private level. All of these institutions align with the decisions made by the National Council of Education (NCE), which is in charge of policy-making at the highest level regarding educational matters in the country (Agbu, 2017). Within the NCE, the Federal Ministry of Education, led by the federal Minister of Education, is responsible for aligning and bridging together of educational policies and educational plans of all country states (Agbu, 2017). However, many of the recent institutions opened after 1990 have been under less planning control, leading to inadequate institutional growth and standardisation (Ejiogu and Sule, 2012). Legislatively, Nigeria’s education system is based on the country’s National Policy on Education document of 1977, which was revised in 2013 (Agbu, 2017). Nigeria’s National Policy on Education specifies that the goals of the country’s higher education programme and its institutions include the contribution toward national development through the generation of highly-skilled manpower, to provide accessible learning opportunities of high quality according to the demand of Nigerian citizens, and to encourage scholarship, community engagement and entrepreneurship (FGN, 2013). Alongside the National Policy on Education, Nigeria also has a vision of ‘education for change’ stated by its Ministerial Strategic Plan of 2016-2019 (FME, n.d.). In accordance with the National Policy on Education regarding entrepreneurship, the Nigerian University Commission’s directive made it mandatory for all Nigerian universities to provide entrepreneurship education for undergraduates beginning from the 2007/2008 academic year (Onuma, 2016).

At a general country level, Ochinanwata and Ezepue (2017) identify that some of the key problems facing Nigeria’s higher education model and its goals as set by the Ministry of Education, are the lack of an applied business model to achieve these set goals, as well as the higher education model being one imported from a western European and American standard. With a lack of development and identity, it has been reported by Nigeria’s Ministerial Strategic Plan of 2016-2019, that the higher education sector in the country is highly underfunded- which has impacted the quality of research and teaching and negatively (Agbu, 2017). However, to improve the higher education system one of the major steps has been the move toward the use of ICT in education to improve the accessibility of quality higher education and as a tool for improved education (Mishra, 2017). Open and distance learning (ODL) is seen to provide a solution- the aims of ODL in Nigeria are to meet the needs of the employment market by providing specialised courses to enhance specific skills, and to make higher education more accessible (Agbu, 2017). In 1983, the Federal

Government founded the National Open University of Nigeria (NOUN) and as of 2017, NOUN had 78 study centres across the country (Agbu, 2017). Moreover, the ICT roadmap in the sector of education for Nigeria (Agbu, 2017) includes specific steps such as using radio for literacy projects regardless of the cultural and gender-social setting and geographical location, developing curricula toward computer instruction at all levels of education and the introduction of eLearning in the scope of learning and teaching (FME, 2010). However, the deployment of these steps and the remaining roadmap, has observed difficulties as there is a severe shortage of ICT skills and personnel within the sector and there are infrastructural challenges such as intermittent power supply and poor bandwidth have also impeded implementation (Agbu, 2017). Furthermore, to open up the distribution and sharing of educational materials via open learning systems and to enhance an open educational resources platform in Nigeria, a Tertiary Education Trust Fund (TETFund) intervention programme toward research and training in tertiary institutions in Nigeria has been set up toward open educational resources, which is funded through an imposed education tax on all registered companies in Nigeria (Agbu, 2017).

Pedagogical Innovations

Many academic papers surrounding new frontiers within higher education in Nigeria, discuss the need for change and the potential new innovative approaches through the adoption of ICTs in education toward digitalised libraries (Anasi, 2012), the formation of a less didactic but more learner-centred and creative form of teaching (Offorma and Obiefuna, n.d.), and the establishment of enhanced industry-academia links and updates to notes and curricula (Ochinanwata and Ezepue, 2017)- and initiatives toward achieving such targets are displayed in Table XX.

Case study 1: Flipped Lectures at Babock University

Flipped-lectures were trialled amongst students at Babock University in their physics pre-degree programme, in order to understand the effect on students' learning outcome (Promise et al., 2015). In a flipped-lecture setting, the structure of teaching does not only involve a teacher speaking to his or her students in a one-way format, instead students lead the educational time and apply skills and knowledge which they have and the pedagogical style is highly interactive (Promise et al., 2015). Students learn the content which they would have otherwise learned in class, outside of class and then apply it in class in a form of 'homework'-setting (Promise et al., 2015). The study involved an experimental group and control group, whereby the former was taught material using a flipped lecture format (Promise et al., 2015) and thereafter the students were made to take a Students' Achievement Test in Physics. This test was also given prior to the teaching commencement (Promise et al., 2015). The study showed there was a significant difference between the differential and control group regarding their achievements in the physics course, whereby the testing-group scored higher (Promise et al., 2015). The flipped lecture format allowed for the students to develop critical thinking, creativity and communications skills, which are applicable to today's employment market (Promise et al., 2015).

Case study 2: Vertically-levelled E-learning at the University of Jos

The University of Jos, a Nigerian university, implemented an e-learning system for its mathematics subjects, and Liverpool et al. (n.d.) investigated the programme-effort's six-year implementation-period. There have been three types of e-learning initiatives implemented in Nigeria- local, corporate and international partnerships initiatives. The first of these uses local resources, the second is developed abroad and then delivered in Nigeria through higher education institutions, and lastly, the third kind has been developed through international cooperation. The University of Jos e-learning

programme shared aspects of all three kinds of programmes and was put in place to: promote critical thinking and active learning, to develop 21st century literacy (visual and digital) amongst both students and staff, to engage today's learner as well as faculty toward being more innovative with the tools at hand, and finally, to increase innovation in pedagogical settings under higher budgetary constraints (Liverpool, n.d.).

From the experiences learned from the e-learning initiative at the University of Jos, a model has been produced to carry out an implementation process at other Nigerian higher education institutions (Liverpool, n.d.). The University of Jos developed its e-learning programme, due to it being overcapacitated in enrolled students (Liverpool et al., n.d.). In 2003, the university received a 2 million grant which provided the resources for the initial initiatives (Liverpool et al., n.d.), which included four courses for which notes were produced and peer reviewed by professionals before published on the university's intranet. Moreover, through the funding help from the Carnegie Corporation, computers and a power source for these devices could be purchased for the university, as well as training courses for teachers to use technology when teaching (Liverpool et al., n.d.)

Due to the limited availability of computers and power, students mostly used the newly uploaded sources by printing them but could not engage in the online activities (Liverpool et al., n.d.). The second phase of the initiative was however, to optimise the online courses through pedagogic training of academic staff to both produce material and use the online system with its course management systems (Liverpool et al., n.d.). Moodle was further adopted in the initiative as a content management system (CMS) (Liverpool et al., n.d.).

In continuation of the initiative, the University of Jos received private grants (as there was little public support due to budgetary cuts), as furthered by the Carnegie Corporation and Hewlett and Packard (Liverpool et al., n.d.). In addition to monetary funds, the University of Jos also received technological devices such as PC notebooks and tablets (Liverpool et al., n.d.). With the support received by Hewlett and Packard, staff at the University of Jos were also able to develop the e-learning content accordingly with the new devices, to make content more accessible and learning more interactive (Liverpool et al., n.d.). After the practical set up and running of the maths e-learning, the initiative is in a phase where it is assessing its effectiveness and making continuous improvements (Liverpool et al., n.d.). The materials provided on the CMSs are furthermore of open access to other Nigerian institutions, with the aim of stimulating a national initiative to create a more student-centred, 21st century education style (Liverpool et al., n.d.). Funding from the World Bank and the Ministry of Education, Science and Technology Education Post-Basic, has therefore gone toward the development of the initiative to develop local content and research new pedagogical methods, to enhance the performance of specifically first-year students in mathematics (Liverpool et al., n.d.). Even though the University of Jos, is a leading ICT university in Nigeria, there were remaining limited computerised devices available to students (Liverpool et al., n.d.).

Case Study 3: Innovation through Assessments and Feedback Changes in the Bachelor of Medicine and Bachelor of Surgery (MMBS) degree at the University of Nigeria

The Bachelor of Medicine and Bachelor of Surgery (MMBS) degree in Nigeria is 6 years, constituting an 18-months preclinical period culminating in a 2nd MBBS professional examination (Anyaehe et al., 2014). During these 18 months, each week of study is composed of 3 hours of didactic lectures, 2-3 hours of laboratory sessions and a 1-hour tutorial (Anyaehe et al., 2014). In Nigerian medical schools, the pedagogical approach used is heavily didactic whereby the teaching sessions are led by the professors and the students take on a role as passive information-recipients (Anyaehe et al.,

2014). A study was carried out at the Department of Physiology at the College of Medicine of University of Nigeria to improve learning outcomes due to factors such as poor student performance during examinations. In this study, undergraduate medical students of the Faculty of Medical Sciences of the University of Nigeria, Enugu Campus (UNEC) were used, regarding their performance on the 2nd MBBS in physiology (Anyaehe et al., 2014).

The study was conducted between 2008-2010, and the interventions or innovative pedagogical steps used to improve the learning outcomes included the integration of specialists from Clinical Departments in the university into the Department of Physiology to increase the number of existing lecturers who could also partake in supervision and tutoring; as well as in learner-centred applied techniques (Anyaehe et al., 2014). Class assignments were changed in their format so students were given assignments at least 72 hours prior to the deadline, allowing them to research their answers and communicate them more thoroughly (Anyaehe et al., 2014). Students were also made to lead the discussions in tutorial classes, but under staff guidance- implying a peer-tutoring approach (Anyaehe et al., 2014). Lastly, the feedback system was altered, whereby corrected assessments were given back after review and the feedback was stepwise gone through under an interactive process (Anyaehe et al., 2014). The study showed that after the implementation of these innovative interventions, 76.4% of students passed their 2nd MBBS physiology examination between 2008-2010, in comparison to a 63% pass rate between 2004-2007 (Anyaehe et al., 2014). The introduction of clinical expertise may have helped not only by increasing the number of teaching staff, but also through contributing with their clinical expertise, allowing for more translational application of knowledge taught. Additionally, the increased use of ICTs during these years may also have improved the learning outcomes of students (Anyaehe et al., 2014).

For better understanding of the impact of the interventions, it would be valuable to gain furthered student feedback and perception- however, as of 2014, student feedback was lacking in Nigerian Medical schools. (Anyaehe et al., 2014).

Case Study 4: M-learning at Southwestern Nigerian Universities

Mobile learning (m-learning) is a pedagogical method or tool, which has not necessarily been directed through a top-down approach, but rather come into use through student-initiated initiatives (Shonola et al., 2016). Mobile learning can take place anywhere at any time, in classrooms, homes and community locations. By using the mobile devices, students have access to course materials but requires connectivity (most often internet) to download and upload materials and to work online. Moreover, mobile learning can also occur through educational apps (Shonola et al., 2016). One of the key aspects to m-learning, is information sharing, as users can interact and share information at any time, and thus, enhances collaborative learning and makes education more accessible in remote areas- especially due to higher ownership of mobile phones in comparison to computers amongst the Nigerian population (Shonola et al., 2016). M-learning can add value to existing formal learning and teaching, together with university administration (Shonola et al., 2016). There have been general constraints identified to m-learning, such as impeded visibility levels and noise distractions, as well as small screen size, short battery life and connectivity speed, which were also relevant to Nigeria, including high price of bandwidth and devices (Shonola et al., 2016). M-learning has moreover been noted as a gateway to e-learning as it can be brought to rural communities in such a manner (Shonola et al., 2016). In a study of two South-Western Nigerian universities, showed that an overwhelming majority of surveyed students shared the opinion that mobile device access to learning and course materials made learning easier (88.2% of females surveyed and 83.3% of males surveyed) and 92.6% of survey participants felt their academic performance had or could improve by using m-learning methods (Shonola et al., 2016). In this study it was also

found that researching and studying are those activities students at a major level engaged with using mobile devices for learning, as well as communicating with other students and practicing online exercises (Shonola et al., 2016). Moreover, 88% of the participants indicated they would continue to use m-learning at a regular basis and in the future (Shonola et al., 2016). As m-learning is student driven, it is important to understand its realities through student perceptions (Shonola et al., 2016). M-learning can moreover be used to enhance the pedagogical experience for the teacher, as it allows them to provide more accessible and timely feedback directly.

Case Study 5: M-learning in North Eastern Nigeria

A study was carried out to understand the student experiences of m-learning at six Nigerian universities in the north-eastern part of the country, namely the Federal University Wukari, Jubilee University Wukari, Taraba State University Jalingo, Adamawa State University Mubi, American University of Nigeria Yola, Modibbo Adama University of Technology Yola (Oyelere et al., 2016). As m-learning is driven by students using mobile devices themselves for learning purposes, it is a pedagogical initiative which has a bottom-up approach facilitated by overarching infrastructure and material provided by institutions and governance bodies (Oyelere et al., 2016). To understand its impact and effectiveness, it is important to gain insight into the student experience of m-learning (Oyelere et al., 2016). 5415 participant answers were used in the study, coming from undergraduate and postgraduate students (Oyelere et al., 2016). This study showed that the majority of participants found it relevant to use mobile phones for assignments, to improve their educational skills, to use them for otherwise text-book borne purposes, to use learning apps and that these persons agreed with the notion, that they found it useful that they could learn anywhere, at any time with their mobile device (Oyelere et al., 2016). Furthermore, students indicated the poor adoption of effective m-learning in Nigerian universities to be foremost insecurity (web-insecurity which could lead to threats of kidnapping and terrorism), poor infrastructure, poor learning environments and technical challenges and added complexity of for example achieving correct formats of educational materials (Oyelere et al., 2016). The study furthermore expressed that m-learning made students more motivated to learn (Oyelere et al., 2016).

Nigeria	Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	The institutional infrastructure is poorly maintained	Inadequate leadership Shortage and quality of staff Weak innovation and research Teacher-to-student ratio is unequal.	There is a lack of contact between teachers and students. Additionally, there are cases of lecturers not accepting both feedback and corrections from their students.	There has been an observed gender gap in the admissions' ratios between men and women.	The institutional pedagogical space is highly hierarchical and divided- especially between staff and students.	Failing to develop critical thinking skills amongst students Highly lecture-centred and theory-based Assessments without open-ended responses.	Curricula are outdated and not aligned with the global job market Incorporated practical components do not provide employability skills.	Provide accessible learning opportunities Produce a skilled labour force to contribute to the development of the country Promote community engagement and entrepreneurship.	X	X	
Classroom	Within the higher education physical infrastructural spaces.	There are lacking funding resources, together with a lack of staff, and quality staff.	Lack of interaction between students and teachers with teachers are often unwilling to take on feedback from students.	Observed ratio imbalance between women and men admitted to university.	There is a strong hierarchical structure whereby students have little power.	Teaching is highly lecture and theory based and has failed to develop critical thinking skills amongst students.	Curricula are outdated and non-aligned with the job market.	To produce highly-skilled graduates who can contribute to national development, and to promote entrepreneurship and community engagement.	X		

Sources: Ochinawata and Ezepue, 2017; Jaja, 2013, Anasi, 2012, Youdeowei, et al., 2016; Emeka and Chukwudi, 2018, Offorma and Obiefuna, n.d., Agbu, 2017.

Nigeria	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Flipped Lectures Trial at Babcock University in a pre-degree physics programme</p> <p>From: Promise et al., 2015</p>	<p>Dimensions Covered:</p> <ol style="list-style-type: none"> 1. Discourse 2. Epistemological 3. Pedagogical <p>Type of Innovation:</p> <ol style="list-style-type: none"> 1. Blended Learning 	<p>The student group who were exposed to the flipped-lecture system, in comparison to the traditional system of teaching, performed better in assignments and developed communicative, creative and critical thinking skills.</p>		<p>The traditional model was highly didactic and the introduced flipped-lecture model was transformative.</p>	<p>The flipped-lecture model was successful in producing critical, creative and communications skills.</p>
<p>A Vertically-levelled Collaborative E-learning Programme at the University of Jos in the subject of Mathematics</p> <p>From: (Liverpool et al., n.d.).</p>	<p>Dimensions Covered:</p> <ol style="list-style-type: none"> 1. Architectonic 2. Discourse 3. Socio-Cultural <p>Type of Innovation:</p> <ol style="list-style-type: none"> 1. Computational Thinking 	<p>The project led to the investment into computers, electric power infrastructure and training courses for teachers at the university. Additionally, e-learning content was properly developed an expanded on. From the initiative at the University of Jos, a model has been produced to carry out an implementation process at other Nigerian higher education institutions.</p>	<p>There were too few computers and computerised technologies to efficiently develop and make use of the programme at the University of Jos.</p>	<p>The traditional model was didactic, however there is too little information available to describe the pedagogical model and achieved through the adoption of the innovative pedagogy.</p>	<p>The programme allowed for the development and spread of e-learning content which allowed for more flexible and updated learned knowledge.</p>

<p>Assessment and Feedback Changes in the Bachelor of Medicine and Bachelor of Surgery (MMBS) degree at the University of Nigeria (2008-2010)</p> <p>From: (Anyachie, 2014)</p>	<p>Dimensions Covered:</p> <ol style="list-style-type: none"> 1. Discourse 2. Epistemological 3. Pedagogical <p>Type of Innovation:</p> <ol style="list-style-type: none"> 1. Multi/Critical Literacies 	<p>After the implementation of the new mode of assessment and teaching 76.4% of students passed their 2nd MBBS physiology examination between 2008-2010- in 2004-2007 the pass rate was 63%.</p>	<p>Even though the initiatives were in place it was difficult to determine their independent efficacy as the introduction of clinical expertise may have helped not only by increasing the number of teaching staff, but also through contributing with their clinical expertise, together with the increased use of ICT. Moreover, the lack of student feedback in Nigerian Medical schools, meant that a more detailed effect of the initiatives could not be inferred.</p>	<p>The traditional model was highly didactic, with this model producing a more transformative model.</p>	<p>Student results on examinations improved in the course through more critically thinking, expertise-added initiatives.</p>
<p>M-learning at Southwestern Nigerian Universities</p> <p>From: (Shonola et al., 2016)</p>	<p>Dimensions Covered:</p> <ol style="list-style-type: none"> 1. Discourse 2. Architectonic 3. Pedagogical <p>Type of Innovation:</p> <ol style="list-style-type: none"> 1. Blended Learning 	<p>A majority of students surveyed regarding m-learning felt that it helped them with their academic performance or could improve it, as well as making learning easier. The use of m-learning also made it easier for teachers to communicate and provide timely feedback.</p>	<p>There are general constraints such as device-imposed ones- including battery life, connectivity and small screen size, together with noise distractions.</p>	<p>The original model is didactic, however there is limited information provided as to whether a change in model and its associated pedagogical experience were experienced.</p>	<p>M-learning improved the educational experience for both students and teacher, allowing for facilitated learning and improved and more timely communication from teachers.</p>
<p>M-learning at six North Eastern universities in Nigeria</p> <p>From: (Ovelere et al., 2016)</p>	<p>Dimensions Covered:</p> <ol style="list-style-type: none"> 1. Discourse 2. Architectonic 3. Pedagogical 4. Epistemological <p>Type of Innovation:</p> <ol style="list-style-type: none"> 1. Blended Learning 	<p>Students felt they could learn anywhere at any time, facilitating the learning experience through being able to use the mobile devices for otherwise text-book purposes as well as through using learning apps.</p>	<p>Poor adoption of m-learning was due to web-insecurity which could lead to threats of terrorism, poor infrastructure and poor learning environments, as well as technical challenges associated with achieving correct formatting for documents for example.</p>	<p>The original model was didactic, however the adoption of m-learning allows for higher engagement of the students in the course material through learning apps, giving the pedagogical model a transformative notion.</p>	<p>Flexibility in learning and facilitation of learning through new tools provided by m-learning.</p>

Other Examples of Innovative Pedagogies

M-learning for Project-Based learning (2012)

(Utulu and Alonge, 2012)

In a study conducted by Utulu and Alonge (2012), the use of m-learning for project based learning (PBL) was investigated in three selected private universities in South western Nigeria. This showed that 77.6% of surveyed participants, used mobile services to get information from members of the PBL group, 74.6% communicated directives and plans amongst group members, 74.2% exchanged information about new findings and 65.8% used them to browse the internet. Back in 2012, this study showed that the two most prevalent barriers which impeded the use of mobile phones for PBL was the cost of using them together with availability or access to alternative tools for sharing information. The study reported the Nigerian universities in question were not keen on using PBL as a learning technique. PBL involves investigating a problem to find a solution in most cases, whereby the initiative is led a student or a group of students with an end product result and teaching staff take on an advisory role rather than authoritarian (Utulu and Alonge, 2012).

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7.2.7. Sierra Leone



Higher Education Context

The Leonean government’s approach to higher education has thus far been somewhat paradoxical. While on the one hand government has identified the important role to be played by higher education in national development and passed legislations in support of this vision, on the other hand, government has taken little action beyond theatrics to ensure its vision is achieved. Government lacks a coordinated, coherent strategy for its higher education sector, though it has made it a priority to ween universities off of total financial support from government, which has been identified as unsustainable by the Ministry of Finance (Tarawallie, 2015). Ideally, this would result in increased competition between universities, pushing them to innovate their programme offerings and curricula to attract more students and private funding (Jackson, 2015). However, this is unlikely to occur as Sierra Leone continues to lack any official organisation that actually directs the efforts of these universities towards more productive, lucrative and beneficial subject areas (Tarawallie, 2015). Dumbuya (2014) finds that, combined with the shifting finances and the misalignment of university curricula and industry needs, the Leonean higher education sector is “bound to fail in the not too [distant] future” if it continues on its current directionless path (Tarawallie, 2015).

Government has, however, consistently released education sector plans (ESPs) that seek to reform the education sector every few years and provide some direction. In the ESPs, higher education would typically be addressed through general legislations enacted to improve all levels of education, such as focusing on improving the quality and relevance of education and promoting adult literacy (Alghali et al., 2005). Historically, these plans have focused on primary and secondary education and the “Education for All” initiative, while universities have been left to strategize amongst themselves (Ministry of Education, Science and Technology, n.d.). In the newest ESP, tertiary education is directly addressed, though the plan also notes that for the goals to be met by 2030, partners would need to significantly increase their support (Ministry of Education, Science and Technology, n.d.). The plan has several broad-reaching themes, including quality, monitoring and evaluation and finances; since the Ebola crisis ravaged the country, emergency preparedness and response has been identified as crucial for the sector moving forward (Ministry of Education, Science and Technology, n.d.).

Increasing the relevance of higher education in Sierra Leone has been a background priority within the ESPs, but is particularly important for ensuring students see higher education as a means by which to enter the workforce. One way to increase this relevancy is through curriculum reform. Sierra

Leone has limited experience with pedagogical modernisation within higher education: following the collapse of the higher education sector during the civil war, and with the assistance of international organisations, curriculum became focused upon peace-building and national reconstruction (Tarawallie, 2015). However, as certain sectors, such as mining and agriculture, gain dominance in the economy, these once necessary and ground-breaking disciplines are becoming increasingly irrelevant to market needs (Tarawallie, 2015). Similarly, the didactic way in which teaching is conducted in the ‘typical’ Leonean university no longer develops the skills necessary for students to be competitive applicants in the world economy.

Pedagogical Innovations

Case Study 1:

Student Evaluation of the Impact of Changes in Teaching Style on Their Learning: A Mixed Method Longitudinal Study

From: Jones et al., 2018

Maternal and new-born care are very important in Sierra Leone, where, pre-Ebola crisis, 857 mothers per 100,000 live births died during or soon after delivery. After the Ebola crisis, the number has risen to 1,360 per 100,000, which is significantly more than the sub-Saharan African average of 546/100,000. This is further compounded by the shortage in doctors (1.66 per 10,000 population), nurses and midwives (0.22 per 10,000 population) facing Sierra Leone. Thus, it is not only important for there to be an increase in qualified doctors, nurses and midwives, but also important to increase the quality of those in the field. In this case study, curriculum delivery was adjusted at numerous Maternal and Child Health Aide (MCHA) schools in Sierra Leone in an attempt to increase student engagement and knowledge retention. A shift from rote learning and memorisation, which was found to be unsuccessful in helping practitioners recall theory and practice in stressful situations, towards student-centred learning was found to increase student participation and engagement with course materials, as well as overall student satisfaction with the course. Moving away from didactic learning proved to be a useful mechanism by which to improve the learning process for students in a field of increasing importance to Leonean human development.

Sierra Leone	Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	Classroom based learning	Verbal communication that is rarely accompanied by teaching aids (less than 15%)	Teacher remains leader of classroom and exerts power over students in the learning space	Students maintain a 'learner' identity, by which their external experience is given little attention in the learning space	Teacher controls the learning environment and decide how class time is spent	Material is learned primarily through memorisation and recitation	Learning is assessed through exams and other forms of topical knowledge inquiry	Learning should enable students to contribute to the rebuilding of the country post-civil war	X		
Classroom	Crowded lecture halls	Verbal communication that is rarely accompanied by teaching aids (less than 15%)	Teacher remains leader of classroom and exerts power over students in the learning space	Students maintain a 'learner' identity, by which their external experience is given little attention in the learning space	Teacher controls the learning environment and decide how class time is spent	Material is learned primarily through memorisation and recitation	Learning is assessed through exams and other forms of topical knowledge inquiry	Learning should enable students to contribute to the rebuilding of the country post-civil war	X		

Sources: Jackson (2016); Jones (2018).

Sierra Leone	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Student Evaluation of the Impact of Changes in Teaching Style on Their Learning: A Mixed Method Longitudinal Study</p> <p>From: Jones et al., 2018</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Discourse 2. Intersubjective 3. Epistemological 4. Pedagogical <p>Type of innovations</p> <ol style="list-style-type: none"> 1. Experiential learning 2. Blended learning 3. Computational literacy 	<p>Integrating student-centred learning increased student engagement with course material (including tools such as role play, discussion groups and practicals)</p> <p>Integration of ICTs made subject matter more engaging as well as increased the skills and familiarity of students with modern technologies</p> <p>Including student evaluations of tutors further enabled the responsiveness of the school to the needs of students</p>	<p>While the number of student-centred lessons increased from 4% to nearly 30% at the first follow up, tutors had gradually begun to drift away from these teaching styles by the second follow up</p> <p>While the integration of ICT into learning improved student attentiveness in class, many students were unable to practice these skills and technologies at home due to a lack of electricity and their in-home duties</p>	<p>The old model relied on tutor-centred methods rather than student-centred methods, which failed to capture and hold the attention of students. This didactic model also failed to adequately prepare students for working in the nursing field as it relied on rote memorisation rather than problem solving and critical thinking.</p>	<p>The new method of teaching enabled students to apply what was learned in a more traditional lecture setting (though it had been modified to incorporate more student participation) to case scenarios, as well as challenge what the 'standard' thought models were regarding nursing care in Sierra Leone.</p>

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7.2.8. Somalia

GDP per capita 2016 (USD)	% Investment in Education (last available data between 2008-2016)	Human Development Index 2015
• 471.6 • Average SPHEIR countries: 2,112	• N/A • Average SPHEIR countries: 3.6	• N/A • Average SPHEIR countries: 0.58

Higher Education Context

After enduring a civil war with catastrophic repercussions in the nation's central government, education in Somalia remains limited and underdeveloped (Cummings and Rost van Tonningen, 2003). Low levels of funding combined with one of the world's weakest education systems has contributed much to the country's widespread poverty (Cummings and Rost van Tonningen, 2003). Those investigating the Somalian higher education have commented that it suffers from a "lack of effective government," stemming from the low resource provisions and misaligned education system (Eno et al., 2015). As such, international agencies and the private sector are typically the leaders of higher education in Somalia (Cummings and Rost van Tonningen, 2003).

