Pre-operationalization of Pedagogical Innovation Centres in Moroccan Universities: An Overview and Perspectives

H. Tmouche[1(✉)], A. Fassouane[1], and L. Daadaoui[2,3]

[1] Ibn Zohr University Morocco (IZU), Agadir, Morocco
htmouche@gmail.com
[2] National Erasmus+ Office (NEO), Rabat, Morocco
[3] Mohammed V University in Rabat, Rabat, Morocco

Abstract. This article is part of Pedagogical Innovation Centers (PIC) pre-operationalization within Moroccan universities. Designed to be structured to support pedagogical development and innovation, the PIC aims to enhance, enrich and diversify the pedagogical practices of teacher-researchers individually or as part of the pedagogical team. To promote the transmission of knowledge through a student-centered learning and outcome learning approach. To explore and analyze this pre-operationalization and apprehend its needs, two objectives were identified:

1) the appreciation of the experiences of teacher-researchers in terms of pedagogical innovation and 2) the degree of integration of innovative pedagogical approaches in their teaching. To achieve our objectives, our research is based on an exploratory approach, mainly qualitative, drawn up through the analysis of three studies conducted in Moroccan universities. The results of the analysis highlighted an eminent need, for institutional support, around the following components: 1) to strengthen the development of the pedagogical and digital skills of teacher-researchers, 2) to improve innovation in the design- setting up and carrying out training programs, 3) to promote the exchange of experiences, the transfer of skills in the field of pedagogical innovation and their capitalization.

Research Contribution: This article shows some limitations that hinder the proper integration of innovative pedagogical approaches in teaching at Moroccan universities; these limits are closely related to the poor training on pedagogical innovation approaches and digital skills of teacher-researchers, and the lack of a system for capitalizing on knowledge in pedagogical innovation.

Keywords: Pedagogical practices · pedagogical innovation · assessment of learning · high education · integration of innovative pedagogical approaches

1 Introduction

Innovation in hight education has become a major challenge for countries, in the 21st century, university practices are deeply influenced by laws and policy changes in teaching

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practices [Walder, 2015]. The orientation of those politics is mainly the adoption of innovative pedagogical approaches.

For several years, Moroccan universities have adopted digital technology with a significant increase in online platforms and online training. However, unsurprisingly, teachers' efforts to digitize training in Morocco are mostly individual attempts to reach their students and keep them engaged. Instead, the emergence of the Covid-19 pandemic has revealed the need to innovate teaching practices. This strategy produced the emergence of active methods and training programs in terms of skills as outcome learning for students. Furthermore, it has strengthened the use of new technologies in evaluating the teachings by the authorities of the ministry in charge.

Therefore, in recent years in Morocco, pedagogical Innovation and the integration of information and communication technologies (ICT) in higher education have become major concerns of the Ministry of Higher Education, scientific research and Innovation. In addition, the various reports of the Moroccan official bodies [HCETSR. 2015, 2019; NAEETSRS. 2018] have always insisted on the need to renew teaching practices and to direct these practices towards a pedagogy more open to the environment, especially the labour market, for a better performance of the Moroccan university.

Recently, the Moroccan universities have adopted the creation of Pedagogical Innovation Centres (PIC) in their organization chart, which is a support structure for the development of pedagogical innovation. This structure aims to enrich and diversify the pedagogical practices of teacher-researchers on an individual basis or in a pedagogical team context, to promote the transmission of knowledge in a high-performance manner that ensures measurable learning evaluation results for students.

Intending to improve the quality of learning, pedagogical innovation is a critical issue in the development of higher education institutions worldwide [Bédard and Raucent, 2015]. On the one hand, because of the difficulty of understanding the components of the innovation concept, a whole series of other images is not strictly equivalent [Lison et al., 2014; De-Ketele 2010] and yet related (novate, renovate, reform, implement, change). On the other hand between concepts with a fashion effect for some (Béchard, 2001) and elements with a high-risk potential (Cros, 1997) for others, the diversity of approaches and definitions adopted by its protagonists leads to paradoxes [Alter, 2010; Béchard, 2001; Cros, 2002]. As definitions, more references in education sciences literature, innovation is a process, which aims at changing and introducing an element or system into an already structured context [Cros, 1998, 2000].