Regarding the history of the current actors of the higher education system, Somali National University (SNU) was established in the 1970s as the nation's premier higher education institution (Cassanelli and Abdikadir, 2008; Eno et al., 2015). However, since then the continued national instability and general anarchy has stunted any further sectoral development; SNU was shut down for much of the 1990s and 2000s before resuming operations in 2014 (Havergal, 2015). International cooperation has attempted to subvert this; for instance, the Italian government has offered Somalian students university scholarships to encourage higher education enrolment (Eno et al., 2015). Other agencies, such as the European Union and international NGOs, have intervened but substantial progress has yet to be made (Eno et al., 2015).

Nowadays Somalia has 50 higher education institutions, 34 of them were created during 2004-2012 the period with the highest growth in the sector (The Heritage Institute for Policy Studies, 2013). Somewhat impressively, though, 50% of the faculty in Somaliland's universities, a region in northern Somali, hold at least a master's degree, and 11% possess a Ph.D. (Eno et al., 2015). Less surprising is the nearly-non-existent research activities at these universities. Commonly cited reasons are the lack of funds, incentives and know-how amongst the instructors (Eno et al., 2015). Also, there is a lack of infrastructure, for instance, half of the institutions do not have a library nor a science laboratory (The Heritage Institute for Policy Studies, 2013). Other challenges are the lack of learning materials and teaching equipment, a limited administrative capacity and few qualified academic staff (The Heritage Institute for Policy Studies, 2013). At a national level, there is no regulation to manage at least a minimum level of quality. All those elements end up in students without the skills required to enter to labour market (The Heritage Institute for Policy Studies, 2013).

There has been progress, though, in pedagogical change in universities. The Somalian higher education system has achieved a comparatively strong diversity in modes of education for people of different ages and has also increased access to education for marginalised groups (Eno et al., 2015). Higher education has also been successful at engaging with the private sector and communities as partners in providing services (Eno et al., 2015)

Pedagogical Innovations

Case Study 1: Evaluation of An Online Master's Programme in Somaliland: A Phenomenographic Study on The Experience Of Professional And Personal Development Among Midwifery Faculty

From: Erlandsson et al., 2017

The Dalarna University (Sweden) with the collaboration of two Somaliland universities and the governmental ministries, created the first online master's degree for midwifery faculty, initiative funded by the Swedish International Development Cooperation Agency. The driver behind this new master is to improve the education of midwifery faculty as Somalia has one of the highest mortality rate of the world (The World Bank, 2015a; 2015b cited by Erlandsson et al., (2017) and also it lost many professionals during the civil war, currently reaching just 2 midwives per 100.000 habitants.

The evaluation of the masters, with a focus in reciprocal learning and cultural humility, was implemented in 2013 during 2 years for bachelors in nursing or midwifery. The results were measured through 3 focus group between 5-8 people, one year after their graduation. Most of the outcomes were positives. For the students, was the first time they were exposed to reciprocal learning and student-centred education instead of one way of communication. At the same time, they used case studies and e-learning, instead of traditional classes. The masters improved critical thinking and self-confidence. In addition, the students were exposed to the use of internet as Dalarna University provided IT support and they also learnt how to use data bases. Finally, the masters provided more flexibility to women with family to manage their own times. The elements to improve, was the initial hard adaptability and the fact that after the masters the students were not able to improve their labour conditions.

Case Study 2: Improved Attitudes to Psychiatry: A Global Mental Health Peer-to-Peer E-Learning Partnership

From: Keynejad et al., 2016

Somaliland does not have psychiatrists working in the public sector, generating a huge gap for the treatment of mental illness. At the same time, psychiatrist has been associated globally with a career that lack of medical training, that is not scientific enough and not enjoyable to study. In order to contribute to solve that issue, a new methodology, a mix between e-learning and peer teaching, was implemented through a partnership between Kings College and Somaliland universities, benefiting medical students from both locations. There is evidence that peer teaching increase knowledge, skills, commitment, discipline and confidence. This method aims students to share their attitudes towards psychiatry, being more aware of the importance of mental health, especially from a global perspective.

Regarding the method, first the students from UK and Somaliland were randomly matched-with their consent. They met 10 times fortnightly using online messaging from MedicineAfrica website. The students completed anonymous online survey after the meetings in order to rate the sessions and also complete surveys regarding attitude towards psychiatry before the partnership and after it. The results were generally favourable but much higher for Somaliland students than UK ones. The students positively valued the partnership in terms of academic knowledge and also in terms of enjoyment and interest. Just the Somalian students increased their positive attitude towards psychiatry, whereas UK keep stable. Finally, the UK students highlighted the “cross-cultural learning” as the main outcome from them, whereas Somaliland students mentioned “factual knowledge” as main one. Unfortunately, not all students meet online due to logistical and motivational reasons or due to nor clear expectations.

Somalia	Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	Learning takes place only in the classroom; universities lack many infrastructural needs	Communication conducted verbally through lectures and in written form with blackboards	Teacher retains power in classroom	Background is generally irrelevant to the courses as students contribute little to classroom dynamic	Teacher retains total control of learning environment	Knowledge is assessed through exams and students take notes on lectures	Teachers generally choose traditional pedagogical methods, such as lectures accompanied with written materials	The approach is to ideally prepare students for 'white collar' jobs	X		
Classroom	Learning takes place only in the classroom	Teachers lecture to students utilising presentations and written materials. One-way communication (from professor to students).	Teacher retains power in classroom	Background is generally irrelevant to the courses as students contribute little to classroom dynamic The class is not student-centred.	Teacher retains total control of learning environment	Knowledge is assessed through exams and students take notes on lectures	Teachers generally choose traditional pedagogical methods, such as lectures accompanied with written materials	The approach is to ideally prepare students for 'white collar' jobs	X		

Sources: Eno et al., 2015; Cummings and Rost van Tonningen, 2003.

Somalia	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Evaluation of an Online Master's Programme in Somaliland</p> <p>From: Erlandsson et al., 2017</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Discourse 3. Socio-cultural 4. Pedagogical Moral <p>Type of innovations</p> <ol style="list-style-type: none"> 1. Multi-critical literacy 2. Computational thinking 	<p>The students were exposed for the first time to a reciprocal learning pedagogy, integrating them with a role in the classroom.</p> <p>Online learning increased the accessibility of course materials to students.</p> <p>The incorporation of ICT increased the workplace skills of students.</p> <p>Women appreciated to have more flexibility through online education, Instructors received training in ICT.</p>	<p>Adaptation is difficult.</p> <p>While the pedagogical changes increased workplace skills, for many of the students there was concern that having the masters would not change or improve their career potential (i.e., they are still midwives in difficult labour conditions).</p>	<p>The previous model was Didactic as it was based on traditional learning, one way of communication and memorisation.</p> <p>The new model is authentic one as reciprocal learning became an integral part of the classroom environment with student-centred education.</p>	<p>The new model incorporates student-centred education as well as reciprocal learning pedagogy in a e-learning environment. It also includes, the use of new materials for the students such a case study.</p>
<p>Improved Attitudes to Psychiatry: A Global Mental Health Peer-to-Peer E-Learning Partnership</p> <p>From: Keynejad et al., 2016</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Discourse 3. Proprietary 4. Pedagogical <p>Type of innovations</p> <ol style="list-style-type: none"> 1. Multi-critical literacy 2. Computational thinking 	<p>Students gained additional academic and factual knowledge as well as respect for the psychiatry field and viewed it as a legitimate profession.</p> <p>Students were exposed to ICT which increased their marketable skills as well as their confidence levels through peer teaching.</p>	<p>Somali students reported more of a benefit from the programme than did British students. This could risk future universities being hesitant to invest into partnerships with Somalia.</p> <p>Some students did not meet online as instructed due to logistical and motivational reasons.</p>	<p>There is no information for previous model.</p> <p>The new model is authentic as the students begin to learn not from just the instructor, but from other students.</p>	<p>The new model incorporates international partnerships forged between Somali and British universities as well as the integration of ICT into learning methodologies and the use of peer teaching.</p>

Other Examples of Innovative Pedagogies

<p>Distance learning at University of Bosaso</p> <p>From: University of Bosaso, 2018</p>	<p>The University of Bosaso launched its distance learning programme since its creation. It aims to provide students and staff the opportunity to work at home due to busy schedules, family reasons or due to economic issues to travel from home to the university. The programme provides specialised contents through blended and compressed learning limiting face-to-face interaction and using different multi-media technologies in order to make the learning process easier. Through the Open Distance Learning programme the university has had the capacity to add new learning methods to its pedagogy and diminish the gap for the student's needs. The initiative has had good results. The enrolment increased in 95% between 2012 and 2013, generating a more qualified staff, a better environment, a higher interest in research, among others. The University goal is to expand the programme so it can be available globally.</p>
<p>Cisco Networking Academy at University of Bosaso</p> <p>From: University of Bosaso, 2018</p>	<p>Cisco Networking Academy is a strategic partnership with the Brian institute of Technology since 2011, where the University of Bosaso in Puntland trains students in IT and networking principles. It is expected this initiative will create a competitive advantage in their students as it provides international certification. The course includes computer laboratories and internet for 50 participants. Currently, 400 students have been trained.</p>
<p>First international agreement in Somalia, Somaliland</p> <p>From: Newsome, 2013</p>	<p>The University of Hargeisa (UOH) in Somalia signed a collaboration agreement with Heriot-Watt University in 2013. The positive effects for UOH is to gain recognition and international credibility, for the students is to generate links with an international university community. However, the agreement cannot take the maximum benefit as students are not allowed to study abroad, they cannot apply for a visa and also the university faces many challenges such as finance ones, insurance, lack of resources, etc.</p>
<p>ODL Learning Initiative</p> <p>From: Hare, 2007; UNDP, 2006</p>	<p>The UNDP, World Bank and Africa Virtual University (AVU) network launched a 10 years project that seeks to integrate ICT in Somalia Higher Education through the ODL Learning Initiative. The project aims to install Very Small Aperture Terminals (VSATs) in 6 higher education institutions in Somalia in order to provide interactive learning and knowledge resources through internet connectivity. The following are the institutions involved: East Africa University (Bosaso), Puntland State University (Garowe), the Somali Institute of Management and Administration Development (SIMAD) (Mogadishu), Mogadishu University, University of Hargeisa and Amoud University (Borama). The initiative offers 3 certificates: a short one for Journalism, Information Technology and Business Communications, a medium one for Financial Planning and Management and a longer one that consists in a Teacher Education degree programme and a Bachelor of Arts in Journalism and Mass Communication.</p>

<p>Best distance learning Diploma Programme</p> <p>From: Academic Courses, 2018</p>	<p>UNICAF University offers in association with a British Awarding Body Level a Diploma in Accounting and Financial Management (UNICAF-ACCA) in Mogadishu and Banaadir in Somalia. It is an online-course and campus based and can be taken part-time or full time. This online-course was awarded with the Best Distance Learning Diploma Programme in Somalia in 2018.</p>
<p>SIMAD University</p> <p>From: Nur, Grabner-Hagen, and Saam 2013; Abdisamed 2011; Mohamed and Sheik 2014</p>	<p>SIMAD University has innovated in different dimensions of pedagogies with different results. First, it created an innovative English language training programme for their 70% of students that comes from Arabic language secondary school. Second, SIMAD implemented an E-learning management system, that can be accessed for students and staff at any time. Finally, for its Postgraduate Programme, in partnership with Open University Malaysia, SIMAD University offers a Digital Library.</p> <p>For the last one, despite the innovation, the students lack ICT training, thus the beneficiaries do not use the Digital Library.</p>

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7.2.9. Tanzania



Higher Education Context

Since 1961 when Tanzania gained independence, the education system has grown from a single higher education institution to greater than 200 by December 2006 (Msolla, 2006). This growth has been propelled by the increased demand of a skilled and/or educated workforce by the Tanzanian public and private sectors (Msolla, 2006). Tanzania is a country where the government has taken clear steps into major education reforms. One example is the creation and development of the Ministry of Science, Technology and Higher Education in November in 1990 (Msolla, 2006). In 1985, following Ethiopia, Tanzania became the second country in the continent to create a government-led policy regarding science and technology training; however, its implementation has been largely unsuccessful largely due to financial and other constraints (Msolla, 2006). Existing and prevalent challenges that Tanzania faces in the higher education sector include: its overall financial unsustainability; equal access for students regardless of class, gender, or location; overall quality; information and communication technology training; building relevant skills to society; and research. (Msolla, 2006).

With a population of 55.6 M people, Tanzania has had an average unemployment rate of 11.46% from 2001 until 2014 (Trading Economics, 2018). However, Tanzania is currently experiencing its lowest unemployment's rates in history with 10.3% in 2016, which is a significant drop from its all-time high of 12.9% in 2001 (Trading Economics, 2018). The reasons for this stable growth is due to another government's decision to constantly invest in urban infrastructure. This decision increased the economic growth rate from 4% in 1996 to 6% in 2016 and it ensure creating a higher and constant demand of more jobs (Mirondo, 2017). However, the country is currently stagnated and a new labour force is needed. Higher education institutions are training many skilled professionals, however, there are currently not enough jobs for them (Mirondo, 2017). It is advised that higher education institutions partner with the national government to incentivize the economy in the tourism and agricultural sectors as the two most promissory markets where professionals will be needed (Mirondo, 2017).

Pedagogical Innovations

Case study 1: Contextualized Pedagogy for Programming Education in Tanzania

by Tumaini University – (Apiola and Tedre, 2011).

Prior to this case study, Tanzania had unsuccessfully attempted to reform its training practices in regard to computer coding and programming (Apiola and Tedre, 2011). This case study identifies the pedagogical challenges of Tanzania and proposes four innovative pedagogical approaches utilizing the principles and theories of the “creative problem solver” to overcome those difficulties – moving past traditional didactic methods that rely on memorization and extrinsic motivation (Apiola and Tedre, 2011). Creative problem solving encourages students to embrace the ill-defined nature of some problems, in contrast to well-defined problems. This approach pushes students to learn hard core skills (i.e. technical competences) together with soft skills (i.e. critical thinking) (Apiola and Tedre, 2011).

Summary of Case Study 1

Creative Problem Theory	Method of Support	Innovative Pedagogies (customised to Tanzania’s context)
Deep level learning: To possess higher–order cognitive skills in Bloom’s taxonomy such as -Deep level learning -Reflection and self-reflection -Cognitive development	Use pedagogical theories such as experimental learning and PBL	Coding while lecturing: transition from <i>memory-based</i> to <i>learning-by-doing</i> pedagogy. As an extra benefit, the profession can immediately be aware of the student’s cognitive development paces
	Provide tasks to support all cognitive levels	Exercises and practices: customization of exercises per different stages of cognitive development. There was a total of six exercise sets ranging from extremely easy to extremely difficult and with 20 tasks each.
Intrinsic Motivation: motivation coming from the activity itself and not from external rewards	Provide social interaction, optimal challenges, freedom from demeaning assessment and choice for self-direction	Opening the learning environment: From a professor towards a student-centred learning environment.
		Affective support: improve intrinsic motivation by fostering autonomy, competence, and relatedness while keeping a balance between team work and individual learning.

Conclusions:

- ❖ Open learning environment worked very successfully although it took time for students to adjust.
- ❖ Changing the group work dynamics into individual learning is possible but very hard.
- ❖ With the customized set of exercises, all students had the chance to see progress and feel successful.

Limitations of the study

- ❖ Unfortunately, students had limited access to computer labs and therefore, couldn't practice much. Further research is needed to explore the learning students have by their own outside the classroom (Apiola and Tedre, 2011).
- ❖ Apart from deep level learning and intrinsic motivation, creative problem also takes into consideration domain-relevant skills (or strength based). However, this theory was not used inside this study (Apiola and Tedre, 2011).
- ❖ Although the learning outcomes of this case-study seemed particularly good, real quantitative results are challenging to adequately compare year-to-year because basic variables have been modified (e.g. every year there is always a new professor) (Apiola and Tedre, 2011).

Case study 2: Education Policy: Education for Self-Reliance (ESR)

by: Government of Tanzania – (Vavrus et al. 2012 and 2013).

Tanzania's first president Julius Nyerere (1961 – 1985) instituted a national education policy called *Education for Self-Reliance (ESR)* (Vavrus et al., 2012). His policies highly emphasized experiential Learner-Centred Pedagogy (LCP) – a framework that was increasing in popularity in Sub-Saharan Africa. LCP is related to **authentic pedagogy** which emphasizes the utilization of learners' personal interests and curiosity in the curriculum in attempt to increase engagement (Vavrus et al., 2012). The concept LCP was later more broadly adopted in other African countries as part of the 1990 UNESCO Education for All Conference. (Vavrus et al., 2012).

Some of the key innovative pedagogies of Nyerere's ESR were:

- ❖ Greater emphasis on activities co-developed by both the student and teachers as part of a co-created curriculum (Vavrus et al., 2012).
- ❖ Both theoretical and practical knowledge should be taught hand-in-hand to ensure learning experiences are productive, purposeful, and practical (Vavrus et al., 2012).
- ❖ Less emphasis on examinations (Vavrus et al., 2012).
- ❖ Students should have better self-confidence, know how to cooperate and develop critical thinking (Vavrus et al., 2012).

However, due to the economic and political climate of Tanzania in the 1970s and 1980s, Nyerere's education policies were very poorly implemented (Vavrus et al., 2012). In the 1990s and 2000s, throughout all education levels, the Tanzanian government instead placed greater emphasis on standardized exams (e.g. Certificate of Secondary School Examination), which impacted teaching methods to focus more on rote memorization and didactic approaches. This approach is especially problematic due to exams commonly being in English – and is not necessarily the first language of many of the students (or teachers). Additionally, because most teachers were not trained under an LCP approach, it is challenging for teachers to teach in that method – and often revert to the teaching style under which they learned. (Vavrus et al., 2013).

Although that initial approach failed, in 2006, Mwenge University College of Education (MWUCE) was created and developed to utilize a learner-centred or authentic pedagogy (Vavrus et al., 2012) coupled with critical thinking to train Tanzania's future secondary school teachers. From 2006 to 2012, the school grew rapidly going from 100 students to 1400 (Vavrus et al., 2012).

Tanzania	Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Proprietary	Socio-cultural	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	Classroom based learning with limited infrastructure	Verbal communication accompanied by written materials (i.e. textbooks, handouts, blackboard)	Teacher remains leader of classroom and exerts power over students in the learning space	Teacher controls the learning environment and decide how class time is spent	Universities Act No.7 mandates universities to have a curriculum council that represents all sectors of society	Material is learned primarily through rote learning (memorisation and recitation)	Learning is assessed through exams and other forms of topical knowledge inquiry	The role of Higher Education has a specific role in the Government's National Development Plan: " Development Vision 2025 " which envisions "a well-educated and learning society."	X	Attempts has been made (see Case Study 2) but have failed in the past.	
Classroom	-Classrooms very close to each other. -Windows and doors are open or unfinished -Metallic chairs on cemented floors (very noise and hard to move around)	Verbal communication accompanied by written materials (i.e. textbooks, handouts, blackboard) Extremely limited access to ICT devices within and outside the classroom.	A large concern that teachers have with LCP (preventing it from growing as an approach) is regarding authority. Teachers are frequently convergent that a Learner-Centred Pedagogies interferes with students' respect for them or produce an image the teacher is not a master of the subject. It reduces their control. (Vavrus et al., 2013)	Students maintain a 'learner' identity, by which their external experience are given little attention in the learning space	A 2013 study made to students concluded the main teaching approach is didactic – requiring students to cram notes from long lectures and simply reproduce them during exams.	Learning is assessed through exams and other forms of topical knowledge inquiry	The curriculum is to provide a base foundation that enables students to enter the labour market, more as an employee than as an entrepreneur.	X	Attempts has been made (see Case Study 1) but it's not the norm.		

Tanzania	Innovative Pedagogies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Contextualized Pedagogy for Programming Education in Tanzania</p> <p>From: Apiola, M. et Tedre, M. (2011).</p>	<p>Dimensions</p> <ol style="list-style-type: none"> 1. Discourse 2. Intersubjective 3. Proprietary 4. Pedagogical <p>Type of innovation</p> <ol style="list-style-type: none"> 1. Computational Thinking 2. Experiential learning 	<p>The case study was very specific to a skill-gap in high demand: programming.</p> <p>The model proved to be successful covering four different type of innovations that transform the learning process from authentic into transformative in one batch.</p>	<p>The case study couldn't be compared as many fundamental variables are possible to sustain (i.e. same teachers for a reasonable amount of time). For this, we are unsure of how feasible would it be for this model to be replicated.</p>	<p>Old model was didactic, not aligned with a specific industry skill-gap need, and students were learning based on rote learning and memorisation.</p>	<p>Students were able to:</p> <p>Foster their confidence levels regardless their level of prior knowledge or learning pace.</p> <p>Balance between teamwork and individual performance, avoiding "free-riders"</p> <p>Students equipped with both soft and hard skills in one round</p>
<p>Education Policy: Education for self-reliance (ESR)</p> <p>From: (Vavrus et al., 2013)</p>	<p>Dimensions</p> <ol style="list-style-type: none"> 1. Intersubjective 2. Socio-cultural 3. Proprietary 4. Epistemological 5. Pedagogical <p>Type of innovation</p> <ol style="list-style-type: none"> 1. Experiential learning 	<p>Cost-efficient to implement</p> <p>Holistic approach to develop both, soft- and hard-core skills.</p> <p>Easy to scale across other sub-Saharan countries.</p> <p>Created good learnings that are currently being used.</p>	<p>Requires a different way to assess students. Change management transition was difficult to implement.</p> <p>The implementation pilot was launched in English. Not the first language of many students and teachers.</p>	<p>Old model was didactic, based on rote learning and memorisation.</p> <p>Although the assessment was planned to change. It never did.</p>	<p>Students develop self-confidence, critical thinking and inquisitive minds.</p> <p>The model enables larger access to higher education (from 100 to 1400 in one single pilot)</p>

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7.2.10 Uganda



Higher Education Context

Following a civil war, the Ugandan government liberalised the higher education sector to enable the foundation of numerous private and, to a lesser extent, public higher education institutions (Jowi et al., 2013; Wabwire, 2011; Kasozi, 2003). Government's general perspective of education is that it is a public good, meaning that it should be attainable by all Ugandans (Opuda-Asibo, 2017). Additionally, and like many other developing countries across the world, the Ugandan government identifies education as the key to development. Government sees education as a (1) capital development agent, (2) social development agent and (3) a humanitarian tool. Interestingly, though, is that for Uganda, higher education also serves as a substantial foreign exchange earner: in 2013, foreign students accounted for more than 10% of student enrolment in Ugandan higher education (Opuda-Asibo, 2017). This further elevates the importance of higher education in the Ugandan development agenda.

The National Council for Higher Education (NCHE), which licenses and charters private institutes, releases strategic plans for the education sector, the most recent being for the period 2017-2020 (NCHE, 2017; Jowi et al., 2013; Basheka, 2015). The overall mandate of the NCHE, which is to provide accessible, equitable, relevant and sustainable quality higher education, is the guiding principle for strategic planning. The NCHE 2017-2020 Strategic Plan aims to directly address four pillars: (1) regulation of higher education institutions; (2) documentation and dissemination; (3) research and innovation; and (4) organizational and institutional development (NCHE, 2017). However, and again similar to many developing countries, the impressive and presentable strategic plans developed by government often fail to address the real concerns facing the nation's universities. In Uganda, monitoring and evaluation remain a significant hurdle in ensuring the quality of higher education. Likewise, a lack of funding and perpetually understaffed universities and higher education regulatory bodies (notably the NCHE) have limited the extent to which universities can innovate teaching styles and the ability of the NCHE to assist in the overall development of the sector (Makoba, 2017).

Universities have thus relied mainly on student fees and tuition, as well as international aid and partnerships, to fund infrastructural and curriculum upgrades. For the nation's private universities, which account for three-quarters of all universities and over half of all student enrolment, upgrades are even more dependent upon tuition and fees as a vast majority of public funding is directed towards public universities (Jowi et al., 2013; Basheka, 2015). However, institutions such as Makerere University have begun to institute pedagogical changes, and there is a growing recognition amongst the nation's higher education institutes that changes are needed to information delivery to ensure that universities remain competitive as well as relevant to the changing needs of both domestic and international industry.

Pedagogical Innovations

Case Study 1: Knowledge Transfer through Internship: The EASLIS Experience in Strengthening the Governance Decentralisation Programme in Uganda

From: Magara et al. 2011.

With funding from the World Bank and the Rockefeller Foundation, Makerere University established an innovation committee called I@MAK.COM that works to facilitate “knowledge transfer of information management practices,” primarily through internship placements (Magara et al., 2011). The justifications for this pedagogical shift from traditional to innovative approaches are based largely in theory that identifies contextual immersion and externalisation as ways in which two parties, in this case students and industry (either public or private), can benefit from institutional linkages (Magara et al., 2011) (see also: Collins, 1993; Blackler, 1995; Mahitra, 2002; and London University, 2009). This is further supported by Baird (2008), who sees internships as ways in which students may “bridge the gap” between the academic environment and the personal and professional challenges found in industry.

The internships took place through the East African School of Library and Information Science (EASLIS) at Makerere. The placement programme has been conducted by EASLIS since 2007 and by 2011, more than 100 students had partaken in an EASLIS-sponsored internship. The internships serve a dual purpose: for the national government, student participation in local government offices aids in the government’s efforts to decentralise power from the central to the regional governments by building local administrative capacity;¹ for students, the experience allows them to apply their classroom knowledge to real-world issues. Students were assigned to two supervisors, one in their host office and the other from EASLIS. Office supervisors were responsible for the daily tasks students undertook while EASLIS supervisors maintained distance throughout the period of the internship. Students were required to keep a log of daily accomplishments.

At the end of the internship, the students and the supervisors were asked to report on the success of their experience through a survey. The field supervisors generally reported their experience with the intern as above average, though there were obvious struggles with adapting to working conditions, communicating with superiors and remaining organised (Magara et al., 2011). The surveys, however, provided both the students and EASLIS with an idea of what areas needed to be focused on during in-class instruction for future employment. Students were similarly positive in their assessment of the internship programme. Not only did the internship allow them to apply what they had learned in class, but it also enabled them to build skills that are otherwise difficult to obtain in a classroom setting (e.g. client handling, customer care) (Magara et al., 2011).

Uganda	Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	Learning is confined to the classroom environment	Pedagogy is dependent upon lectures and instructor centeredness	Student-teacher interaction is largely limited to professors asking questions and students answering	Students are largely considered to be uniform, meaning the pedagogy is not reliant upon a variation in student typologies that impact class learning	The professor maintains unequivocal control of the classroom	Instruction is carried out through lectures, with students expected to memorise course material and regurgitate this knowledge during exams	Instructors utilise blackboards and other writing methodologies, sometimes including PowerPoint, to convey concepts to students in lecture format	Build institutional capacity in the country so that (a) students find gainful employment and (b) industry and government modernise and compete globally	X		
Classroom	Crowded lecture hall environment	Pedagogy is dependent upon lectures and instructor centeredness	Student-teacher interaction is largely limited to professors asking questions and students answering	Students are largely considered to be uniform, meaning the pedagogy is not reliant upon a variation in student typologies that impact class learning	The professor maintains unequivocal control of the classroom	Instruction is carried out through lectures, with students expected to memorise course material and regurgitate this knowledge during exams	Instructors utilise blackboards and other writing methodologies, sometimes including PowerPoint, to convey concepts to students in lecture format	Build institutional capacity in the country so that (a) students find gainful employment and (b) industry and government modernise and compete globally	X		

Innovative Pedagogy Case Studies					
Uganda	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Knowledge Transfer through Internship: The EASLIS Experience in Strengthening the Governance Decentralisation Programme in Uganda</p> <p>From: Magara et al., 2011</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Discourse 3. Epistemological 4. Pedagogical <p>Type of innovations</p> <ol style="list-style-type: none"> 1. Experiential learning 	<p>Students were able to apply theoretic knowledge learned in their classes to real-world problems encountered in local government offices.</p> <p>Local government offices were able to update much of their internal records systems to better enable them to help local citizens.</p> <p>Student placement in local government offices increased the capacity for the offices to take on more roles as powers are delegated from the central to the regional governments.</p> <p>Students were able to develop and further hone their workplace capabilities such as communication with superiors and teamwork.</p>	<p>Some students were given menial office work, such as cleaning and filing papers, that did not help the office build administrative capacity or enable the student to apply classroom knowledge.</p>	<p>Old model was didactic, based on rote learning and memorisation.</p>	<p>Students are able to apply theoretical knowledge to real-world problems faced by their regional and national governments.</p> <p>Students build connections with industry practitioners.</p> <p>Students build hard and soft skills that are otherwise difficult to develop in a classroom setting,</p>
Other Examples of Innovative Pedagogies					
<p>International Partnerships and NOMA Pedagogy</p> <p>From: Isaksen, 2014</p>	<p>Through a partnership with Oslo and Akershus University College of Applied Science HiOA in Norway, Kyambogo University developed the NOMA Masters, which aims to incorporate 'vocational pedagogy' to provide students with better skills and knowledge that more directly meets the needs of industry. Beginning in 2008, by 2014 the programme had developed roughly 60 graduates with many graduates finding employment. However, there is concern that the program does not adequately address 'working life' in order to prepare students for the realities of the workforce.</p>				

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7.3. Research Framework Applied to Benchmark Countries

7.3.1. Burundi



Higher Education Context

Colonialism, political instability and security issues, poor policy and environmental factors- having affected Burundi's higher education sector (Varly et al., 2017) in a negative manner. In 2015-2016, Burundi was ranked 139/140 for higher education and training according to the Global Competitiveness Report (Bti-project.org., 2018). The school and higher education system of Burundi was inherited from Belgium, and entailed a highly centralised structure of administration, and until recently, an incorporated Roman Catholic influence in the running of institutions (Rwantabagu, 2013). Today, teachers in Burundi have to face complexity and challenges brought on by a shifting educational environment due to rising enrolment rates, a replacement of theoretical with applicable knowledge, the incorporation of endemic languages and an expanding school system, which is being demanded to share more innovative and rational models (Rwantabagu, 2013; Njenga, 2011). The Burundi Constitution states that there should be equality in the access to higher levels of the school system, on the basis of talent and personal merit (Rwantabagu, 2013). Burundi has 9 officially recognised universities (4icu.org., 2018), of which the most prominent is the University of Burundi (Timpson et al., 2014). The University of Burundi is the only public university in the country and is to the large extent state-financed, and sharing autonomy in administration and management (Kenyaembassyburundi.com, 2016).

The National Commission for Higher Education (CNES) in Burundi was set up in 2008, having evolved under the organisation of the Ministry of Education, Higher Education and Scientific Research, to evaluate, monitor, regulate and advise on the preservation of standards of higher education in Burundi (Cnesburundi.org., 2018). The country's Higher Education Act was signed in 2011 in the country and outlines the functioning of private and public universities, the accreditation of training programmes, approval of courses and the infrastructural requirements of higher education institutions in the form of facilities, including laboratories and libraries (Makoni, 2012). The law accredited 23 private institutions the same year as its implementation (Makoni, 2012). The number of students transitioning into higher education provided by the public sector and has of 2011 been observed to have decreased by 32.6% since the institutionalisation of State Examinations, and the same year the University of Burundi only held 10 000 students (Ministry of Planning and Communal Development/Forecasting Unit, 2011). Private higher education institutions provide an alternative, but at a much higher

price- however, it has given marginalised groups, especially women a chance to attain a higher education (Ministry of Planning and Communal Development/Forecasting Unit, 2011) and the increasing overall numbers of Burundians seeking it (Nganga, 2014). Additionally, the number of accredited personnel and teachers have also decreased (Ministry of Planning and Communal Development/Forecasting Unit, 2011). The government was in 2017 furthermore criticised for withdrawing scholarships from students (Buchanan, 2017).

Pedagogical Innovations

Since 2007, Burundi's higher education system, through the financing via French Cooperation partnered with the Ministry of Education, Higher Education and Scientific Research (Provini, 2017), has been involved in a reform process. The aim of this cooperation is to strengthen the definition and monitoring of plans and policies in the sector (Provini, 2017). Additionally, at a governmental/policy level the East Africa Community, constituting Kenya, Uganda, Tanzania and Burundi- have taken steps to harmonise their education systems through a Common Higher Education Area- in order for students to gain multiple credits from the varying institutions in the area and to switch between these without having to sit an exam (Waruru, 2017). Outside of these higher political realms, steps have been taken to improve and reshape the higher education system and its institutions. There is lacking information regarding these initiatives in terms of outcome, dimensions covered and advantages/disadvantages and thus, they are not described as case studies.

Burundi	Baseline Context							Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	Teaching usually takes place within the physical infrastructure of the higher education institutions which is in poor condition.	Teaching quality is usually low Higher education institutions are inadequately equipped, including ICT Personal connections create a bias toward students getting qualifications	The engagement between faculty and students is highly passive and traditional, to enforce obedience.	More women in private than in public institutions	Tension between government and academia Teaching staff have also been involved in corruption.	Lack of technical training Heavily theoretical courses not aligned with the job market Lack of linkages between academia and industry.	According to Burundi's 2025 vision, the purpose of higher education is to create a skilled labour force, with competitive expertise.	X		
Classroom	Pedagogical activities occur in the physical infrastructure of higher education institutions.	Teaching is poor with teachers not always being accredited; and infrastructure toward pedagogical activities in the classrooms is usually poor.	Teaching is traditional and passive.	More women in private than in public institutions	Students do not have much power in the traditional teaching system.	Teaching and the curricula are heavily theoretical, with little alignment to the job market.	To create competitive expertise and a skilled labour force in the national interest.	X		

Sources: Bti-project.org., 2018; Ministry of Planning and Communal Development/Forecasting Unit, 2011; Ist-africa.org.,2017; Rambe and Moeti, 2016; Donovan-Smith and Ndayisaba, 2015; Timpson et al., 2014; Rwantabagu, 2013; Nganga, 2014.

Burundi	Other Examples of Innovative Pedagogies
Case Study Analysis at the University of Ngozi	The University of Ngozi have begun to diverge from a very traditional form of education implemented by the colonial powers, which is very passive and more so teaches obedience without creative thinking through using practices of written tests based on memorising information. Instead the university has adopted learning from case studies which promotes interdisciplinary/transdisciplinary values and allows students to analyse and think about contextual scenarios through different angles and raise further questions. It has been deemed a highly important educational practice for students to understand their global environment and understand outcomes from societal actions in practical terms- moreover, it allows for Burundian students to better understand how conflict arose in their own country, why it provoked the consequences that it did and how to make decisions for better practice to promote peace and stability in the future. (Timpson et al., 2014)
Higher Education Resource Services, East Africa (HERS-EA)	In 2014, the Higher Education Resource Services, East Africa (HERS-EA) was founded- it is a NGO which provides development within leadership and management for women in higher education institutions in East Africa, including In Burundi. The NGO has the aim of creating and advancing women leaders in higher education institutions in the region, and works by sharing information between women in the included institutions in the area, facilitating networking between them, as well as providing a platform for training, research and collaborations between the women. The NGO is in place to counteract gender equality which persists in leadership positions in the geographical area. USAID helped fund the HERS-EA project in Kampala, Uganda in 2014, and its planning and implementation was aided by universities in North America, including Columbus State University (CSU) and Washington State University. (Khaita et al., 2017).
SUCCEED Project for Renewable Energy between Cross-country Universities	There is a lack of professionals involved within the energy sector regarding energy efficiency and renewable energies in East Africa- however through a step made through university collaborations in the Sub-Saharan area together with extra-continental help and leadership- this problem is trying to be tackled. The project in place is SUCCEED implemented in 2015, which when set up was to last for 36-months and involved the National University of Rwanda Mzube, the University of Tanzania, Makerere University of Uganda, MOI University from Kenya and the University of Burundi. The project is furthermore overseen by Alicante University in Spain. (Acp-hestre.eu., 2015)
University of Burundi, Congolese Universities and UniversiTIC Collaboration	There are external partnerships in place as with UniversiTIC who are working with Burundian and Congolese universities to computerise with the provision of new technologies but also the know-how of how to use this ICT. Moreover, with UniversiTIC, students become connected to the “Global Academic Village”. (Ub.edu.bi.,2017).
University of Light Bujumbura Conference for Media and Democracy	In 2018, the University of Light of Bujumbura is hosting its 8 th annual conference of media and democracy in East Africa and is open to universities on a local level which share faculties within communications and journalism. It moreover brings together the East African Communication Association and creates a platform for students, experts, and professionals within the realms of media, politics, communication and journalism to interact and learn from each other toward a better democratic process for media. (Université Lumière de Bujumbura, 2018)
University of Ngozi and Industry Collaborations	The University of Ngozi has built partnerships with both other university institutions such as the University of Andalusia, organisations such as Biopost-COFUNA and companies like TV5 Monde, to obtain learning and educational resources and to develop projects. (Univ-ngozi.bi., 2018)

Entrepreneurship Club at the University of Lake Tanganyika	<p>The University of Lake Tanganyika has an entrepreneurship club which collaborated with the University Agency of Francophone States, dedicated at all students to discuss with entrepreneurs involved in professional circles. The club and event has a focus on empowering youth to take action and develop competitive ideas. (Ult.bi., 2018).</p>
Micro-credit Management for Students to Pay Their Tuition Fees and Gain Access to Education at the University of Ngozi	<p>In 2012, the Universidad Politecnica de Madrid's faculty of informatics developed a tool called Uburyo, which allows for students in developing countries to manage microcredits they are awarded through grants. In this management system grant holders can repay their loans through technical work at both the university and academic institutions' partner companies. Uburyo is the translated word for 'opportunity' in Kirundi (the language spoken in Burundi).- and aims to solve the problem of the financial hurdles students in developing countries, like Burundi, have to entering higher education. Uburyo was originally designed for Burundi, where as of 2012 the per capita income was 160 dollars but university enrolment cost about 234 dollars. Funding from development cooperation and donations have often not produced the wanted outcomes and a return on investment, due deviation of the funds and corruptive obtaining of these. With the system in place grants can be retrieved easily and loans paid back efficiently. The grant rewards are given on a work-basis, so students contribute to the university through research or work- which creates a system whereby the higher education institutions directly gain benefits from providing the grants. Universities can even earn money from the system. Additionally, it provides the students with furthered experience which will benefit them at the end of their degree. The software has a grant manager and an employment office, and is supervised by an international committee in order to ensure transparency. The international committee is also in place to combat favouritism and approves the jobs and hours students have to work to repay the grants. The software was developed using a free and open software, and is available free of charge. It was moreover designed by Susana Munoz, Director of Technology for Development and Cooperation (TEDECO). It has been implemented at the University of Ngozi in Burundi. (Universidad Politecnica de Madrid, 2012)</p>
Online Teaching at the University of Light Bujumbura	<p>The University Lumiere de Bujumbura, decided in 2016 to incorporate the use of online teaching to overcome issues related to lack of adequate educational materials, the low rate or absence of qualified teachers, as well as physical infrastructure to host students (Habonimana, 2016).</p>

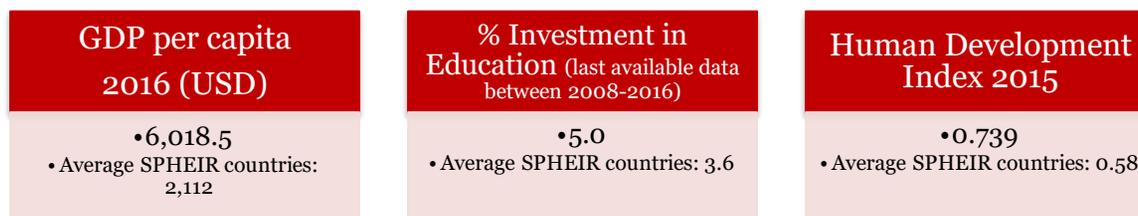
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7.3.2. Ecuador



Higher Education Context

Due to the implementation of the Organic Law of Higher Education (LOES), Ecuador has grown its system of higher education from just one university in 1596 to more than 71 by December 2012. Between 1992 and 2006 45 Universities were created, representing an increment of 273% in just 14 years (Mendoza, 2018). The LOES exemplifies how Ecuador is a state where the government has taken clear steps into major education reforms.

The first example is the current organic law (LOES) follows 5 key principles: 1. Responsible Autonomy; 2. Co-government; 3. Equality of Opportunities; 4. Quality; 5. Relevance; 6. Self-determination (CES, 2018). Another example is how the 2008 constitution specifically defined the university as an organization that acts in the interest of the general public without profit, thus giving the State the exclusivity in the maintenance, regulation and control of higher education (Mendoza, 2018).

Supported by the National Plan for Good Living, investment in tertiary education rose to 2% of its GDP in 2013. (World Bank, 2018c). The public universities are sustained in a 95% with public funds, (5% is self-management), while, amongst the private, there are co-financed universities (60% budget comes from government) and auto-financed universities (100% household enrolment fees or independent donors/grants) (Macías, 2017).

With a population of 16.6 M people, Ecuador has had an average unemployment rate of 7.29% from 1991 until 2017 (World Bank, 2018c). However, Ecuador is currently experiencing a period of its lowest unemployment's rates in history with 3.8% from 2010 to 2017, which is a significant drop from its all-time high of 14.42% in 1999 (World Bank, 2018c) which is a direct result of policies such as an imposition to the companies in which at least 2% of their employees must be interns or the certifications that are being given through the Ecuadorian Professional Certification Service (Secap) for people who know their trade but do not have a document that certifies them.

Ecuador shares some similar characteristics and problems applicable to many countries in Latino America; amongst them; massive public universities, insufficient scientific research, low salaries for the professors. In Ecuador, one the most notable risks are the concentration of students enrolled in the state universities such as Quito and Guayaquil. This situation reflects the polarized character of economic and urban development. Another of the most outstanding phenomena in Ecuador is the high increase in the cost of enrolment due to the important economic expansion of the country.

Pedagogical Innovations

Case Study 1: Towards Mobile Personal Learning Environments (MPLE) in Higher Education

From: Humanante, 2016

Although mobile personal learning environments are technically inside ODL (online distance learning), this case study makes specific emphasis on the different digital environments that a student can be exposed to. After vast literature research, this case study identifies four types of e-learning environments: Mobile Learning (phone-based); Ubiquitous Learning (Laptop-based); Collaborative Learning (platform-based) and Gaming Learning (game-based). This case-study implements a mix-method approach that examines the usage and acceptance levels of Mobile Learning (phone devices) amongst university students. It will also study if MPLE have any significant impact in the student's performance (Humanante, 2016). This research was administered on approximately 7000 students at the public university National University of Chimborazo, in the city of Riobamba (UTECA, 2018).

In the last decade, universities in Ecuador have increased efforts to implement a “blended-learning” pedagogy that supplements the traditional in-person classroom setting with virtual classrooms, allowing students to experience the typical in-person instruction but mediated via computer (Bonk et. al. 2012). However, the mobile personal learning environments have been deemed to insufficiently re-create a complete student learning environment, since much of the learning process is experienced outside of the formal structure of the classroom (Conde et. al. 2012). The MPLE has difficulty recreating the learning experiences of peer interaction and motivating by understanding students' personal interests (García-Peñalvo et.al., 2013).

Case study 2: Education Policy: Higher Education Law 2010

From: Johnson, 2017

Prior to 2007, Ecuadorian universities had limited government control or oversight. However, due to recent reforms, higher education is now regulated highly by the State in an effort to increase the overall quality of education. In 2010, the reformation efforts enabled

the passing of Ley Orgánica de Educación Superior (LOES), a law that re-defined the higher education system in Ecuador, defining and setting standards for accountability, transparency and quality, and created a new accrediting body – Consejo de Evaluación, Acreditación y Aseguramiento de la Calidad de la Educación Superior (CEAACES) (Johnson, 2017).

By using a ranking model to classify the institution, the higher education landscape and Ecuador was able to introduce, implement and monitor higher education initiatives in the areas of: Academic topics, student and learning environment and research and internal management (Johnson 2017).

By implementing LOES, significant steps were achieved to ensure the relevance and the quality of Higher Education in Ecuador. Categorization of universities that allowed to identify the quality of institutions. There are two categories: Research universities (where 70% of the faculty must hold a PhD) or Teaching-Research (where 40% of the faculty must have a PhD). This led to an increase of PhD holders from 500 in 2008 to 2,278 in 2015. Naturally, this also led to an increase of faculty research and publications as a result of having better qualified teacher (Johnson, 2017).

Ecuador	Ecuador Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	Classroom based learning with limited infrastructure	Verbal communication accompanied by written materials (i.e. textbooks, handouts, blackboard)	Teacher remains leader of classroom and exerts power over students in the learning space	Teacher controls the learning environment and decide how class time is spent	higher education law of 2010 recognises the student's ability to Exercise the freedom to express as a right	Material is learned primarily through rote learning (memorisation and recitation)	Learning is assessed through exams and other forms of topical knowledge inquiry	The role of Higher Education has a specific role defined in the: "Higher education Law" which among other things states "Higher education is an indispensable condition for the construction of the right to live well"	X		
Classroom	52% of institutions lack proper libraries 22% in institutions have proper laboratories	Verbal communication accompanied by written materials. 55% of institution have 9 students for computer and 19,1% have a student computer ratio between 1 to 5.	Teacher remains leader of classroom and exerts power over students in the learning space	Teacher controls the learning environment and decide how class time is spent	Students maintain a 'learner' identity, by which their external experience are given little attention in the learning space	Material is learned primarily through rote learning (memorisation and recitation)	Learning is assessed through exams and other forms of topical knowledge inquiry	The curriculum is to provide a base foundation that enables students to enter the labour market, more as an employee than as an entrepreneur.	X		

Sources: CEAACES (2018)

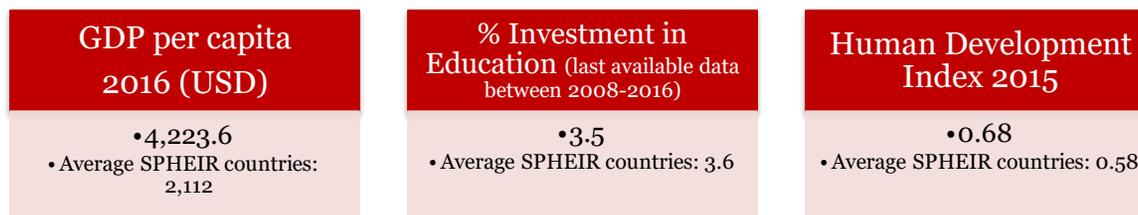
Innovative Pedagogy Case Studies

Ecuador	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Towards Mobile Personal Learning Environments (MPLE) in Higher Education (Humanante, 2016)</p>	<p>Dimensions Covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Pedagogical <p>Type of innovation</p> <ol style="list-style-type: none"> 1. Blended learning 2. Computational thinking 	<p>Access to infinite amount of information; Flexibility in time and location; Less infrastructure investment and maintenance; Less printed materials; Higher student autonomy; Better record keeping and traceability; Customization “just in time, just for me”; In-real-time or deferred communication spaces.</p>	<p>Both professor and student need to invest higher amount of times; Both need to have good levels of ICT literacy; Depends on the student’s ability to self-manage, on the quality of the materials and the quality of the infrastructure; Can generate isolated students with low social skills, and problems around the authenticity of their homework.</p>	<p>The higher education model in Ecuador is highly traditional: inside four walls, crowded rooms and basic infrastructure. Students did not have the option to access different type of learning environments, being trapped in a “one size fits all” model.</p>	<p>Unlike traditional pedagogies, students saw the different learning environments and tools as opportunities and not limitations.</p> <p>By having diverse channels of communication, students and professors were able to breach existent hierarchies.</p> <p>Significant improvement in academic performance by students using MPLE than those who don’t.</p> <p>Improvement of the learning experience. Students feel more comfortable, empowered and motivated</p>
<p>Education Policy: higher education law 2010</p>	<p>Dimensions Covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Socio-cultural 3. Epistemological 4. Pedagogical 5. Moral <p>Type of innovation</p> <ol style="list-style-type: none"> 1. Architectonic 2. Pedagogical 	<p>The law recognized some of the biggest problem in the high education system implementing a ranking which allowed them to better target the public resources to improve and align the system with the country needs</p>	<p>Competence between private and public institutions for PhD holders</p> <p>The ranking and measurement system is unable to accurately measure all institutions due to their individual and unique characteristics and due to the pressure to comply might force good initiatives to stop</p>	<p>Old model was didactic, not align with a specific industry skill-gap need, and students were learning based on rote learning and memorisation.</p>	<p>General Ranking model for both public and private institutions which set the minimum standards for quality in term of high education</p> <p>Government control budget and align course to the country needs (Relevance)</p>

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7.3.3. El Salvador



Higher Education Context

Education at El Salvador is highly valued among the citizens despite all the climate of violence and criminality that affect the nation (USAID, 2016). All the higher education organisations have to pursue a social purpose and are regulated by the state. (UNESCO, ISELAC, 2006). Among the universities, El Salvador has one public university, El Salvador University, which has economic, administrative and education autonomy and other 25 private universities that cover more than the 50% of enrolment rate (UNESCO, ISELAC, 2006). Apart from that, there are several technological and specialised institutes that were created in the eighties and seventies in the context of the expansion of the higher education system of Latin-America (UNESCO, IESALC, 2006).

Regarding the challenges, El Salvador, invests in Education just the 3.5% of its GDP, one of the lowest in Central America (World Bank, 2018). Also, there are very low entry barriers to access higher education, negatively impacting the quality of the professionals that graduate from universities, thus educational outcomes such as professional skills level is low (U.S. Department of State, 2018); UNESCO, IESALC, 2006; USAID 2016). Another critical challenge is how to decrease the gang and violence within the educational system (USAID, 2016). Additionally, there is a lack of coordination among the different stakeholders of higher education system and a weak research infrastructure (Gobierno de El Salvador, 2016)

At a pedagogical level, El Salvador has a very traditional approach regarding the role of the students as passive and lecturers as active. However, it is fostering more a practically-based learning, giving to the students more real experience of learning (Paxton and Heredia, 2004). Also, many universities have implemented virtual education but still lack of quality (Rodríguez, 2011).

Despite all the challenges, the governmental strategic plan 2018 for Education prioritises as first objective the reinforcement of the quality and performance of education staff as well as pedagogical support; and then the improvement of the infrastructure that allow a better learning and teaching process (Gobierno de El Salvador, 2018). Indeed, nowadays El Salvador is part of the few countries of the region where the implementation of ICT in higher education comes from a decree-law (UNESCO, IESALC, 2006). Also, the plan seeks

to foster innovation, science and technology in the different levels of the education system. Among the initiatives, the creation of a national system for training educators and the revitalisation of the curriculum, are included. (Gobierno de El Salvador, 2018).

Pedagogical Innovations

Case study 1: Providing Curricular Assistance to a Third World University Computer Science Department (Paxton and Heredia, 2004)

This case shows a collaboration between Montana State University (U.S.) and Don Bosco University (El Salvador) where a guest lecturer from Montana University taught new three mini courses of advanced topics of computer science. The initiative was funded by Don Bosco University and U.S. embassy.

The courses were given in the context of the commitment of Don Bosco University, a scientific and technologic university, to train its faculty and students in new topics. An average of 30 students and faculty attended. The outcomes were positive as there was a good response from students and faculty with the new pedagogy that comes from a different culture and covers advanced topics. There was a good response regarding the availability of the contents on-line and the possibility to check the material in advance, all of them new elements for the students. Also, there was an active interaction between the students and the lecturer, something new for them as the classes in El Salvador are very formal and lack of interaction with the staff. Elements to improve where the lack of preparation of students for theory-based teaching as El Salvador bases its education in practical one, thus mathematical concepts were hard to explain. Also, some internet connection problems. Finally, the courses lacked a formal feedback mechanism.

El Salvador	El Salvador Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	ICT infrastructure available; virtual courses Students have easy access to cell phones.			Students do not ask questions, formal culture.		Traditional examination	Education is practically-oriented	Universities have to pursue a social purpose	X	X	
Classroom	Traditional university chair; some seminars and field work B-learning courses available; Internet available but not stable connection.	Books, work guides Some discussion groups Out-dated curricula	Lecturer retains power	In transition from a passive role of students to Student-based model	Lecturer decide how to organise the class	In the transition from traditional examination to an objective-based model examination	In the transition from fixed curriculum to flexible ones and from traditional to Learning-based model and competence-based model.	The social purpose of university considers contribute in research but also in the creation of solutions in order to solve society problems	X		

Sources: Paxton and Heredia (2004); Universidad El Salvador (2014); UNESCO and ISELAC, (2006), Rodríguez (2011)

El Salvador	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Providing Curricular Assistance to a Third World University Computer Science Department (Paxton and Heredia, 2004)</p> <p>From: <i>Paxton and Heredia (2014)</i>.</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> Socio-Cultural Discourse Epistemological Pedagogic <p>Type of innovations</p> <ol style="list-style-type: none"> Computational thinking 	<p>Students were exposed to the new experience of being able to interact with the lecturer</p> <p>The content was available on-line and in advance</p> <p>The capabilities were also given to faculty, enabling the future implementation of the courses at a local level.</p>	<p>The courses included theory something unusual for El Salvador, thus some topics where hard to explain</p> <p>Lack of formal feedback</p> <p>The course was designed on an internet basis. However, the signal in El Salvador is not stable.</p>	<p>Model one was authentic because it had a practically-based teaching and learning method. However, it failed in incorporate theory and interactions between the student and faculty.</p> <p>The new model stays in an authentic one even if it improves the student learning experience it does not generate a drastic change in the role of the students.</p>	<p>The new characteristics achieved are: 1) a more open space of discussion where students can provide their opinions, affecting the socio-cultural dimension, 2) a new way of teaching and learning through the introduction of theory and not just practice, affecting the epistemological and pedagogic dimensions. 3) The possibility to learn topics in advance and on-line allowing a deeper understanding of the course.</p>
Other Examples of Innovative pedagogies					
<p>Universidad El Salvador in Health Sector</p> <p>From: OPS, 2013</p>	<p>El Salvador University developed a Diploma in Primary Care in Integral Health along with the collaboration of the Ministry of Health in order to train 1.459 health professionals with an innovative pedagogy based on constructivism and problem-solving methods. This initiative is financed by the Inter-American Development Bank, it has the technical support of World Health Organisation.</p>				
<p>PAD Programa de Educación a distancia</p> <p>From: PAD, 2018</p>	<p>El Salvador University has been continuing updating its distance learning proposal since its creation in 1996 where workshops were delivered by paper to people that lived far away from university. After that, paper was replaced by CD in order to adapt to the current technologies. Finally, the university has incorporated all the elements to provide online education that includes not only workshops but also undergraduate and postgraduate courses. The methodology used is called “tecnología apropiada” and “tecnología crítica” (appropriate and critical technology), which means to adapt the technology available to different contexts and to different level of knowledge of students as well as to incorporate technology from a cognitive psychology. In 2018 a Direction of Distance programmes was created as a centralized university department</p>				

"USAID Project for Productivity through Higher Education"

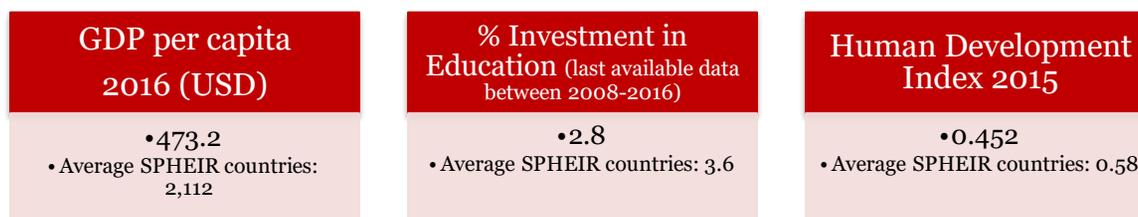
From: World Learning n.d.; RTI International, 014

The USAID Project for Productivity through Higher Education was launched in order to improve competitiveness and foster economic growth through the transformation of higher education at El Salvador. It provides specialised training to faculty and support in a more relevant curriculum closer to the industry needs. One of the current results is the training of 34 university faculty in STEM fields and the creation of career development centres in partnership with five private universities that will support the detection and match of job opportunities for the students.

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7.3.4. Gambia



Higher Education Context

Before 1999, The Gambia had no official universities. After the 1994 military coup, The Gambian Government has been making significant efforts to invest in educational infrastructure. (MoHERST 2014). This severe lack of higher education opportunities forced local students to received education overseas with very few of them returning back to the country (Access Gambia, 2018). To address this challenge, and foster country's own local knowledge power, The University of The Gambia (UTG) was established in 1999 to develop and maintain skills within the country (Camara 2015; MoHERST 2014; Sawahel, 2009). The Gambia currently has UTG, The Gambia College and Gambia Technical Training Institute (GTTI) as its major tertiary educational institutions. Higher education institutions are also concentrated in the greater Banjul area, reducing opportunities for students in rural areas (UNESCO, 2014).

Education receives the highest share of the government budget (20.4%); but because the total public spending is a small share from its GDP (15%), education spending is also low (3.2% of GDP) (UNESCO-MoBSE, 2018). As a reference, the recommended level of 4.5% for Sub-Saharan Africa, and therefore, external contribution is extremely critical representing 35% of the total budget and small donors filling in urgent gaps (UNESCO-MoBSE, 2018). Universities financing comes from Government, International Funds, local donors and household income (World Bank, 2018).

Unemployment levels in Gambia rose to 9.50% in 2017 from 9.40% in 2016. From 1991 up to 2017, the average rate of unemployment was at 9.35%, where 2017 has been its highest peak (9.5%), and in 1991 its lowest point 9.10%. (Trading Economics, 2018). Unemployment primarily affects to population that lives in urban areas, educated, young and female, which reflects the weak levels of formality of the country's economy (Lahire, 2011). Apart from the lack of opportunities, there is also a need to train students with job-relevant skills. To achieve this, the Gambian Government has incorporated the World Bank four-step STEP⁹ framework that identifies

⁹ *Skills Towards Employment and Productivity*

skill as the main factor contributing to the positive employment (UNDP, 2014). The steps are: (i) *getting children off to the right start*, (ii) *ensuring that all students learn*, (iii) *building job-relevant skills*, (iv) *encouraging entrepreneurship and innovation* and (v) *facilitating labour mobility and job matching* (World Bank, 2010). The skills in more demand are Technical, Vocational and Entrepreneurial skills (UNDP, 2014).

The Gambia has seen a fast growth in the amount of higher and tertiary institutions in recent years, most of which are led by the private sector. However, there's still a mismatch between the labor market and the types of training offered by most institutions (UNESCO, 2018). An example of this can be seen on how some of the most demanded and fast-growing sectors in the country such as tourism and fisheries, have no courses available in the current educational institutions (World Bank, n.d.). In fact, the UTG most demanded courses are medicine, education and economics, even though there is little demand for those within the market (World Bank, n.d.). The Norwegian Education Trust Fund has been assisting UTG at creating an action plan to identify what and where exactly the market needs are and align them with the work-force accordingly (MoHERST, 2014). Another example is the implementation of the 2012-2015 UNFPA Programme for Accelerated Growth and Employment, however, no data was found regarding the learnings or outcomes of this program (UNFPA, 2017).

Pedagogical Innovations

Case study: College of Management and Information Technology (CMIT, 2018)

CMIT is a new branch college of AIU (American International University) in The Gambia which aims to improve higher quality in both academic degrees and professional qualifications, also deliver the solution the mismatch between graduates and real needs of talents in the labour markets. To do this, the CMIT decided to follow a different path from other colleges within AIU. It created a curriculum tailored to meet the demands of the market, where the measurement of success not only is to train students to be prepared academically for employment, but also for them to be prepared at a personal level to act confident in the industry (AIUWA, 2018).

Moreover, the learning environment is not only in classroom, to collaborate with industry can provide students with more opportunities in real world practice and professional knowledge to increase their employability. Research activity is highly encouraged amongst students by using the institutional laboratories which are equipped with infrastructure that is usually above the standard level of other African Universities. The wide-range coverage of wireless connectivity, especially in the laboratories, provides a seamless experience for students to learn and undertake research with a wide variety of technology-based platforms (CMIT, 2018).

Finally, the CMIT in The Gambia is the on-going outcome of a long search for a peaceful and stable part of Africa that fosters an atmosphere for rigorous academic research and professional activities (AIUWA, 2018).

Gambia	Baseline Context								Models		
	Architecto nic	Discourse	Intersubje ctive	Socio- cultural	Proprietar y	Epistemol ogical	Pedagogic al	Moral	Didactic	Authentic	Transform ative
Institutional	Classroom based pedagogy Basic attempts to provide distance learning	Face to face interaction where teacher remains leader of the classroom and the content.	Teacher remains leader of classroom and exerts power over students in the learning space	Students maintain a 'learner' identity, by which their external experience are given little attention in the learning space	There are cases of inter-collaboration between universities and private sector towards the classroom content.	Material is learned primarily through memorisation and recitation	Standard examination at the end of each course	Provide access to relevant and high-quality education; making science & technology the engine of growth; Ensuring gender equity in education and promoting the principle of lifelong learning;	X		
Classroom	Some institutions offer distance learning, but shortage of trained staff and proper ICT facilities, makes it not feasible.	Predominant printed textbook based pedagogy, usually with old versions. Chalkboard or handmade flipcharts	Highly teacher centred pedagogy where students do not have the capacity to challenge ideas. Most professors are not qualified.	Younger and/or female students tend to be in disadvantage when interacting with other students	Students have no opportunities to ask questions, discuss, critique, problem solve or challenge what they are being taught.	Lecturers do pose questions, but they consciously answered them without giving the students opportunities to offer their own perspectives	Flawed assessment instruments for measuring student achievement	To be as inclusive as possible, to facilitate poverty alleviation and promote rapid social and economic growth	X		

Sources: Education Sector Policy 2016-2030, 2016);(Ogunbase 2014);(Sey-Sawo 2017)

Gambia	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
College of Management and Information Technology (CMIT, 2018) (GambiaEducation, 2018)	Dimensions Covered 1. Architectonic 2. Pedagogical Type of innovation 1. Blended learning 2. Computational thinking	Capacity to integrate workload to existing obligations Lower price Lower pressure Self-chosen starting date No set deadlines Flexibility to decide time and place of study Bypasses geographical borders – A degree can be obtained anywhere in the world	Participants need self-motivation A social component is missing due to the lack of physical interaction Feedback might be delayed, which can affect quality of education and motivation Requires accreditation Limited development of oral communication skills The online offer might lack some of the necessary courses for a degree. Education depends on reliable and constant access to digital technologies and internet.	Students with time or mobility restrictions (such as fulltime jobs, parenthood, living away or mobility disabilities) did not had any option to receive higher education and tuitions costs were exceptionally high. The higher education model is highly traditional, inside four walls, with very crowded rooms and poor infrastructure. The government also do not have the financial capacity to build more universities from scratch.	Students Receive 3 types of Distance Education: 1. Internet Based: instructions are communicated through web-based platforms, messaging systems, e-mails, and online forums. 2. Video Based: Pre-recorded or two-way interactive (teacher-student interaction is mediated by computers, satellites, cameras and TVs) 3. Audio Based: Lessons are given through a broad range of options, such as radio broadcast, pre-recorded CDs and phone conferences.

Other Examples of Innovative Pedagogies

<p>The Islamic Online University</p> <p>From: IOU, 2015</p>	<p>The Islamic Online University (IOU) was funded in 2007 by Dr. Abu Ameenah Bilal Philips. It provides tuition-free, online undergraduate and graduate programmes. The IOU offers more learning opportunities for students and it is committed to spreading affordable beneficial knowledge. It supports the empowerment of related communities by reducing social pressure and increasing labour force. In addition, they provide a cost-effective cloud service, IOU-CAMBUS, to students and alumni to ensure a reliable access to their course materials. This system stores backups of course syllabus, books, audio and video files, class recordings and students' notes (Islamic Online University n.d.). In 2013, through a collaboration with the Ministry of Basic and Secondary Education (MoBSE) and the General Secretariat for Islamic and Arabic Education (Amanah), the IOU started a pilot offering intensive English language courses to Gambian graduates (Islamic Online University (Gambia), 2015). The course was offered at a nominal fee to support students' possibilities to pursue a degree in higher education. The MoBSE also provided 100 scholarships for deserving students to join the pilot (Islamic Online University (Gambia), 2015).</p>
<p>Nursing Education in the Gambia</p> <p>From: Sey-Sawo 2017</p>	<p>Gambia has limited tertiary health institutions and nurse training system. Under the Health System Strengthening Program, the National Aids Secretariat decided to improve the quality of graduates and contribute more skilled labour force in the country. The School of Nursing and Midwifery (SONM), Gambia College who offers a registered nurse training program. The government allocates training for 40 students every year with scholarship. Also, private students who met the admission requirements can be accepted. The curriculum in SONM has 12 modules over 3-year and designed to meet both national and international nursing education criteria and follow the regulation requirements in practice. The institution contributed to keep balance between theory and practice. Same as in the traditional nursing mode, 1-year for class room theoretical learning and 2-year for practical work.</p> <p>Advantages: (a) The faculty members mostly have their postgraduate degrees both at home and abroad. (b) Government subsidies provided for public nursing institutions. (c) The number of student enrolment in nursing training is increasing. (d) Development of Advanced diploma, graduate and post nursing graduate programmes at UTG.</p> <p>Disadvantages: (a) The shortage of faculty members due to the brain drain of higher skilled nurses migrating to other countries with higher salaries and better working conditions. (b) Learning environment especially the infrastructure, such as classroom space, poor internet connectivity, interrupted electricity, proper laboratories, and lack access peer-review journal articles (d) Bad E-learning cooperation. Even UTG has distance learning with Kristianstad University, the internet is slow and limiting downloads, and there is no dedicated computer laboratory for UTG nursing students. (e) limited specialisation area in programme. The current curriculum has already improved compared to the traditional mode. However, both training institutions do not have some more specific areas, just provide in general nursing program.</p>
<p>Musical learning in a cross-cultural setting: A case study of Gambian and Swedish adolescents</p>	<p>This case is set as part of a research project aiming to explore how adolescents acquire musical skills by focusing on the relationship between their learning process and their cultural environment. Even though this case is not focused on higher education, it provides valuable insights for improvement. Students cultural background has influences in several aspects of their learning process, particularly in their selection of methods for learning and teaching. The study found that the adolescents seemed more willing to change the way they teach musical skills than their own learning strategies. This suggest that teachers need to develop the necessary adaptability to identify the learning styles of their students and, based on that, to explore and develop different teaching methods from the ones they used to learn themselves.</p>

**in interaction
(Mars, 2014)**

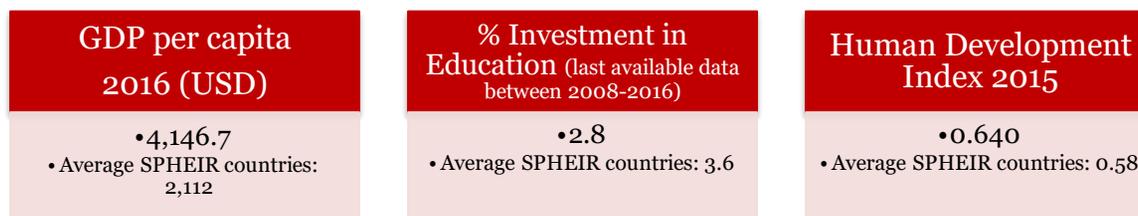
This study confirms the importance of teachers' pedagogical skills to support the learning process of students. In this light, the teacher's role is redefined towards her capacity and skills to guide young people's creative potential towards the development of new knowledge based on renewed relationships with others and their environment.

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7.3.5. Guatemala



Higher Education Context

Guatemala is the country with the lowest Education expenditure in relation to GDP in Latin-America, reaching just 2.8% in 2016 (Muñoz, 2018; World Bank, 2018). According to Reimers (2006, cited by Muñoz, 2018) this situation is due to historical and social factors where the policy was led by elite conservatory regimes characterised, among others, for a limited investment in Education. According to the legislation, the Ministry of Education assist just primary and secondary level (República de Guatemala, 2005). That is why, nowadays, the primary objective of the Ministry is to increase the enrolment in primary education, guaranteeing quality and inclusion (Gobierno de la República de Guatemala, 2018) with no roles assigned for higher education. However, according to Guatemala legislation, the higher education system, including private and public universities, has to contribute towards the study and solution of the national problems and has to accredit that students turn into professionals. (Tobar, 2011).

Regarding the type of institutions, San Carlos de Guatemala university was created in 1676, and currently is the only public university. Also, it is the institution with the highest proportion of students at national level with more than 40% of the total students (Tobar, 2011; República de Guatemala, 2005). Apart from that there are 9 private universities (República de Guatemala, 2005).

The higher education system is facing many challenges. First, there are high inequalities in the society showed for instance through the adult literacy rate that reach around 80% (UNICEF, 2012; Tobar, 2011). In that context, the higher education can be access just for the elites, reaching a national enrolment rate of just a 18% (Global Education Fund, 2018; Rivera et al., 2017; World Economic Forum, 2016). Second, there is a lack of teacher training, including training in new pedagogies (Meza, 2013). For instance, just the 6% of the lecturers has taken ICT training, compared with 82% in Peru (Alvariño y Severín, 2009 cited by UNESCO, 2014). Third, the 30% of the employers in Guatemala has concerned with skills deficit (World Economic Forum, 2017).

Nowadays, Guatemala higher education is living the process of catching-up with ICT (Kats, 2009 cited by Rivera et al., 2017). Indeed, Guatemala has implemented several postgraduate e-learning courses (Rivera et al., 2017). Yet, there are many challenges to face such

as the low internet penetration (UN, 2018) despite the high use of smartphones among the population (Segura, 2014). Also, there is a resistance from academic staff towards the use of the technologies, where even if lecturers recognise the ICT potential, they avoid formal training (Rivera et al., 2017) as well as the integration of technologies in their modules (Orellana et al., 2002, cited by Rivera et al., 2017).

Pedagogical Innovations

Case Study 1: LiveUSB Mediated Education: A method to facilitate computer supported education (Garrote et al., 2011)

The university of Borås in Sweden was requested, through the III Alfa Programme financed by the European Union, to train educators in Guatemala in Learning Management System (LMS), a programme that is able to evaluate, teach and administrate courses and that also facilitates the use of Open Educational Resources (OER). The problem to implement that request was that LMS requires high ICT infrastructure, something not common in Guatemala. In that context, the University of Borås adapted the course from one that is internet-based to one that is USB-based. The course was given in 2010 to Engineering teachers from Centro Universitario de Occidente- Universidad de San Carlos (CUNOC-USAC), a university that uses textbook based pedagogy.

The new pedagogy was problem-based learning (PBL) in order to the participants self-acquire skills, having more responsibility in the learning process; and included digital and on campus elements. The goal of the pedagogy was to turn traditional pedagogies into flexible learning environment. To do so, it inspired the lecturers as OER pioneers in their universities. Every lecturer was requested to adapt their own courses to LSM, adding new materials and tools such as discussion boards. Regarding the results, 14 of 21 participants approved the course. The case shows how the lecturers learned much more from their own experience. The results of the course were positive in terms of the evaluation of the content, tools, materials, etc. The participants were willing to apply the new pedagogy to their students and valued the use or contribution of free material in internet. As limitations, the final results with students will depend on the staff and their abilities to change their educational practices.

Case Study 2: MOSL: An Innovative Approach to a Supplementary Course of Mathematics in Engineering (Portillo et al., 2017)

In Guatemala 9 of 10 students do not pass the governmental standardised test which means many students enter to universities with many knowledge gaps. Specifically, in Galileo University, a private higher education institution focused in computer science and engineering, the 40% of the engineering students of the year in study, did not meet the basic mathematical knowledge. In that context, as a way of retention and motivation, Galileo University designed a non-traditional supplementary course for their first-year engineering students to be taught at the same time than calculus, and as a percentage of final mark, the Math Operator Skills Laboratory (MOSL). It considered 12 weekly sessions of 2 hours. Each session included motivated staff and interaction between

participants in order to influence student's interests. The course curriculum mixed interconnected mathematical topics. Each session started with a self-individual evaluation, then a compilation of the hardest topics and discussion with the staff, and finally a collaborative and team-based learning session. The staff is a facilitator of the learning experience and also learn from student's errors and their way of thinking.

The results, after the course were a positive decrease of the 34% in the grades gap between MOSL students and regular ones that will diminish students delay because Calculous course. As disadvantages, the lack measurement of the effect of each methodology and that there is no statistical evidence to say this course can improve the overall performance of the students

Case Study 3: Agroecology MOOC implementation at Universidad Galileo. (Segura, 2014)

The Galileo University in Guatemala piloted a 4 weeks MOOC during 2014 to teach their students how to recycle PET bottles and create orchards. The MOOC was designed considering Guatemala is one of the countries with the highest levels of malnutrition globally and very high levels of poverty. The MOOC includes interactive tools, materials, videos and self-taught learning process as part of the holism approach of Galileo University. The final version of the MOOC intends to reach a broader spectrum of citizens to positively affect their consumptions habits. The pilot was set among 15 students.

The positive results were related with the possibility to work in the orchard at the same time than checking online material, the better nutrition of students and the transfer of knowledge from participants to other students. The negative results were mainly the attitude from staff of Galileo University against using new pedagogies that do not consider classroom and face-to-face lecturer. Also, some students did not complete MOOC because of disagree with the life style of spend time in farming.

Guatemala	Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	Students are used to interact with smartphones	Face-to-face lecturer classrooms			Traditional approach.		Lack of staff training Resistance from staff in the training and incorporation of technology to their modules	Universities aims to contribute to the solution of national problems and accredit students turn into professional	X		
Classroom	Classroom based pedagogy	Textbook-based pedagogy. There is a lack of interaction with study materials Some on-line materials	The relationship between the student and the professor is vertical and authoritarian.	The students have a passive role There is a lack of interaction among the classmates.	Students just receive information from lecturer.	Learning through memorisation and repetition Examination is competitive	Staff is sceptical to apply methods different than traditional Empiricism based teaching A module is successful if it followed the designed process	Universities aims to contribute to the solution of national problems	X		

Source: Garrote et al. (2011), Segura, (2014), USAC (2018), Rivera et.al (2017).

Guatemala	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>LiveUSB Mediated Education: A method to facilitate computer supported education</p> <p>From: Garrote et al., 2011</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Discourse 3. Proprietary 4. Socio-Cultural 5. Moral <p>Type of innovations</p> <ol style="list-style-type: none"> 1. Computational thinking 	<p>Good evaluation for knowledge acquired, application to their own courses, expectations, materials provided and objectives reached.</p> <p>The participants were engaged in the topic as they were inspired as pioneers in their institutions. Now they are interested in applying new methods in their own courses as well as run on-line courses and publish materials on-line. They stated OER can improve the quality of their own courses and student's performance.</p> <p>It is feasible to implement LMS in developing countries under unfavourable conditions.</p> <p>One of the participants stayed as a lecturer for next students in Universidad de San Carlos, keeping the capabilities within the university.</p>	<p>The institutional support was not strong. It was a voluntary training.</p> <p>The cooperation and interaction among participants could have been stronger.</p> <p>The final successful of the pedagogy will depend on each professor</p>	<p>The original model was didactic as was a traditional approach based on the use of textbooks.</p> <p>The new model has the potential to become a transformative one due the creation of a flexible learning environment with self-acquisition of skills at a lecturer level that will be transferred into their classrooms.</p>	<p>The new model incorporates the use of problem-based learning and team-based learning method as well as the creation of a flexible learning environment. Also, it included ICT training such as LSE and OER.</p>

<p>MOSL: An Innovative Approach to a Supplementary Course of Mathematics in Engineering</p> <p>From: Portillo et al., 2017</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> Socio-Cultural Epistemological Pedagogical Moral Intersubjective Discourse <p>Type of innovations</p> <ol style="list-style-type: none"> Computational thinking Experiential learning 	<p>A decrease of the 34% in the grades gap between MOSL students and regular ones.</p> <p>The course promoted the collaboration and cooperation between students.</p> <p>The motivational role of the staff towards student's engagement</p> <p>The course is included as a part of the mark of Calculous, solving the problem of low enrolment in supplementary courses.</p>	<p>Lack of measurement of the effect of each methodology in the course</p> <p>There is no statistical evidence to say this course can improve the overall performance of the students</p>	<p>There is no information to describe the previous model.</p> <p>The new model is closer to authentic one as it empowers students and give the lecturers the role of guidance instead of controllers.</p>	<p>The new elements are:1) the use of team-based learning along with individual reflection 2) interconnected mathematical topics and 3) staff as facilitator and motivator</p>
<p>Agroecology MOOC implementation at Universidad Galileo.</p> <p>From: Segura, 2014</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> Architectonic Discourse Socio-Cultural <p>Type of innovations</p> <ol style="list-style-type: none"> Computational thinking 	<p>Students positively value to be able to check the videos and materials online at any time considering they are used to have access to internet.</p> <p>13% of students transferred the knowledge to other beneficiaries.</p> <p>The knowledge was effectively acquired through the MOOC and it positively affected economy and nutrition of students.</p>	<p>Galileo University staff was sceptical with running a module outside the classroom and without a face to face lecturer.</p> <p>13% of students rejected the MOOC due to cultural reasons, they preferred to buy their food instead of spend time in the orchard.</p>	<p>The previous model was didactic as is a traditional model approach. The new model is authentic as it allows students to interact with the materials provided and some even transfer that knowledge to other beneficiaries.</p>	<p>The new elements are: MOOC course with materials, tools and videos. Including self-learning process.</p>

Other Examples of Innovative Pedagogies

<p>New Educational Model, San Carlos University</p> <p>From: USAC, 2018</p>	<p>San Carlos University has just published its new educational model that intends to change from a process-based system with traditional pedagogies to a learning-base system with new pedagogies. The current pedagogy consists in: 1) a classroom-based pedagogy where the lecturers teach based on empiricism due to a lack formal training in academia and the learning is get through memorisation and repetition. 2) The students have a passive role and they just receive information. 3) Also, the relationship between the student and the professor is vertical and authoritarian. 4) There is a lack of interaction among the classmates and with study materials. 5) Sometimes the professor can use technologies to develop the modules or to take examination. 6) The examination is a competitive one. 6) The methodologies are teaching-based and not learning-based. 7) A module is successful when it has covered all the process designed at the beginning.</p>
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	<p>The new pedagogy considers: 1) a change in spaces for instance multidisciplinary labs to promote learning, 2) the strengthen of resources towards lecturers training especially in new pedagogies and use of technology 3) lecturer aims to transform the reality instead of imitating it, he is a facilitator of learning, 4)the use new methodologies such as community based-learning to develop skills and gain knowledge 5) add internship requirement to students to gain more real experiences, 6) add a tutors system between students and professor-students. 7) A module is successful when it has reached the objectives and skills pursued at the beginning no matter the process. Learning based system.</p>
<p>Active Learning at Universidad Mariano Galvez From: Steelcase, 2012</p>	<p>Universidad Mariano Galvez (UMG), a private university in Guatemala and well recognised in Central America, is working in a new classroom paradigm in order to engage students and lecturers, transforming the spaces and using the technology to support learning and teaching methods. The first change was the implementation of 6.000 “Steelcase Node classroom chairs”, very adaptable and flexible chairs for classroom, that facilitate the interaction and collaboration between students and staff. The next step of the project will be to train the staff in the use of the new space. Also, UMG is working in the design of ICT training and innovative pedagogies training for their faculty. Since the implementation of the new chairs, the staff perceived a better environment to work.</p>
<p>San Carlos University Virtual Campus Unit From: USAC, 2018</p>	<p>San Carlos University has a Virtual campus unit aim to train lecturers, for instance in new digital tools in education. One of the sub-units mixes face-to-face training with digital pedagogies, with more than 1.000 lecturers as participants from 41 departments, reaching 12 online training and 24 faces to face ones.</p>

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7.3.6. Malawi



Higher Education Context

Malawi, along with 20 other African countries, has been receiving financial support for developing its entire education infrastructure from the World Bank as part of the Education for All-Fast Track Initiative launched in 2002 (Mizrachi et. al., 2010). Additionally, USAID has provided significant financial support (\$664 million USD between 1960 and 2002) to support education development in Malawi (Mizrachi et. al., 2010). Technical School and Higher Education is heavily subsidized by public resources, and at a higher per unit cost relative to other countries with similar economic status – accounting for over 80% of public universities’ income (World Bank, 2010). Public universities do not spend efficiently, with emoluments and benefits accounting for more than half of all expenses, with little spent on teaching materials, equipment, books, or research (World Bank, 2010).

Until 1998, Malawi only had one university in the country – the University of Malawi (Mizrachi, 2010 et al). There now are fifteen accredited universities (four public and eleven private) universities – more than half of which are in the capital city of Lilongwe (UniRank, 2018). From 1998 to 2010, enrolment in public universities doubled, however only 64 per 100,000 people have obtained a higher education which has remained the lowest in the world (Mizrachi et. al., 2010). As of 2000, only 1% of Malawi’s population was enrolled in universities. Given their growing demand for highly skilled labour, Malawi will depend on expatriates to fulfil their growing demand in the foreseeable future, unless the high education framework extends (EPDC, 2014).

The completion rates of students correlate highly with the wealth and privilege of the students, meaning that the public funding provides the highest benefit for the wealthy – making the Malawian education system incredibly elitist – the highest in Africa, with 73% of the public resources going to the 10% most educated students. 90% of higher education students are from the wealthiest 20% of families (Mizrachi et. al., 2010). In addition, the publicly funded student loan system is inefficient as there is no legal mechanism to recover the loans – and are therefore the loans are often treated as grants. The wage growth for graduates of higher education is extremely high – they make approximately 5.49 times the annual salary of graduates from a technical or vocational school, and 16.3 times the annual salary of graduates from secondary school (Mizrachi et. al., 2010).

Since 1998, the government of Malawi has directed and encouraged more interactive and inquiry-based methods of learning that revolve around learner or student. The national policy on education has even included the goal to “develop a spirit of inquiry, independent thinking and problem solving” (Ramnarain et al., 2016). However, a study published in 2016 showed that Malawian physical science teachers had an unexpectedly strong direct didactic preference – which was especially prevalent in disadvantaged schools. The majority of teachers though mixed pedagogical preference (between didactic and learner-focused). A caveat to this study is that it focused on primary and secondary physical science teachers as the subjects. (Ramnarain et al., 2016).

There are two main types of higher education students – residential students who live in campus and parallel students who do not (World Bank, 2010). Historically, admission used to be based on the limits of bed-space for residential students, but universities have dismissed that policy leading to excessive classroom overcrowding and leaving “parallel students” receiving much less government support in financing their education (World Bank, 2010). In terms of inclusion, the Malawian education system demonstrates significant gendered disparities with regard to access to education. Poor female student performance and comparatively high dropout rates are, in part, a consequence of cultural biases (Mambo et. Al., 2016). The government has initiated programs to reframe the dominant perception of women in society as the stewards of their husband’s household and child minders (Mambo et. Al., 2016).

Finally, all institutions reported some level of engagement with the private sector. Private sector companies participate in curriculum design and offer feedback on its quality and relevance. However, while students are able to visit private sector companies and there are some collaborative researches that academia and private sector, there were no examples of visiting lecturers recruited from the private sector or the extension of internships to students (Mambo, et. al., 2016). Unemployment Rate in Malawi remained unchanged at 5.90% in 2017 from 5.90% in 2016. Unemployment Rate in Malawi averaged 7.17% from 1991 until 2017, reaching an all-time high of 7.80% in 2003 and a record low of 5.90% in 2014 (Trading Economics, 2018).

Pedagogical Innovations

Case study: Increasing Access to Higher Education Through Open and Distance Learning: Empirical Findings from Mzuzu University, Malawi (Chawinga, 2016)

There have been huge efforts have been put into increasing the access to higher education in Malawi. Mzuzu University in 2015 reports that the intake of the university has only grown from 60 students in 1998’s first intake to 3,590 by 2014 (World Bank, 2018). However, the overall enrolment of the tertiary education stands at less than 1% which is less than 100 people per 100,000, but the hunger for higher education is increasing day by day in Malawians (World Bank, 2018). In pursuit of expanding access to tertiary education to as

many Malawians as possible, MZUNI have introduced the ODL Programmes. ODL is a relatively new concept in the institutions of higher education in the light of the fact that it was mainly practiced at secondary school level (Chimpololo, 2010).

In July 2006, MZUNI established the Centre of Open and Distance Learning (CODL) to plan, prepare and coordinate their programmes through open and distant learning methods (Chimpololo, 2010). The sole aim of the centre was to provide university education to qualified Malawians who were not enrolled into higher education institutions due to inadequate learning facilities. Upon its foundation, the Centre indicated that it could utilize various delivery methods including “print media, radio, television, multimedia, Internet-based media and web-technology” (Mzuzu University, 2014). To Smoothen its operations and increase the admission of ODL students, (Gwede, 2014) highlights that MZUNI seek partners who can support with the development of the technological infrastructure, setting up of satellite centres, and repackaging of print instructional materials into portable audios and visual versions that would support learners to listen and view the lectures at their own pace and time convenience by utilizing computers or mobile technologies.

However, the call for support by the University is in no doubt justifiable on the grounds that Malawi is one of the poorest countries in the world and it is ranked number 174 out of 182 on the Human Development Index according to the Human Development report(2014) by the United National Development Programme (UNDP).

Malawi	Baseline Context								Models		
	Architecto nic	Discourse	Intersubj ective	Socio- cultural	Proprieta ry	Epistemol ogical	Pedagogic al	Moral	Didactic	Authentic	Transfor mative
Institutional	University buildings with poor/basic infrastructure Classroom based learning Strong focus on distance learning via ICTs (online classrooms)	Verbal communication accompanied by written materials (i.e. textbooks, handouts, blackboard)	Teacher remains leader of classroom and exerts power over students in the learning space	Students maintain a 'learner' identity, by which their external experience are given little attention in the learning space	Teacher controls the learning environment. Private sector companies participate in curriculum design and offer feedback on its quality and relevance.	Material is learned primarily through memorisation and recitation	Pedagogy is based on the core purpose of teaching, learning and assessment. Learning is assessed through exams and other forms of topical knowledge inquiry	The Malawi Government launched in 2017 the transformative purpose of H.E. of "developing a workforce with skills, values and attitudes that should respond to global challenges."	X		
Classroom	Crowded lecture classrooms, where halls have also become lecture spaces although it was not the intention. Many students have to sit on the floor	Students have coined the term "learning by rumour" as students they cannot properly hear the professor and have to ask each-other and rely on each-other's notes.	Teacher remains leader of classroom and exerts power over students in the learning space	There are soft-power dynamics where residential students receive more benefits than parallel students. Female enrolment is significantly lower often	Students have no opportunities to ask questions, discuss, critique, problem solve or challenge what they are being taught.	Lecturers do pose questions, but they consciously answered them without giving the students opportunities to offer their own perspectives.	Straight lectures do not stimulate intellectual curiosity and creative development.	To be as inclusive as possible, to facilitate poverty alleviation and promote rapid social and economic growth	X		

				treated as minority								
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Sources: (Mambo et al, 2016) (Chisiano, 2017)

Malawi	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Increasing Access to Higher Education Through Open and Distance Learning (ODL): Empirical Findings from Mzuzu University, Malawi</p> <p>From: Chawinga, 2016</p>	<p>Dimensions Covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Pedagogical 3. Moral <p>Type of innovation</p> <ol style="list-style-type: none"> 1. Computational Thinking 	<p>Flexibility for the students wher the can enrol into the programme even when they have a full time job. In this way, they can strive for better salaries and promotions. Also, for parents who need flexibility or students with reduced mobility.</p> <p>Tuition became more accessible by diminishing its cost and being able to pay by quotas.</p>	<p>Academic feedback and grades from instructors takes longer. Hence, the results of the whole semester take more time as well.</p> <p>Not enough study materials.</p> <p>Heads of Departments express communication challenges with the Centre, bad salary compensations, and longer (less efficient) registration of students.</p>	<p>There are only 4 Public Universities in Malawi, and the Mzuzu University is the only covering the north-east region. As a result, Students with time or mobility restrictions did not had any option to receive higher education and tuitions costs were exceptionally high.</p> <p>The higher education model is highly traditional, inside four walls, with very crowded rooms and poor infrastructure.</p>	<p>The case study proves the number of enrolments through ODL represents 10% of total enrolments proving it success.</p> <p>Communication between the Centre and lecturers is a major coordination bottleneck</p> <p>Poor competitive numeration to lecturers involved in teaching ODL students.</p> <p>ODL Registration process is very inefficient.</p>

Other Examples of Innovative Pedagogies

<p>Skills Development Project</p> <p>From: World Bank, 2018 and NCHE, 2018</p>	<p>The World Bank is running a USD \$46 million project from 2014 to 2019 in order to improve the skills of young people in Malawi to equip them with the strategic skills needed for the country. The sectors include Agriculture, Construction, Health, Engineering among others.</p> <p>The beneficiaries of the project will be the Malawi Polytechnic, Lilongwe University of Agriculture and Natural Resources, Mzuzu University Chancellor College and Technical, Entrepreneurial and Vocational Education and Traditional Authority.</p> <p>No data was found regarding the current state of the project making it difficult to assess its success.</p>
<p>Skills Development for Entrepreneurship</p> <p>From: African Development Bank, 2016</p>	<p>The project aims to improve the capacities of young people regarding entrepreneurship in order to impact employability in the context of Malawi Development Strategy that seek to give to their citizens decent jobs. The initiative includes the engagement with different stakeholders including Government, private sector, NGO, etc., and the prioritisation of strategic sectors that allow sustainability of Malawi. The first focus will be in young people between 15 and 35 years, including entrepreneurs and youth that are out of school.</p>
<p>Technical Entrepreneurial and Vocational Education and Training (TEVET)</p> <p>From: (World Bank, 2010).</p>	<p>In 1999, Malawi introduced the TEVET Act in order to re-orient training to market labour needs. However, the attempt did not work very well. the TEVET system in Malawi is still very uncoordinated and is a mix of numerous public and private systems. (World Bank, 2010). Access to public TEVET programs is very low – only 35 students per 100,000 people - and typically consists of four-year apprenticeships. There is an intake capacity of just 700 apprentices each year (even though there are about 10,000 applications). Public technical training is limited to traditional technical trades. There are other private systems commonly run by companies, NGOs or churches, but there is little robust data on the state or efficacy of these systems. TEVET access is biased against women, especially in private organizations. In public trade schools, women consist of just 30% of students - which is an improvement due to anti-discrimination policies employed by the TEVET Authority.</p>

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7.3.7. Mauritania



Higher Education Context

Mauritania's higher education system can be described as being highly underdeveloped, compounded by numerous political crises, with Mauritania's largest and most well-known university, being the University of Nouakchott established in 1981 (Sawahel, 2009). The higher education system in Mauritania falls under the administration of Ministry of Higher Education and Scientific Research (Sawahel, 2016), founded in 2005 (Agyeman, 2007). In 2016, administered by the government a Council for Scientific Research and Innovation was set up alongside the Ministry, to enhance the capacity of universities and research bases (Sawahel, 2016). In 2001, Mauritania launched its ten-year education system development programme or PNDSE, to increase national development, raise citizens' living standards, increase girls' education accessibility and increase the competitiveness of its national economy (African Development Fund, 2001). Recently the Ministry of Higher Education and Scientific Research and its decisions have come under a lot of scrutiny (Sawahel, 2018a) as in the beginning of 2018, the Ministry of Higher Education and Scientific Research in Mauritania made the decision to drop the age of student eligibility for scholarships leading to widespread protests (Sawahel, 2018a). There are also concerns of shortage of staff, poor teaching and research infrastructure, and issues with the Minister of Higher Education and Scientific Research- Sidi Ould Salem, increasing power toward himself (Sawahel, 2018b).

Mauritania had its higher education imposed by French colonials, and has not developed its own sector and higher education identity outside of this French context (Lindsey, 2016). In development of Mauritania's higher education system, it is recognised that this has to be done in the means of the employment market- especially the national one (Lindsey, 2016). The Minister of Higher Education and Scientific Research has indicated the need for a realistic view of the country's economic needs- whereby higher education subjects need to be shaped according to varying sectors- private and public; local, regional and international (Lindsey, 2016)- otherwise, students will leave the country- even if high-quality higher education establishments are in place. Additionally, to update the higher education sector and its infrastructure, ICT development has been invested in alignment with Mauritania's National Information and Communication Infrastructure Plan (2000) (Agyeman, 2007; UNCTAD, 2010). However, these efforts have been impeded by poor

electricity infrastructure, the unwillingness of investors in the ICT projects to provide internet and limited government funding (Agyeman, 2007).

Pedagogical Innovations

The minister furthermore stated that he would like to ensure an internationalisation of the student experience of young Mauritians- and to keep them connected to the global world. To contribute toward this goal, the minister has established a translation and an English-speaking institute in Mauritania. He furthermore, increased the number of teaching hours of teachers from six to eight hours per week which was said to be due to Mauritanian professors conducting less time toward research. The minister further aims to create a high council for research in Mauritania, with introduced research funding- to expand the country's research base. (Lindsey, 2016).

In the case of Mauritania, there have been initiatives taken to innovate the higher education sector through pedagogical means. However, in the research of these, it was found that many of these were described in an over-viewing manner without addressing their outcomes, with little focus of evaluation- describing advantages and limitations to the initiatives. Thus, in Table XX, the innovative initiatives are not analysed with a case-study-based framework, but listed with given surrounding information.

Mauritania	Mauritania Baseline Context					Models		
	Architectonic	Discourse	Socio-cultural	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	<p>Higher education occurs within the physical infrastructure realms of the higher education institutions in Mauritania.</p>	<p>Mauritania's higher education sector does not have the independent institutional capacity to produce globally competitive graduates. Additionally, there are weak linkages between higher education institutions and industry.</p> <p>Physical infrastructure in the form of electricity impeded ITC improvement initiatives.</p> <p>As of 2007, the only long distance online programme of higher education available in Mauritania was the Global Distance Learning Centre or CFED.</p>	<p>The higher education system has been inherited from the French system under colonialism, without having achieved self- and independent development.</p> <p>As a result of country underdevelopment and French colonialism and post-colonialism influence- high-ranked professionals and professors have attained an education abroad, as in France.</p>	<p>Mauritania's higher education system and its curricula is characterised by a significant non-alignment with the employment market.</p>	<p>The view on the purpose of higher education varies between persons and institutions- however, it is generally agreed the institutions in place should produce graduates with skills suited for the job market- especially the local one, including Mauritania's oil-based sector- and Sidi Ould Salem (the Minister of Higher Education and Scientific Research) emphasised the need for this realistic match between the higher education sector and the local economy.</p>			
Classroom	<p>Mostly takes place within the physical infrastructure of the higher education institutions, except for when authentic practice</p>	<p>The higher education standard and its practices- including teaching capacities are highly underdeveloped and below international standard.</p>	<p>Many of the professors at the country's universities, including the University of Nouakchott, have been educated abroad.</p>	<p>Highly non-aligned curricula with the needs of the employment market.</p>	<p>The purpose of higher education and classroom-based pedagogies is viewed to be the production of graduates with skills applicable to the</p>			

	and experimentation is given.				employment market- especially the national one.			
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Sources: Education.stateuniversity.com., 2018; Lindsey, 2016; Agyeman, 2007; Sawahel, 2009; Sawahel, 2016; Sawahel, 2018b; Morio, 2014; UNCTAD, 2010

Innovative Pedagogies

Sudanese and Mauritanian Collaboration (2017)	<p>In 2017, the Sudanese and Mauritanian ministries of Higher Education and Scientific Research, expressed readiness to develop the relations in these fields between the two countries through constructive cooperation. The established collaborative programme has entailed the planned provision of 20 master degree study seats on the Mauritanian side for Sudanese individuals, and on the Sudanese side- 30 academic and technical diploma and bachelor degree places for Mauritians (allAfrica, 2017).</p>
Algerian and Mauritanian Collaboration (2018)	<p>In May 2018, Algeria and Mauritania signed a three-year executive programme, granting 200 university scholarships to Mauritania in different specialised fields (Aps.dz., 2018).</p>
University of Nouakchott and Ningxia University Collaboration (2015)	<p>In 2015, the University of Nouakchott and Ningxia University in China signed an agreement to cooperate on student and teaching matters, and have set up exchange visits for university managers and for students undertaking language studies. Under the agreement, the University of Nouakchott has agreed to increase Chinese language studies and in exchange, Chinese students would come to the University of Nouakchott to learn Arabic. Ningxia University is located in the region of Ningxia in China which has a Muslim majority population (Universityworldnews.com., 2015).</p>
Establishment of a Higher Institution of English (2017)	<p>In 2017, the Mauritanian Ministers of Defence and Higher Education opened up a Higher Institution of English, along the minister of higher education's goals to further the knowledge of English in the country (Tvetuk.org., 2017).</p>
Production of Diaspora Portal to Fight Brain Drain (2017)	<p>In 2017, an academic diaspora portal was launched in Mauritania to link up Mauritanian experts who are experts abroad to support teaching, together with research in national higher education institutions. This is in the efforts to use the diaspora community's knowledge to turn brain drain into 'brain gain'. The portal was launched with funding from the International Organisation of Migration (IOM) of the UN's Development Fund. The portal is managed and updated by officials from the Ministry of Higher Education of Mauritania. The portal will not only provides a means of virtual conversation and relationship-building with the international diaspora, but also aims to facilitate the expertise through the return of these individuals on a short- and long-term basis to the country (Sawahel, 2017).</p>
The Modes of Working of the Institute of Science and Technology	<p>In Mauritania, an initiative deemed to pursue advanced technology and innovation in its individual context by Morio (2014), has been the Institute of Science and Technology in Rosso, Mauritania, which focuses on regional agriculture and environmental issues- and education, research-based investigation- and application of appropriate technology toward these. The Institute, also referred to as ISET, provides three to five year training programmes- and these focus on research activities which are oriented around regional issues and easily applicable technologies for local community technology transfers. The research and educative initiatives taken on are context-focused to their surrounding regional area, and can contribute highly to sustainable and effective development- rather than trying to jump ahead to a globalised context with little applicability in the regional setting. Moreover, the institute has a business incubator to build on its institute's research- to create regional-focused economic growth (Morio, 2014).</p>

Business Day at the University of Nouakchott (2017)	<p>In 2017, the University of Nouakchott (or the University of Nouakchott Al Aasriya) organised a University-Business Day, in order for the professional sector and graduates to network (Université de Nouackott Al-Aasriya, 2017).</p>
Collaboration between the University of Nouakchott and African Virtual University (2017)	<p>The University of Nouakchott established through the Open Virtual Training and e-learning Centre (FOADeL) of the African Virtual University with the collaboration with the African Virtual University- a Certificate in Applied Computer Science in 2017 (Université de Nouackott Al-Aasriya, 2017).</p>
Start-up Competition at the University of Science, Technology and Medicine (2015)	<p>In 2015, the University of Science, Technology and Medicine of Nouakchott launched under the oversight and funding of the Minister of Higher Education and Scientific Research, a national competition in entrepreneurship regarding the creation of start-ups. The initiative came about as part of the West Mediterranean 5+5 Dialogue for Research, Innovation and Higher Education (Université de Nouackott Al-Aasriya, 2015).</p>

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7.3.8. Pakistan

GDP per capita 2016 (USD)	% Investment in Education (last available data between 2008-2016)	Human Development Index 2015
• 1,443.6 • Average SPHEIR countries: 2,112	• 2.8 • Average SPHEIR countries: 3.6	• 0.55 • Average SPHEIR countries: 0.58

Higher Education Context

In 2010, Pakistan had 60 public universities, 42 private universities, 13 public degree-awarding institutions (DAIs) and 17 private DAIs ([Hoodbhoy, n.d.](#)) – total of 132. As of July 2018, the number had grown to 97 public and 66 private universities, serving 120M students ([Mirza, 2018](#)). Regulated by the Higher Education Commission (HEC), the Pakistani higher education sector has increased substantially in recent decades; the role of open and distance learning programmes has greatly expanded the scope of higher education in the country ([Hoodbhoy, n.d.](#)). As enrolment rates have increased substantially, so too has the funding allocated to higher education by government, as well as the private sector ([Hoodbhoy, n.d.](#)). The liberalisation of the sector has been paramount for the expansion of educational opportunities.

Nevertheless, as with many developing countries, Pakistan continues to face significant obstacles that hinder the full utilisation of the higher education sector in development. First and foremost, accessibility remains an issue for many students that do not come from privileged backgrounds; while the fees for public universities are relatively affordable for many Pakistanis, the quality of the education compared to that in private universities is subpar ([Hoodbhoy, n.d.](#); [Mirza, 2018](#)). As a result, the vast majority of higher education students are unable to afford a quality education, further exacerbating the socio-economic as well as provincial divide that riddles Pakistani society ([Mirza, 2018](#)). Secondly, the quality of education in many Pakistani universities does not meet international standards ([Hoodbhoy, n.d.](#)). This stems from multiple sources, though the low quality of teacher education is a significant contributing factor and, to a lesser but equally significant degree, so is the low quality of students entering higher education ([Hoodbhoy, n.d.](#)). For instance, the average number of PhD-holding professors per Pakistani university is 30, which is shockingly low compared to many western nations ([Hoodbhoy, n.d.](#)). Similarly, many professors only teach part-time – in 2003/4, ~61% of professors ‘moonlighted’ in other careers ([Hoodbhoy, n.d.](#)).

This is not to say that Pakistan has not worked to improve its tertiary institutions. The HEC has actively intervened in the higher education sector as it sees fit: since 2004/5, HEC has been revising university curricula to modernise higher education output, recommending changes to degree programmes to improve quality and relevance ([HEC, n.d.](#)). Likewise, the HEC runs the Smart Education initiative, an umbrella programme for many smaller initiatives, such as Smart Bags, Smart Campuses and Smart Classrooms, each aimed at increasing the prevalence of ICTs in the Pakistani

higher education sector ([HEC, n.d.](#)). However, very little is known about the success of these programmes and whether or not they have achieved their stated aims of modernising universities' pedagogical approaches.

Pedagogical Innovations

Case Study 1: Project for Enhancement of Educational Facilities at Allama Iqbal Open University

From: Asato, 2010

In recognition of Pakistan's large population and unique hindrances that make the expansion of education's physical infrastructure difficult, the Japan International Cooperation Agency partnered with Allama Iqbal Open University to expand its ICT infrastructure and reach more individuals who yearned for education but could not report to a university in-person. JICA assisted in the procurement of ICT equipment for the AIOU's Institute of Educational Technology as well as assisted in the development of new teaching materials for both instructors and students. The partnership was able to reduce inequalities in education opportunities caused by regional and gender issues.

	Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemologica	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	<p>Wide variations in infrastructure quality</p> <p>Many institutions lack adequate ICTs</p> <p>Distance learning is utilised to reach remote populations</p>	<p>Most teachers use notes taken when they themselves were in school, which is now mostly outdated</p> <p>e-books are available at some universities</p>	<p>Teacher-centred environment results in a learning space dominated by the instructor</p> <p>Power is centralised with the professor</p>	<p>Teacher-centred environment</p> <p>Some teachers are less motivated due to poor pay structure</p>	<p>Pakistani universities face substantial intervention from the government</p>	<p>Rote learning is the dominant learning mode except at the nation's best universities</p> <p>There is little conceptual thinking</p>	<p>There is a lack of emphasis on critical thinking in some universities</p> <p>Exams are typical assessment methods</p>	<p>Higher education should directly support national development, with the added aim of being a top 25 leading economy by 2025</p>	X	X	
Classroom	<p>Learning typically takes place in traditional lecture-style classrooms</p>	<p>Many teaching materials are out-of-date, though ICTs enable access to modern information at some universities</p>	<p>Professors maintain control of the classroom</p>	<p>Students increasingly have a say in classroom matters, though professors still maintain control</p>	<p>Pakistani universities face substantial intervention from the government</p>	<p>Conceptual and critical thinking are not actively encouraged in classrooms</p>	<p>Rote learning and exams place emphasis on memorisation over understanding</p>	<p>Students should aim for employment in the nation's leading industries</p>	X	X	

Sources: [Rehman et al., 2009](#); [Hoodbhoy, n.d.](#); Ayub et al., 2013; [HEC, 2017](#)

Pakistan	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>Project for Enhancement of Educational Facilities at Allama Iqbal Open University</p> <p>From: Asato, 2010</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Socio-cultural 3. Epistemological 4. Moral 5. Discourse <p>Type of innovations</p> <ol style="list-style-type: none"> 1. Computational thinking 	<p>Procuring more equipment increases the scope of AIOU's distance learning programmes</p> <p>More underserved populations are now reached</p> <p>More than 2,000 participants were able to register for distance learning courses</p> <p>More than 330 education broadcasting programmes were added</p> <p>Nearly 1,000 CD teaching materials were produced</p> <p>Nearly 700,000 more women and more than 560,000 men were enrolled in programmes between 2003 and 2009</p> <p>Individuals received more training in English, education, business administration and teacher-education courses</p>	<p>While the project greatly increased the number of ODL programmes offered and enrolled more individuals, the quality of the education they received is not known</p> <p>More ICTs increases the operation costs and maintenance, though thus far it has been well-managed</p>	<p>This project primarily adds to existing ODL programmes, though it has a specific aim to increase accessibility to underserved populations in rural areas of Pakistan, which is a slightly different mandate than similar ODL programmes in Pakistan.</p> <p>The pedagogical approach remains relatively didactic as learners simply listen to broadcasts, but maintains much more flexibility for learner contexts</p>	<p>New model maintains flexibility for learners' schedules that is generally lost in the traditional classroom setting</p> <p>AIOU is able to increase its ICT footprint</p> <p>Pakistan's education broadcasting programmes are better able to reach underserved populations in rural areas</p>
Other Examples of Innovative Pedagogies					
Entrepreneurship Education in Pakistan	Many universities in Pakistan have expanded their course offerings to include entrepreneurship studies, which is innovative in itself as the societal value placed on entrepreneurship in Pakistan is relatively low. Universities such as the Institute of Business Administration (IBA), University of Management and Technology				

<p>From: Qureshi et al., 2015</p>	<p>Lahore (UMT Lahore), the University of Central Punjab, among others, have included in addition to classroom lectures, case studies, field visits, entrepreneurial projects, industry tours and experiential learning as a means of increasing the nation's entrepreneurial base.</p>
<p>Huawei's "Seeds for the Future" Programme HEC, n.d.</p>	<p>Through an international collaboration with the Chinese tech firm Huawei, 15 Pakistani university IT students were invited to Beijing and Shenzhen for 2 weeks to receive training on Huawei technology. At Huawei's Shenzhen Training Centre, students attended seminars on telecommunications networks and mobile network services; they also took place in decoding exercises and gained exposure to cloud computing, as well as 5G networks. Students were able to configure their own 4G base stations, engage in network engineering and 3G and 4G platform services. After the training, students were quizzed and received certificates in accordance with their performance.</p>
<p>University-Industry Technology Support Programme HEC, 2016</p>	<p>Awarded by competitive merit, the UITSP research grant encourages PhD students to conduct research that pertains to Pakistan's top GNP-contributing sectors. The purpose of this programme is to build strong linkages between universities and Pakistan's leading industries, assisting in "capitalizing on emerging international demand for products and processes in discrete and continuous manufacturing that shall contribute to [the] national economy."</p>

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7.3.9. Peru



Higher Education Context

Peru is facing a stage of expansion of its higher education system (Irigoyen, 2017). From one side, the demand has increased due to an increment of population in urban areas and well as due to a higher immigration (Irigoyen, 2017). At the same time, since the creation of a law that allow the creation of private universities with or without profit, new massive actors have appeared (Irigoyen, 2017; SUNEDU, 2015). For instance, between 2005 and 2015, 58 universities were created, most of them private ones, including the creation of “low fee universities” that aims to democratize the system (Irigoyen, 2017; SUNEDU, 2015). Currently, Peru has 143 higher education institutions (SUNEDU, 2018).

Within that expansion the higher education system has still many challenges to solve: 1) The low-quality level of education (Sanchez and Singh, 2008). For instance, the best Peruvian university ranks number 500 globally (SUNEDU, 2015); 2) High inequalities within the society in terms of ethnical background and socio-economic gaps (Sanchez and Singh, 2008); 3) The weak role of the university in society (SUNEDU, 2015).; 4) the few developments in science and technology (SUNEDU, 2015).and 5) the mismatching between university and competences required in labour market (SUNEDU, 2015). At the university, the majority of the teachers have postgraduate studies, but just one of 6 has studied abroad and just a quarter manage to speak English (INEI, 2011). Regarding the pedagogies, although they are mainly traditional ones (Mejía-Navarrete, 2018) universities have some ICT infrastructure. For instance, just the 30% of higher education institutions in Peru do not have a virtual classroom, most of them public ones (INEI, 2015). Also, Peruvian government have launched the initiative “Peru Educa” that aims to open e-learning to the community (MinEdu, 2007b cited by Maldonado et. al, 2009).

Finally, Peru is part of the Latin-American countries that have started to catching-up to improve the standard of learning as well as the research in the context of transform their universities in “world class ones”, which means, universities that not just teach but also create innovation, technologies and strategic resources (Lavalle and de Nicolas, 2017). Indeed, one of the main pillars of the new governmental

strategic Plan 2021 is to foster innovation and development, which considers the strengthen of research and improvement of accreditation of higher education institutions (República de Perú, 2010).

Pedagogical Innovations

Case study 1:

The Link Class Project: Collaborative virtual teams between Peru and the Netherlands (Olivos et al., 2015)

Developing countries are creating strategies to provide their students the experience of intercultural learning in order to face global challenges. For the students that cannot study abroad, virtual experiences can be implemented instead. This is the purpose of the project “class link”, applied between students from ESAN University in Lima, Peru and Tilburg School of Economics and Management, Netherlands as part of the doctoral dissertation of one of the authors of this case study.

The project considers a management science course that at the same time uses cross-cultural theories in a virtual environment that fosters collaborative learning among students and lecturers from both countries. The methodology of the course is: first, sessions in the local universities; second, a videoconference interaction among the international participants in teams of 4-6; then, group preparation of presentations through social media; finally, the evaluation of the co-report prepared. All the deliverables have to be developed from a cultural interaction point of view. The material used are role plays, case studies and papers. 199 responses were collected between 2012 and 2014 to evaluate this initiative. The positive results were a positive acquisition of intercultural knowledge and intercultural competences with positive impact at a personal and professional level. As elements to improve, the desire to acquire international skills was just showed by Peruvian students, was not equal.

Case study 2:

Closing the gap between research and practice in engineering education: UTEC, a Peruvian University (Bejarano and Moreno, 2016)

The University of Engineering and Technology UTEC in Peru have been delivering the programme “Experiential Training in Engineering” for four years. This initiative aims to engage undergraduate students with engineering projects from the beginning of their career to the end, providing them skills to use the existing knowledge to solve real life challenges. In that context, the students take responsibility for their own learning process in project-based learning and active learning experience method. The study measures the perceptions from different stakeholders including students, lecturers and companies, regarding the outcomes of two semesters of this programme.

The results showed all the stakeholders agreed the skills: experimentation, execution, passion and perseverance, and decision-making in a lower level were developed by most of the students. At the same time, stakeholders agree the following skills were not reached: solutions with impact, accurate calculations and courage to implement solutions. Gaps were found among the stakeholders for the following skills: prototype-design, innovation, leadership, decision-making, networking and business orientation.

Peru	Baseline Context								Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Proprietary	Epistemological	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	Low technology diffusion and awareness	Traditional lectures	Vertical relationship between students and academic staff	Students are just an object of learning Passive role of students	The lecturer defines the knowledge taught	Memorisation	Traditional models	Universities should be able to insert their graduate students into the market	X		
Classroom	Virtual education in some courses/universities	Traditional books Some universities use moodles, blackboard, power point presentations, videos, intranet.	In some universities, the lecturers are also evaluated for the students	No interaction among students	The lecturer defines the knowledge taught	Memorisation	Some universities use Competences modelling approach	Universities should be able to insert their graduate students into the market	X		

Sources: Irigoyen (2017), Maldonado et al. (2009), Mejía-Navarrete (2018).

Peru	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>The Link Class Project: Collaborative virtual teams between Peru and the Netherlands</p> <p>From: Olivos, Rincón and Rutkowski, 2015</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Socio-Cultural 3. Proprietary 4. Epistemological 5. Pedagogical 6. Moral <p>Type of innovations</p> <ol style="list-style-type: none"> 1. Blended learning 2. Experiential learning 	<p>Students acquired intercultural knowledge and intercultural competences</p> <p>Students valued the impact at a personal and professional level.</p> <p>Students valued to have previous preparation on intercultural theories.</p> <p>Students have an international experience without need to study abroad.</p>	<p>The virtual experience did not produce the same effects in all the participants. For instance, just the Peruvian students desired to acquire more international skills after the course and just Peruvian students were able to express their emotions during the virtual experience.</p>	<p>There is no information to say which model was before the application of the course.</p> <p>The new model is a transformative one as the students are directly involved in what they are learning.</p>	<p>The new model provides to the students the opportunity to acquire intercultural knowledge, contacts and skills to prepare them for their future professional experiences. Also, the new model gives to the students an active role in the co-preparation of intercultural deliverables.</p>
<p>Closing the gap between research and practice in engineering education: UTEC, a Peruvian University</p> <p>From: Bejarano and Moreno, 2016</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Socio-Cultural 2. Proprietary 3. Pedagogical 4. Moral <p>Type of innovation</p> <ol style="list-style-type: none"> 1. Experiential learning 	<p>Used of project-based learning and active learning experience method during all the engineering career.</p> <p>The students developed the following skills: experimentation, execution, passion and perseverance, and decision-making in a lower level.</p>	<p>The students did not develop the following skills: solutions with impact, accurate calculations and courage to implement solutions.</p> <p>Gaps were found in: prototype-design, innovation, leadership, decision-making, networking and business orientation.</p>	<p>There is no information to say which was the previous model.</p> <p>The new model is a transformative one as students take responsibility for their own learning process co-designing solutions.</p>	<p>The new model incorporates a change in the role of the students empowering them in the solution of real-life problems providing them new skills that will impact their professional careers.</p>

Other Examples of innovative pedagogies

<p>Low fee private universities From: Irigoyen (2017)</p>	<p>Low fee private universities (LFU) in Peru are expanding its higher education system. Those universities have a completely different business model such as 50% less fee, no access filter, lecturers mainly do not do research as they are hired per hours and the universities implement new pedagogical models. For the last point, in particular, the Engineering Private University and the Health Technical University in Lima, are applying Competencies Modelling approach, focused in students gaining the right skills to face and solve real problems. The devices used are Moodle, Blackboard, PowerPoint presentations, videos, internet. They also apply integral evaluation including students and staff.</p> <p>With the information available can be said that pedagogic and socio-cultural dimension can be impacted with this method.</p>
<p>PROCALIDAD project From: World Bank (2012), Procalidad (2015)</p>	<p>The World Bank approved a USD \$25 million loan to Peruvian Government for the implementation of the project PROCALIDAD that aims to improve higher education of Peru. The project includes curriculum reform, assistance in pedagogies and training of the lecturers including professional exchanges, among others. The final goal is to get the accreditation of more than 250 higher education institutions. In 2015, there was an increase of, 24% of universities and 37% of technical institutes, that reached quality.</p> <p>There is no available information to say which dimensions will be impacted but should be expected at least the pedagogical ones.</p>

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7.3.10. Zambia



Higher Education Context

The Zambian higher education system is relatively young, with the University of Zambia established in 1966 shortly after independence, though there are now at least six public and 60 private higher education institutions operating in the country (Butler, 2007; [Higher Education Authority, n.d.](#)). Guiding the higher education sector is the Vision 2030, as well as the National Development Plan, National Qualifications Framework (NQF) and five-year National Implementation Frameworks for education policy (Zambia Education Plan; Country Report – Zambia). These strategies have identified numerous goals and objectives, including increasing access and quality, improving the quality and competency of instructors, enabling education boards to properly manage their institutions and increase the ability of graduates to address the changing needs of the country (Zambia Education Plan; Country Report – Zambia).

Despite these efforts, issues continue to face the nation's institutions. Firstly, the rate of expansion for the nation's higher education institutions is below that of the rate of increasing demand for enrolment, limiting the number of enrolled students (Country Report – Zambia). Secondly, as with many Sub-Saharan African countries, university curricula are unresponsive to the needs of local and global markets, hindering the employability of Zambian graduates (Country Report – Zambia). Thirdly, brain drain of professors and instructors affects the quality of education received in Zambian universities as the most qualified leave the country in pursuit of better opportunities elsewhere (Country Report – Zambia). These are further compounded by the low levels of funding, high levels of gender disparities and infrastructural issues, particularly as related to ICT (Zambia Education Plan; Country Report – Zambia).

The government has worked to address many of these issues. New policies aimed at liberalising the higher education sector aim to increase the number of universities and students who may enrol (Country Report – Zambia; Zambia Education Plan). Additionally, to increase levels of funding, government has embraced public-private partnerships that disperse operating costs amongst many actors, allowing greater pooled resources (Country Report – Zambia; Zambia Education Plan). Moreover, the involvement of international actors has enabled many universities to increase ICT access as well as strengthen integration into the international community (Country Report – Zambia; Zambia Education Plan).

Pedagogical Innovations

Case Study 1: UNZA: Partnership with MedEdWorld Synchronous Online Presentations

From: Schurgers et al., 2009

In 2009, the University of Zambia's School of Medicine (UNZA-SOM) participated in an international collaboration lead by the University of Dundee. Known as MedEdWorld, the online presentations connected UNZA with over a dozen universities in America, Europe and Asia and exposed sixteen UNZA students and a facilitator to learning ICTs. Students were able to respond to questions through audio and video, text and polled responses. The sessions aimed to increase students' abilities, particularly their ability to combine basic sciences with clinical reasoning and problem-solving. The international aspect allowed students to receive different perspectives on a variety of topics. Students found the process to be very user friendly and the instructions clear and self-explanatory. They also found themselves to be more confident with ICTs and encouraged the expansion of e-learning throughout the higher education sector. Additionally, while they recognised some of the limitations due to poor connectivity, they found the ability to connect with students all over the world to be helpful and demonstrated how much the students had yet to learn.

Case Study 2: Royal College of Surgeon in Ireland's Education Programme for Surgeons – Live Web Conferencing

From: Schurgers et al., 2009

Beginning in May 2008, students at University Teaching Hospital (UTH) in Zambia have been participating in web-based e-learning conferences between Lusaka and Dublin. During the sessions, clinical cases are discussed to gain insights from faculty and students in other countries. Zambian students are given access to RCSI's learning materials and faculty and receive highly-personalised learning experiences due to the small number of students assigned to each instructor. The scalability of the programme has large implications for medical education in Zambia as much of the population does not have immediate access to physical university campuses. However, as with many ICT-based programmes in developing countries, the lack of stable connections can make it difficult for students to fully experience and participate in the conferences. Likewise, scalability may be hindered by the low ICT skill levels of many lecturers and students, as well as the instructor's sceptical perspective of ICTs in education.

Zambia	Baseline Context						Models		
	Architectonic	Discourse	Intersubjective	Socio-cultural	Pedagogical	Moral	Didactic	Authentic	Transformative
Institutional	<p>Lack of ICT infrastructure limits the amount of information that can be brought into the classroom</p> <p>Instruction is mostly in classroom setting, though there are some instances of distance learning</p>	<p>Most institutions are didactic, with information delivered through textbooks and handouts</p> <p>Outdated teaching materials</p>	<p>The learning environment is hierarchical</p> <p>Professors remain in control of the classroom environment</p>	<p>As learning is teacher-centred, student identity is inconsequential and not considered relevant to the learning</p> <p>Teachers are demotivated and demoralised due to crumbling infrastructure</p>	Teacher-centred and human resource intensive strategies	The goal of the education sector is to increase equitable access to quality education and skills training to enhance human capacity for sustainable national development.	X		
Classroom	Lecture halls are overcrowded without enough seats to accommodate all enrolled students	Outdated textbooks and other teaching materials	Professors maintain control of the classroom	Education is teacher-centred and student perspective is not typically considered relevant	Teacher-centred and human resource intensive strategies	Students should be able to contribute to the nation's development goals once graduated	X		

Sources: [Lumpa, 2017](#); [Nawa, 2014](#); [Krishna, 2016](#); [Global Partnership for Education, 2018](#)

Zambia	Innovative Pedagogy Case Studies				
	Dimensions Covered	Advantages (successes)	Disadvantages (learnings)	Model 1	Model 2
<p>UNZA: Partnership with MedEdWorld Synchronous Online Presentations</p> <p>From: Schurgers et al., 2009</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Discourse 2. Socio-cultural 3. Pedagogical <p>Type of innovations</p> <ol style="list-style-type: none"> 1. Computational thinking 2. Experiential learning 3. Blended learning 	<p>Exposed students to ICT for learning and increased their comfortability with ICT in general</p> <p>Students were able to interact with others across the world and gain different insights and approaches to various issues</p> <p>Focused on developing clinical reasoning and problem solving</p> <p>Sparked internally-driven motivation to learn more</p>	<p>Lack of adequate ICT equipment made it difficult for students to continuously engage with the material as their connections would be dropped</p> <p>Students didn't know how to properly utilise the ICTs</p>	<p>As the standard approach in Zambia is highly didactic and teacher-centred, internationalising the classroom through ICTs demonstrated a transition from didactic to a quasi-transformative pedagogy</p>	<p>Students are highly engaged with the subject material</p> <p>Students are immersed in ICTs</p> <p>Fits with the desire of the current generation for interaction, proactivity and explorative, exciting learning experiences</p> <p>Previously-held knowledge was challenged</p>
<p>Royal College of Surgeon in Ireland's Education Programme for Surgeons – Live Web Conferencing</p> <p>From: Schurgers et al., 2009</p>	<p>Dimensions covered</p> <ol style="list-style-type: none"> 1. Architectonic 2. Discourse 3. Intersubjective 4. Pedagogical <p>Type of innovations</p> <ol style="list-style-type: none"> 1. Computational thinking 2. Experiential learning 3. Blended learning 	<p>Allows faculty and students to interact with those at different institutions around the world</p> <p>Zambian students have access to learning materials and faculty from Irish university</p> <p>Only 8 trainees per instructor, allowing scalability</p> <p>Potential to reach underserved populations and educate remote physicians and other healthcare providers</p>	<p>UNZA does not have the required access for web conferencing</p> <p>Lack of ICT skills amongst trainees and instructors</p> <p>Learning goals were not well matched with specific technology and administrative support</p>	<p>As the standard approach in Zambia is highly didactic and teacher-centred, web conferencing allows a more personalised approach to education designed to more thoroughly engage the student with material. This demonstrates a shift to transformative pedagogy.</p>	<p>Student-centred learning</p> <p>Students are more personally engaged with subject material</p> <p>Students receive more attention from instructors</p>

Other Examples of Innovative Pedagogies

Copperbelt University: Distance Education Programme

The Copperbelt University, 2018

In recognition of the its limited infrastructure to accommodate ‘traditional’ learning on-campus, Copperbelt University embraces distance learning via video conferencing at satellite campuses. The idea is to reach more students who cannot study at the university’s main campus and to have few professors teaching many students online. Live sessions using e-learning technology, which is integrated with anti-plagiarism software, enables students to do assignments and exams from a distance and maintain the quality of education.

UNICAF Virtual Learning Environment (VLE)

From: UNICAF University, n.d.

UNICAF is an independent, multi-campus tertiary institutions, offering high quality, internationally recognised qualifications. Students can study either completely online or through blended learning; curricula are flexible around the personal and professional lives of students. Students have 24/7 access to digital libraries and study materials, complemented by face-to-face teaching sessions. Public lectures and professional presentations are also offered to the students. UNICAF also partners with internationally-accredited online degree programmes in the EU and UK, which lends legitimacy to the university’s bachelors, masters and doctorate programmes. Exposure to ICT also builds professional competencies that are increasingly needed in local and global labour markets, and integrated online chatrooms enable students to not only build these skills, but engage with professionals around the world who can offer different perspectives on in-country problems.

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7.4. Figures: Qualitative Analysis

Drivers of Innovative Pedagogies

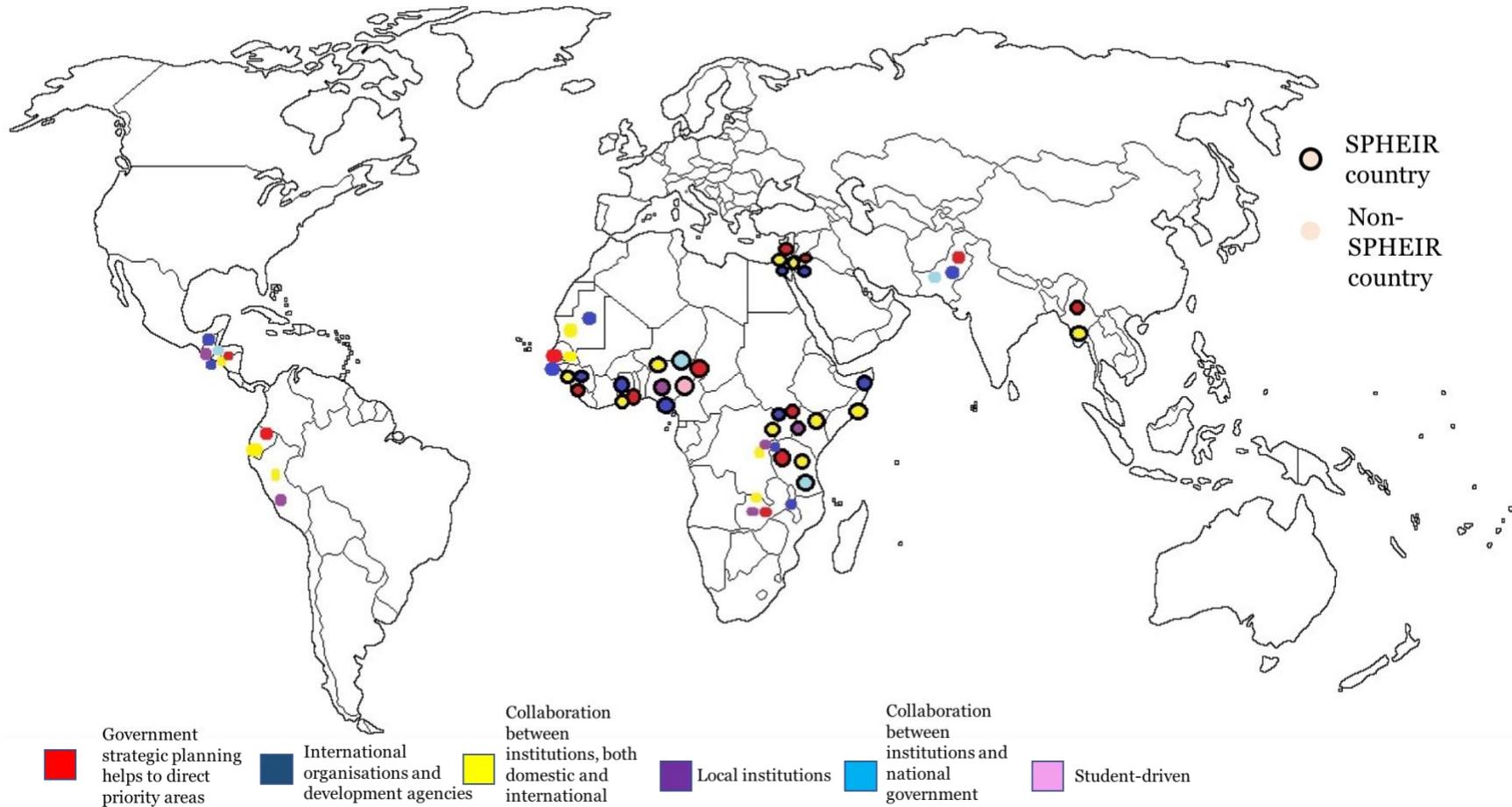


Figure 9: Visualisation for Drivers of Pedagogical Innovations Landscape

Source: UCL STEaPP SPHEIR Group Project 2018

Adapted from: Outline-world-map.com (2009) (OBS. South Sudan is not marked out)

**Targeted Skills Development (Burundi,
Mauritania and Pakistan not included)**

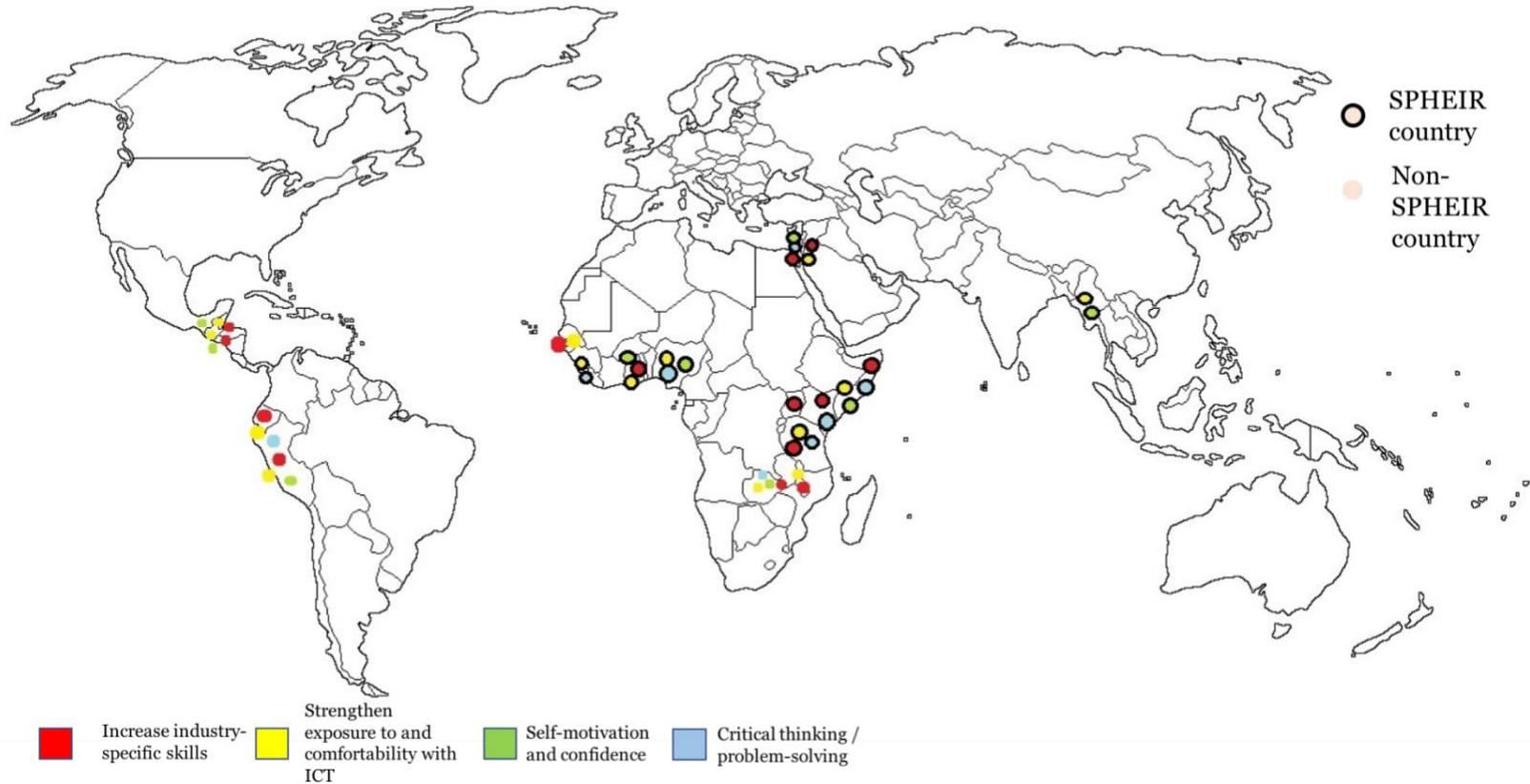


Figure 10: Visualisation of Targeted Skills Landscape

Source: UCL STEaPP SPHEIR Group Project 2018

Adapted from: Outline-world-map.com (2009)

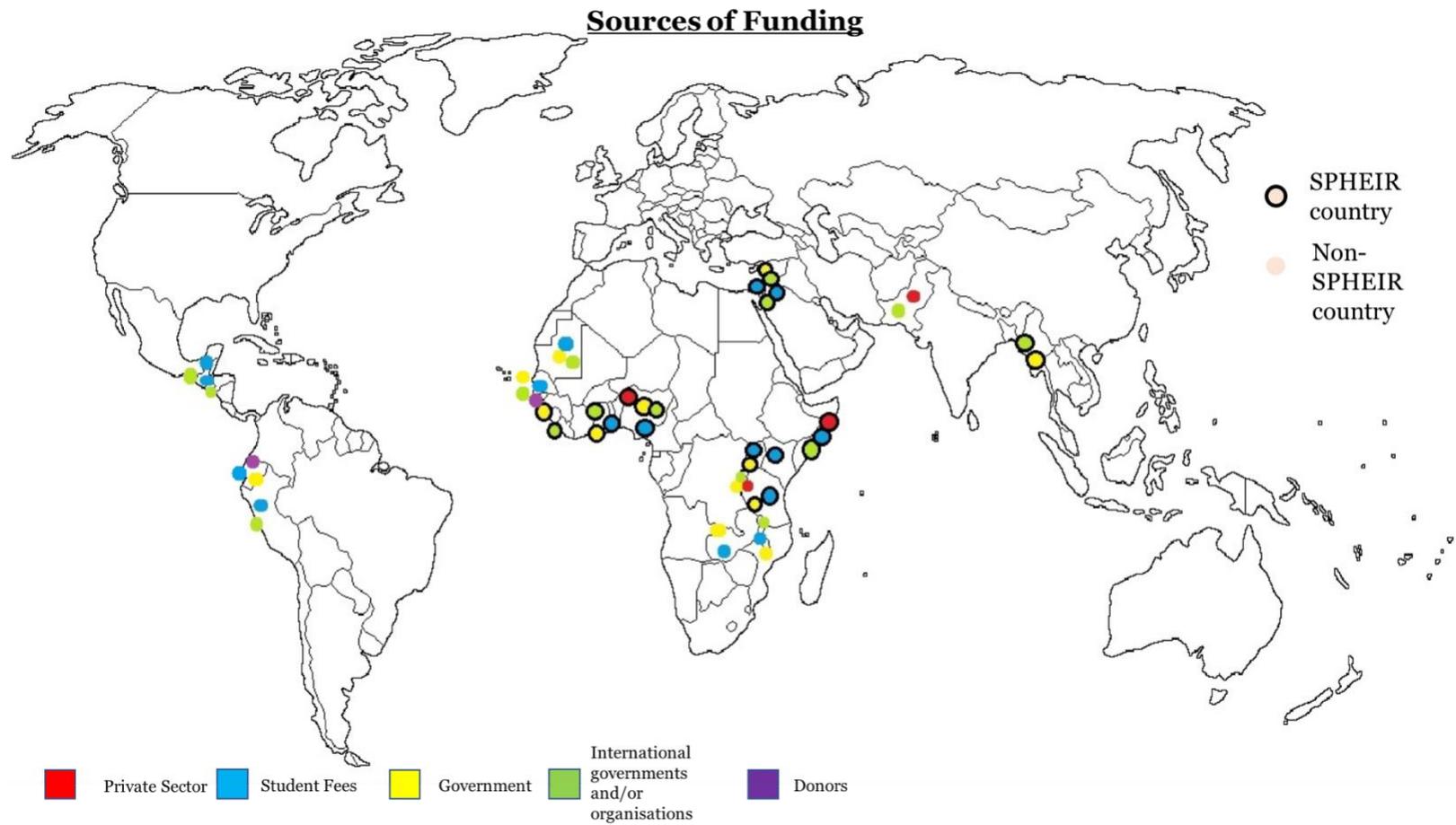


Figure 11: Visualisation of Sources of funding Landscape.

Source: UCL STEaPP SPHEIR Group Project 2018

Adapted from: Outline-world-map.com (2009) (OBS. South Sudan is not marked out)

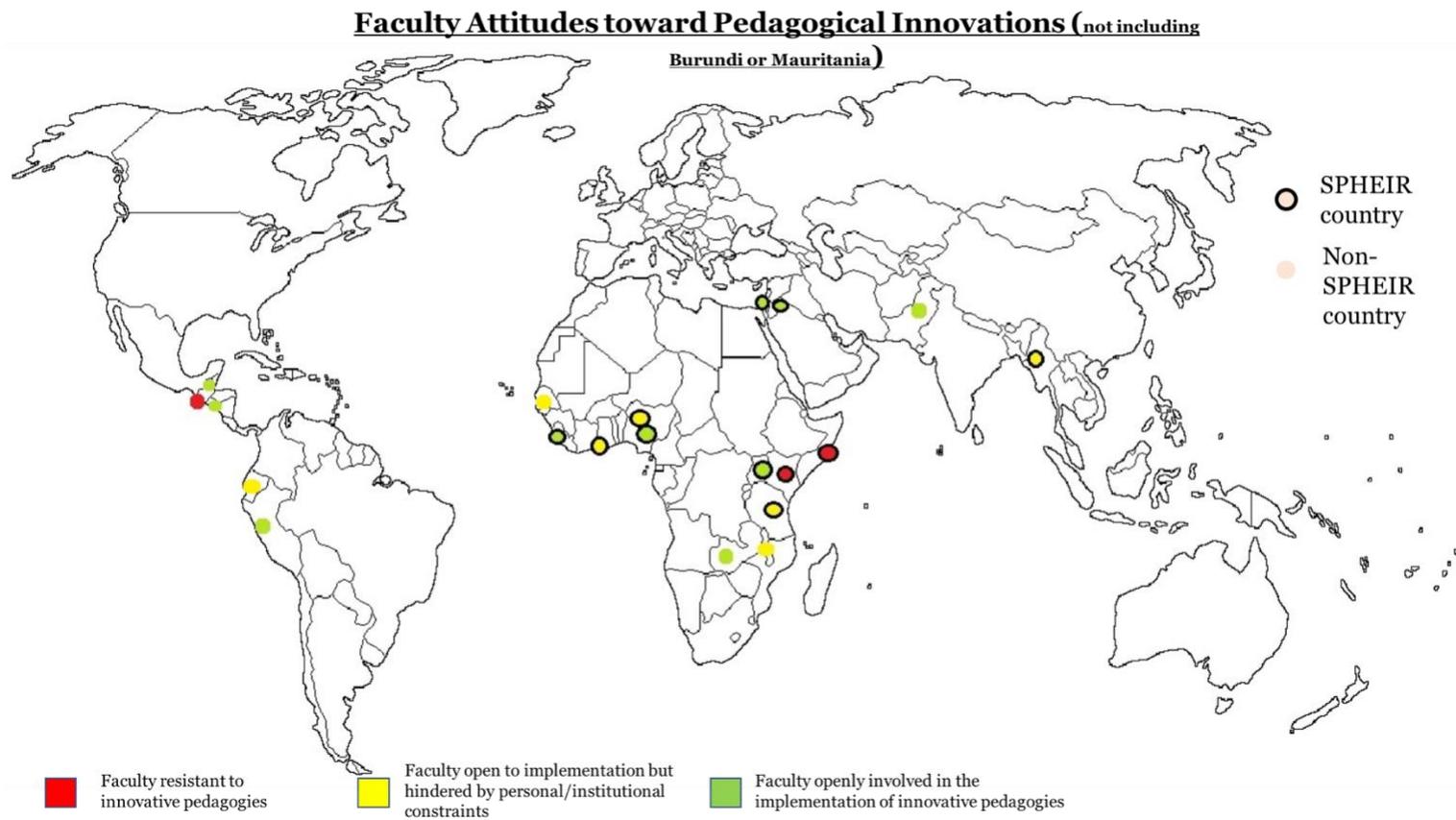


Figure 12: Faculty attitude Landscape Toward the Implementation of Innovative Pedagogies

*Source: UCL STEaPP SPHEIR Group Project 2018
Adapted from: Outline-world-map.com (2009) (OBS. South Sudan is not marked out)*

Dimensional Changes (not including Burundi or Mauritania)

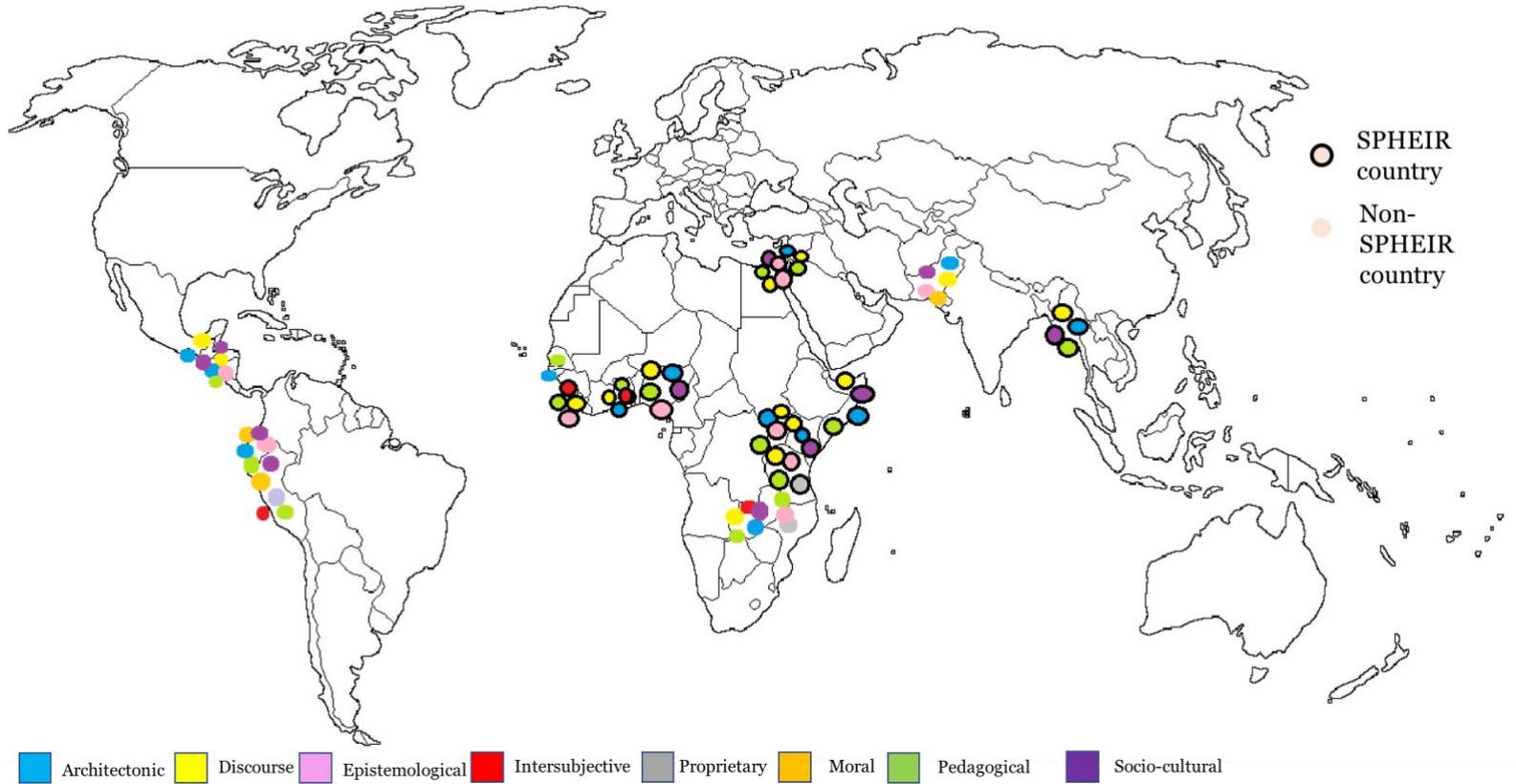


Figure 13: Visualisation for Dimensional Change Landscape

*Source: UCL STEaPP SPHEIR Group Project 2018
Adapted from: Outline-world-map.com (2009) (OBS. South Sudan is not marked out)*

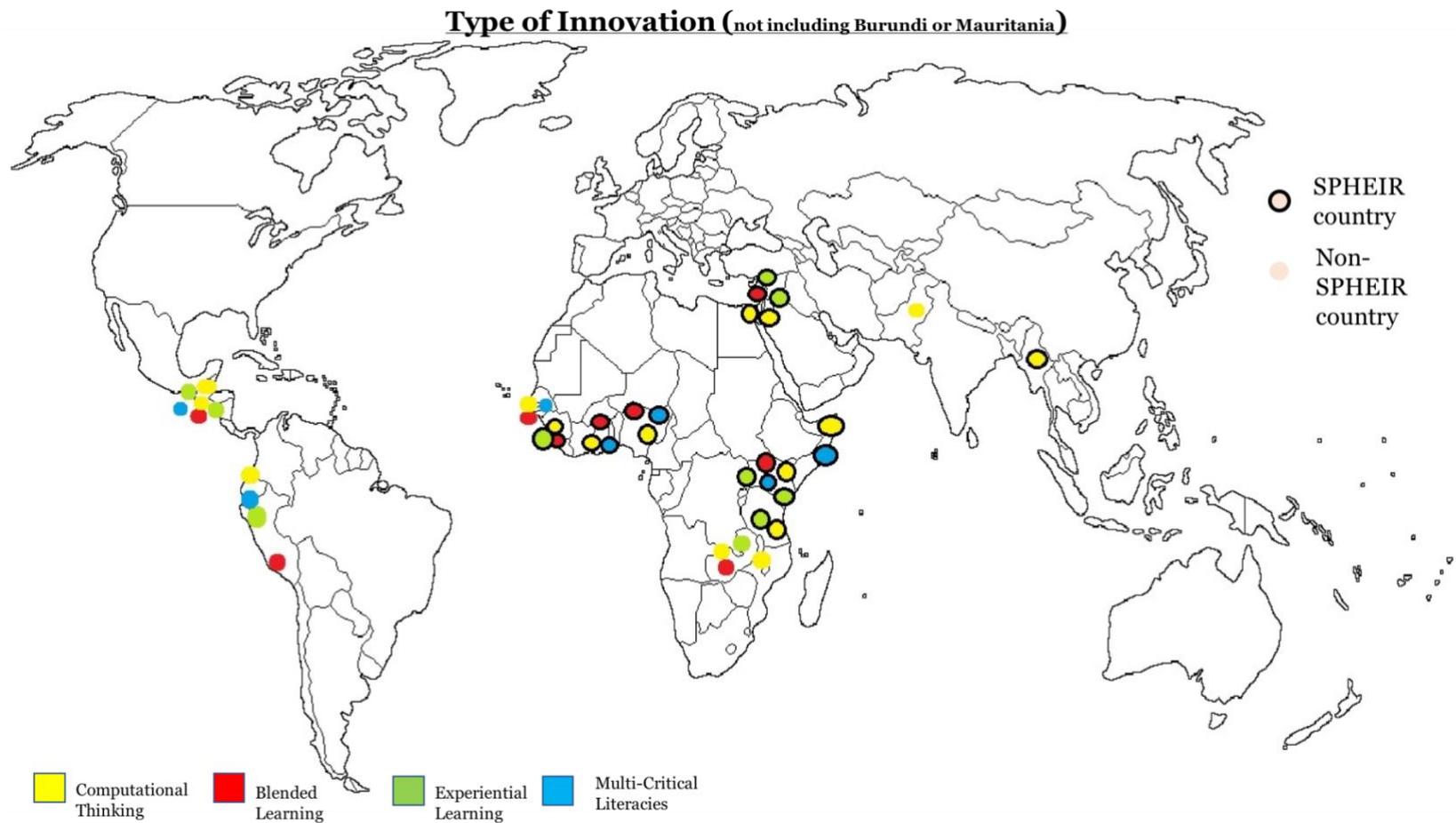


Figure 14: Visualisation Type of Innovations Trend Landscape

Source: UCL STEaPP SPHEIR Group Project 2018
 Adapted from: Outline-world-map.com (2009)

7.5. Figures: Quantitative Analysis

SPHEIR versus benchmark countries

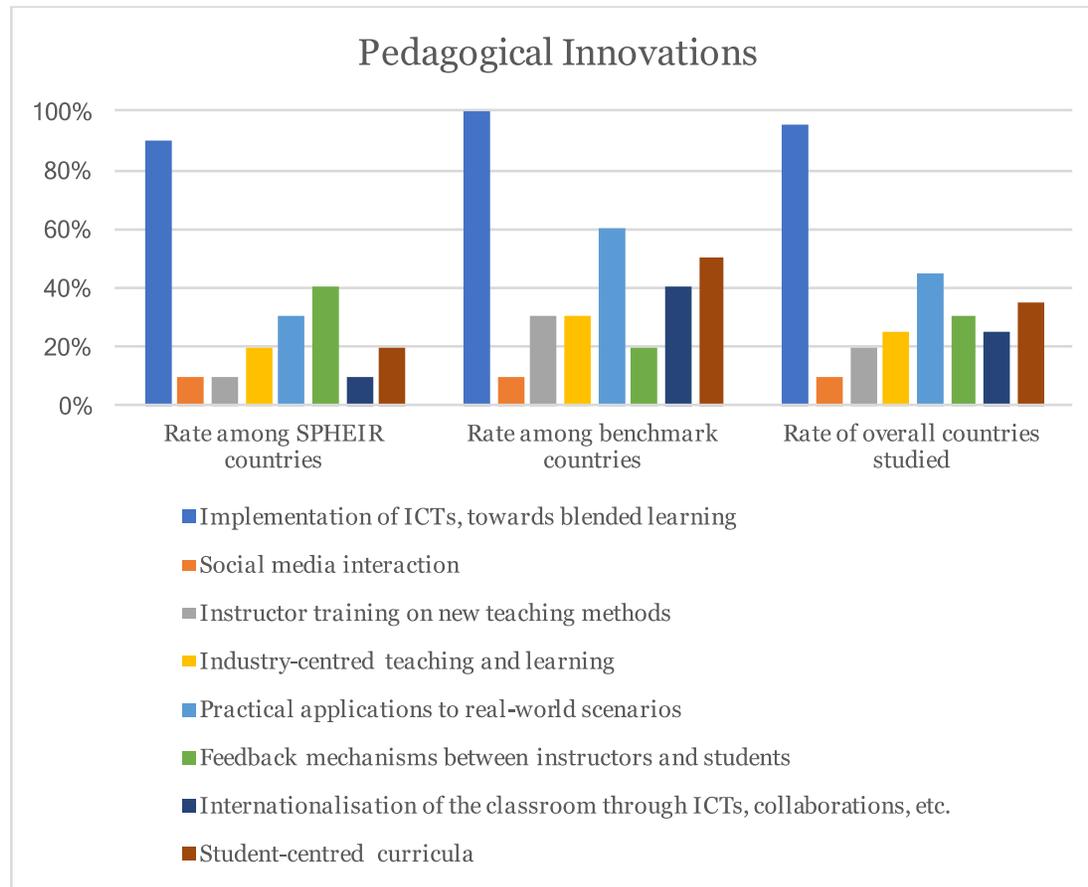


Figure 15: Pedagogical innovations: SPHEIR, Benchmark countries and Overall countries

Source: UCL STEaPP SPHEIR Group Project 2018

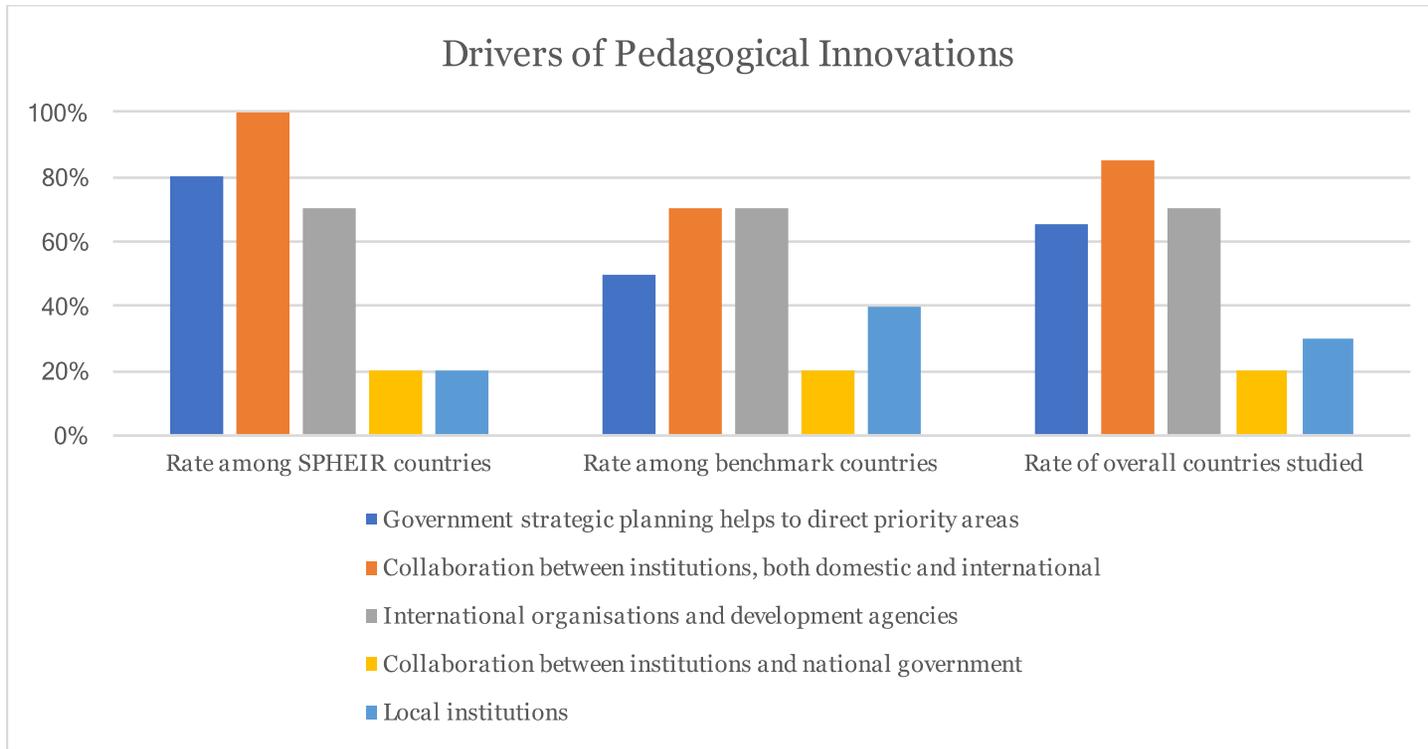


Figure 16: Drivers of pedagogical innovations: SPHEIR, Benchmark countries and Overall countries

Source: UCL STEaPP SPHEIR Group Project 2018

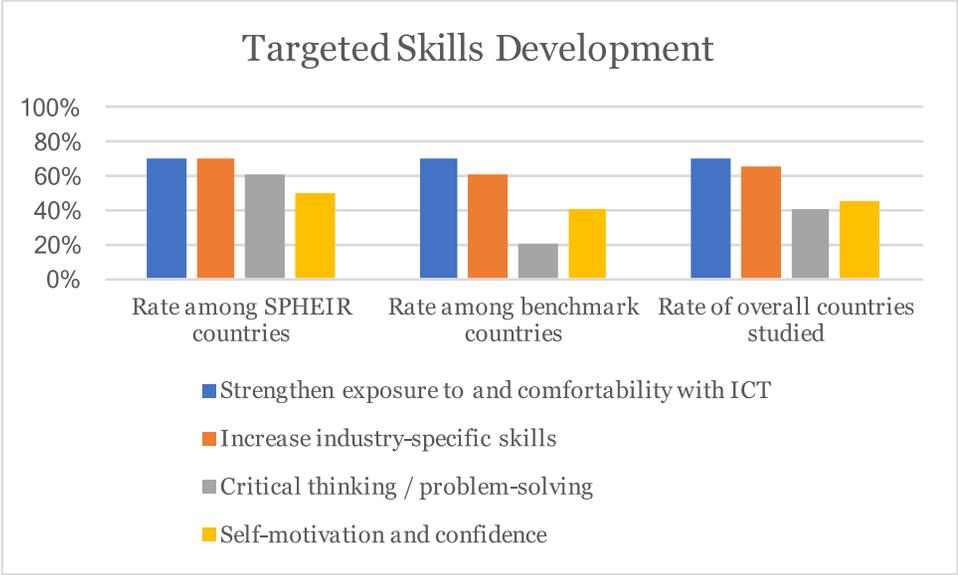


Figure 17: Targeted Skills development: SPHEIR, Benchmark countries and Overall countries

Source: UCL STEaPP SPHEIR Group Project 2018

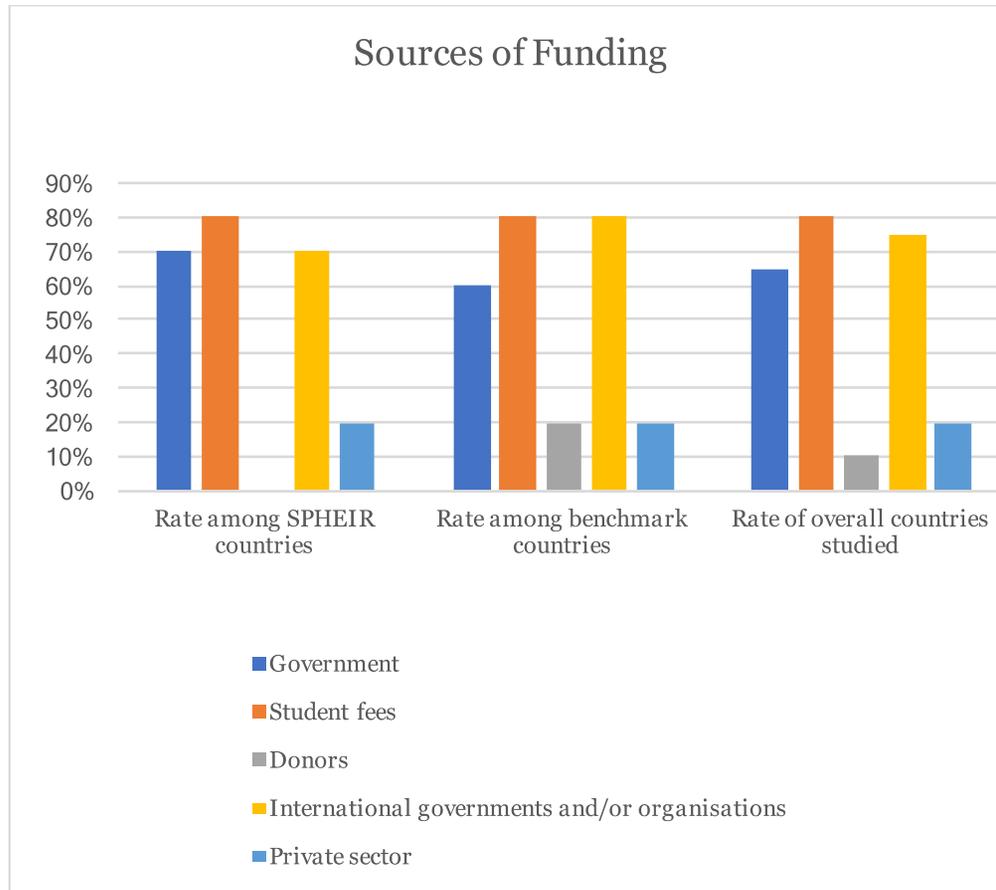


Figure 18: Sources of funding: SPHEIR, Benchmark countries and Overall countries

Source: UCL STEaPP SPHEIR Group Project 2018

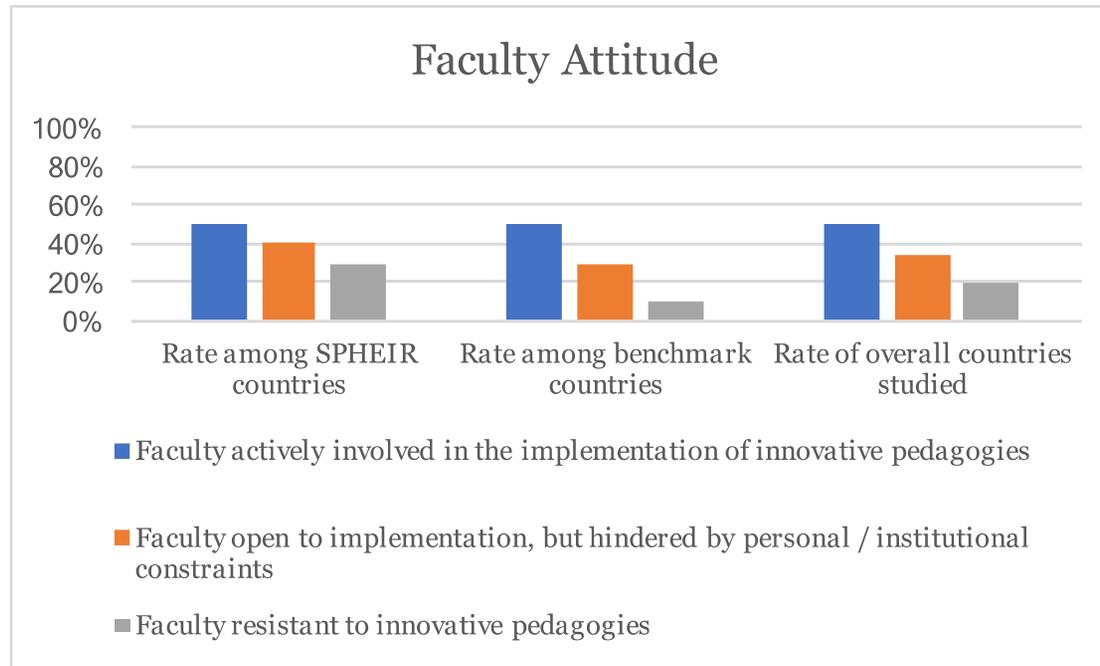


Figure 19: Faculty Attitude: SPHEIR, Benchmark countries and Overall countries

Source: UCL STEaPP SPHEIR Group Project 2018

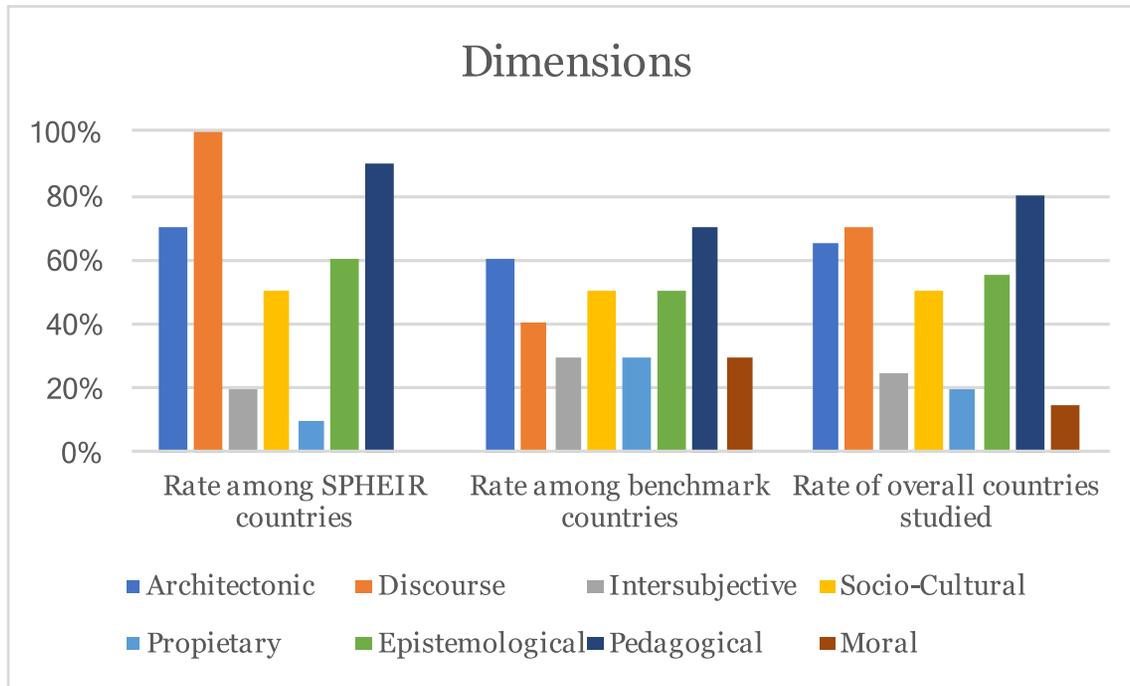


Figure 20: Dimensions: SPHEIR, Benchmark countries and Overall countries

Source: UCL STEaPP SPHEIR Group Project 2018

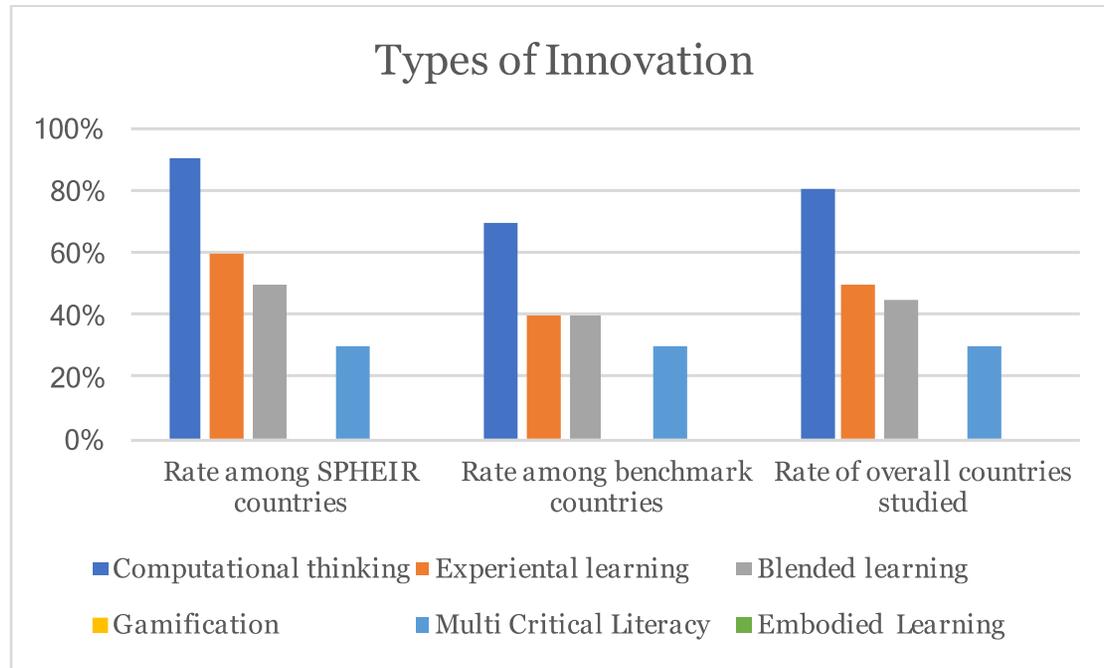


Figure 21: Type of innovations: SPHEIR, Benchmark countries and Overall countries

Source: UCL STEaPP SPHEIR Group Project 2018

Analysis per Region

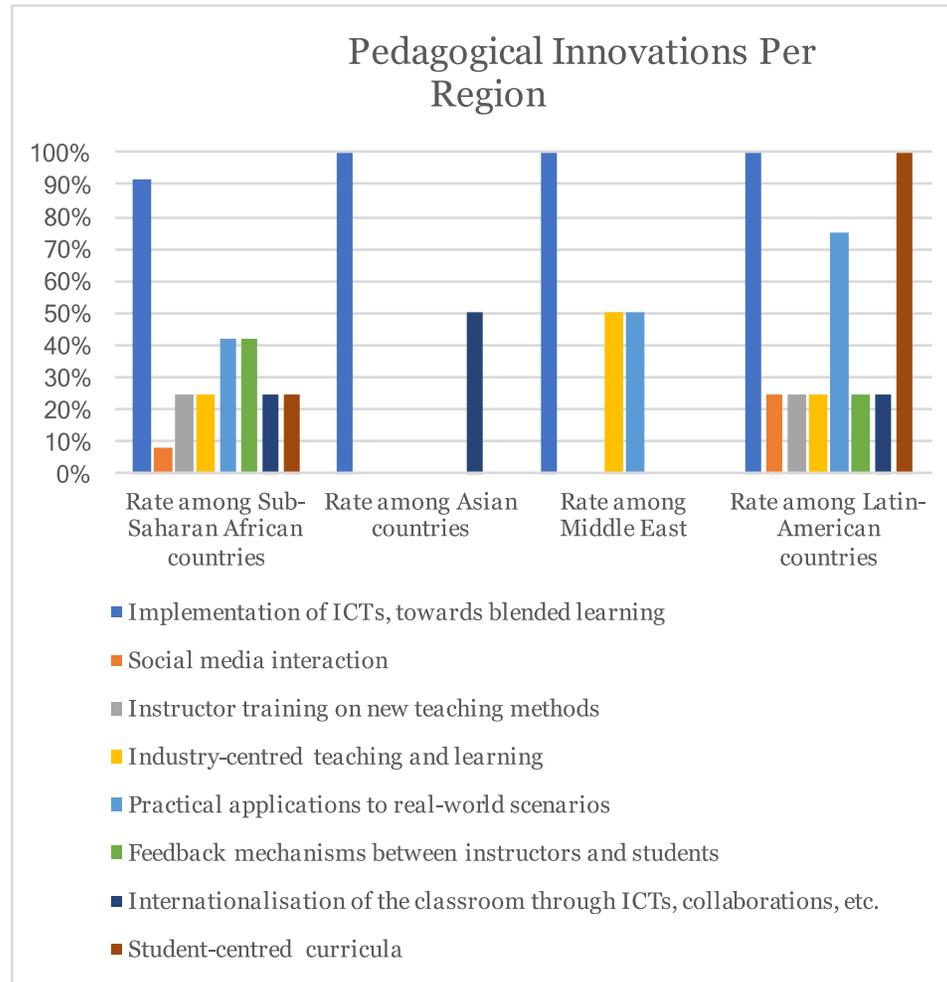


Figure 22: Pedagogical Innovations per region

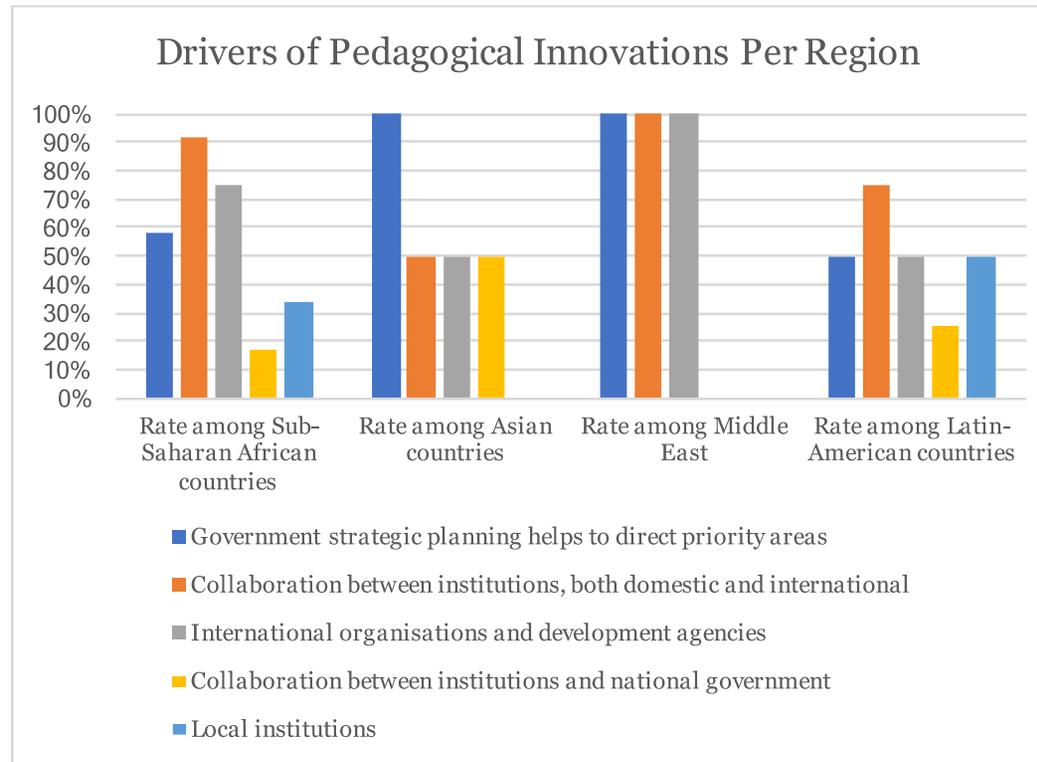


Figure 23: Drivers of pedagogical Innovations per region

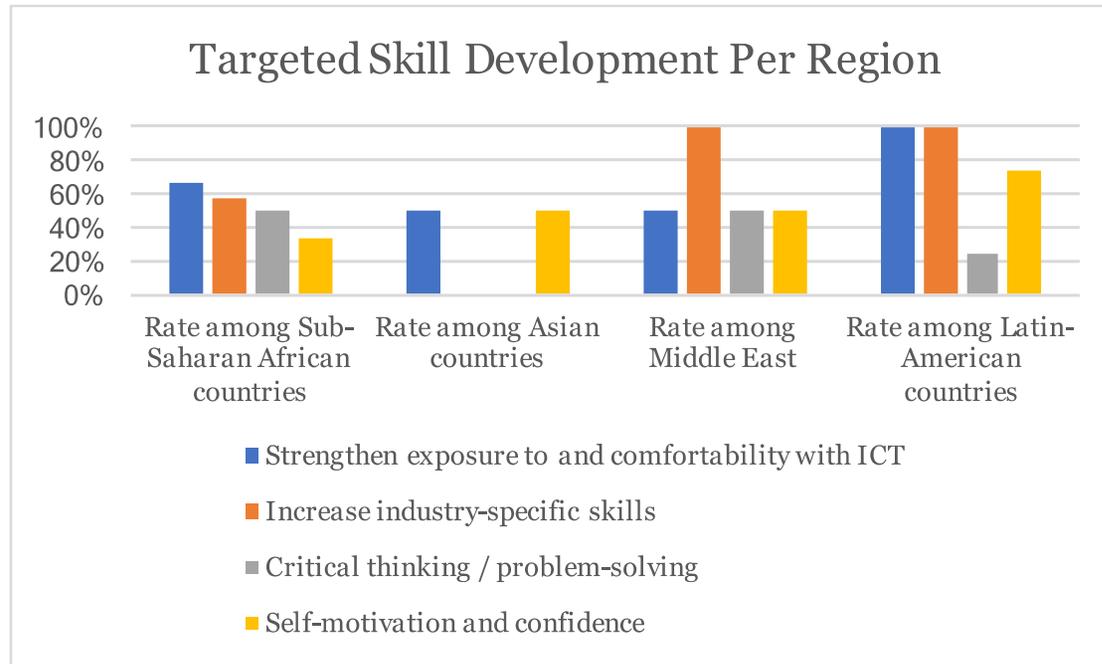


Figure 24: Targeted Skill Development per region

Source: UCL STEaPP SPHEIR Group Project 2018

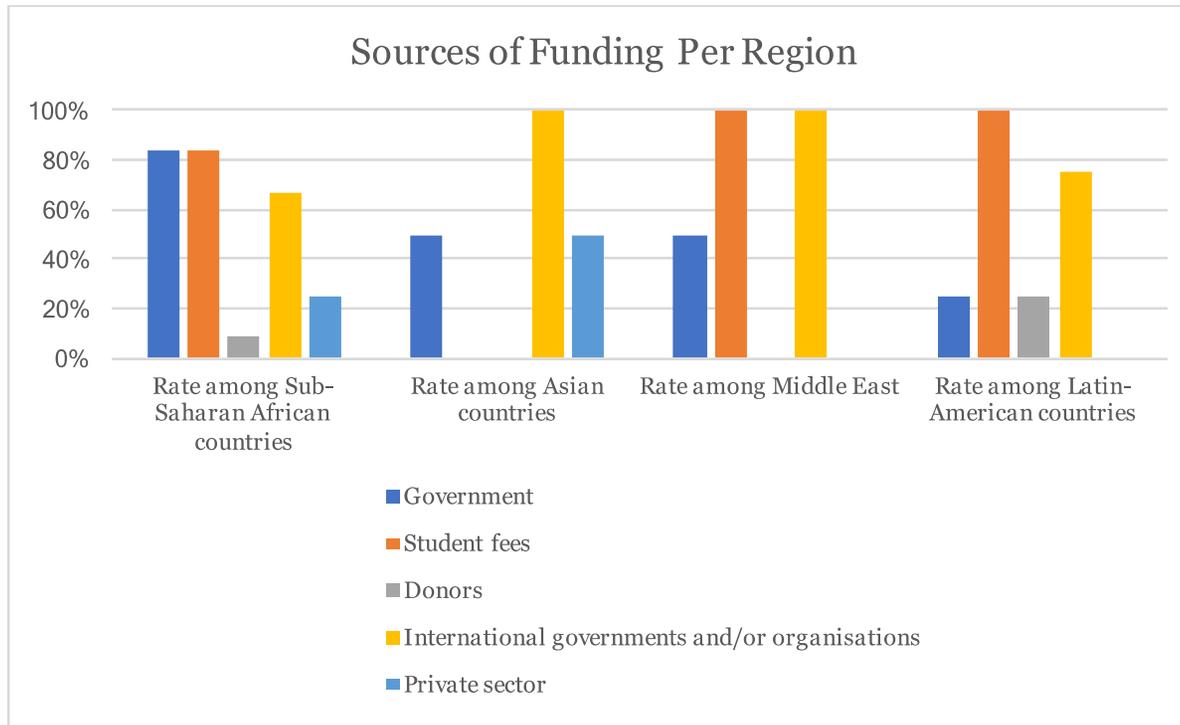


Figure 25: Sources of funding per region

Source: UCL STEaPP SPHEIR Group Project 2018

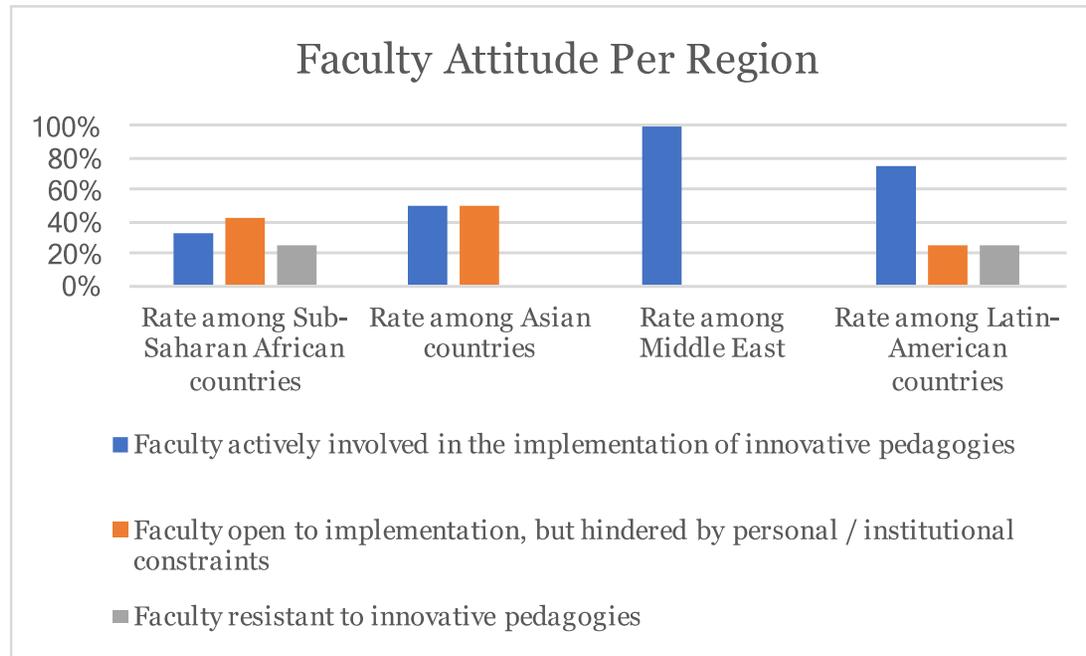


Figure 26: Faculty Attitude per region

Source: UCL STEaPP SPHEIR Group Project 2018

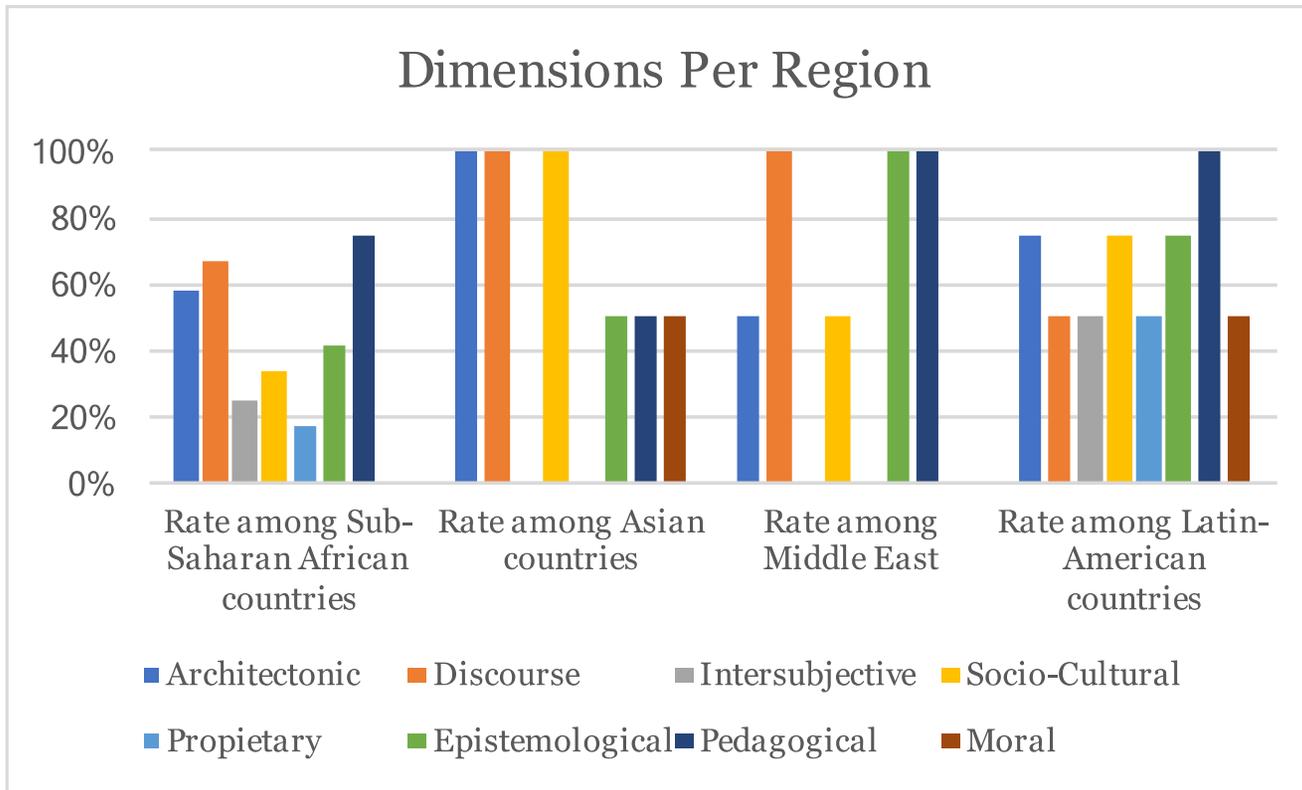


Figure 27: Dimensions per region

Source: UCL STEaPP SPHEIR Group Project 2018

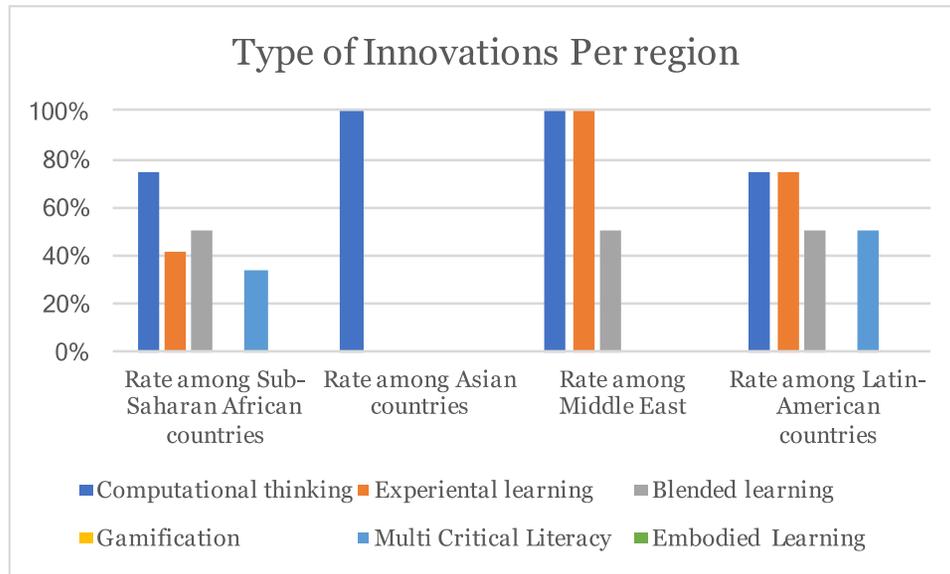


Figure 28: Type of innovations per region

Source: UCL STEaPP SPHEIR Group Project 2018

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