Pedagogical Innovation is closly associated with the concept of teaching, pedagogical approach, support schemes, Interdisciplinarity, Interculturality and professionalization [Walder, 2014], which gives another dimension of the a complex character of its operationalization and its integration involving several actors. Pedagogical Innovation is mainly a process that can generate an organizational tension between the need to innovate and produce [Dawson and all., 2018], and to reduce the divergence between these two needs. To balance the tensions and to produce or maintain systems, leaders should develop a level of organizational adaptability. This adaptability can be like a space of negotiation to allow the emergence of ideas and innovations and to transpose them to the operational system [Tsai and all. 2019] for involving the project ongoing integration. In

this perspective, the integration of pedagogical Innovation projects in the field of higher education requires the consideration of three issues [Bédard and Raucent, 2015]:

- The conditions that promote or inhibit Innovation and where the focus is on educational innovation projects and their impact on change, essentially, actions and measures that need to align with political contexts, academic and administrative in which they take place.
- The tensions generated, as a result of pedagogical innovation initiatives. There is a likelihood of differences in opinion between supporters of change and non-supporters, the latter feeling excluded or marginalized.
- The sustainability of pedagogical innovation projects that must be part of a structured change process and sustainable over time is invaluable.

Whether conducted individually, by a team, or by an institution, pedagogical Innovation has implied a fundamental change in training design [De-Ketele 2010], and the operational center (the teachers) must not just only know" how to do it?" but must know and take ownership of the "why do it? » [Cros and Adamczweski, 1996; De-Ketele 2010]. Innovation perception can include the antecedents or experiences (characteristics specific to the innovator, his perception of the situation), the process itself (the perception of the Innovation) and the results in terms of rejection or adoption with all possible modulations [Rogers, 1962]. Despite the interference of actors, teachers remain the key players in integrating and implementing pedagogical innovation projects in the most favourable ways possible [Audrin, 2020]. In this sense, exploring teacher-researchers experiences in pedagogical innovation remains an interesting exercise to identify the degree of integration of innovative pedagogical approaches in their teaching.

2 Aim and Research Questions

Since the operationalization of PICs in Moroccan universities is eminent, in this paper, we would like to take a closer look at the need for these PICs pre-operationalization to provide elements enabling the strengthening it at the university level.

Thus, the research goal is to explore the experiences of research-teachers in the field of pedagogical Innovation and the degree to which innovative pedagogical approaches are integrated into their teaching. To conduct the research process in a focused manner, we have defined two guiding research questions (RQ):

RQ1: How is the appreciation of teacher-researchers experiences in terms of pedagogical Innovation? RQ2: What is the degree of integrating innovative pedagogical approaches in their teaching?

3 Method

This research is exploratory (see Table 1), mainly because of the objectives pursued. Thus, the flexibility afforded by this type of research especially qualitative exploratory approach is a significant factor. It does not favour the rigidity of research design to the detriment of richer information that can be used for new understandings. On the

Table 1. Process of research and Research objectives

Context	Pre-operationalization of PICs within Moroccan universities.
Research objectives	Appreciate the experiences of teacher-researchers in term of pedagogical innovation
	Identify the degree of integration of innovative pedagogical approaches in teaching
Research Method	Qualitative exploratory approach

one hand, the exploration process makes it possible to deepen the knowledge of the research objectives, which is the appreciation of the experiences of teacher-researchers in pedagogical innovation approaches and more precisely, the degree of integration of innovative pedagogical approaches in their teaching. On the other hand, since the pre-operationalization of PICs is eminent, exploration is the most appropriate way to discover the conditions and needs that may hinder or improve this integration and understand the relationships between those dimensions.

To attain our research objectives, we mobilized a qualitative approach as a research method, drawn up through to the following three studies as sources of information (see Table 2):

a. The first one, Distance learning devices (DLD) carried out at the Ibn Zohr University (IZU) in 2020.
b. The second study involves the support structures for pedagogy. It was carried out in September 2021 by the Erasmus+ national office in Morocco as part of the expert's activities.
c. The third study was about the appreciation of innovative pedagogical approaches. The IZU conducted the study with research teachers in January 2022.

3.1 Distance Learning Devices (DLD)-Report)

The DLD report results from a survey carried out at the Ibn Zohr University (IZU) in 2020.Applied to explore distance-learning tools in the university, the main objective of this study is to assess the satisfaction and the degree of adaptation of teachers-researchers and students to the «Teaching 2.0» distance learning system. Documentary analysis was used to identify a part of our first objective, which is the appreciation of the experiences of teacher- researchers in terms of distance learning as a new pedagogical approach established in the context of the health emergency since 16 March 2020. Mostly associated with pure science or technology, Innovation was often referred to as technological progress. Even more as pedagogical innovation, we cannot think of the evolution of pedagogical approaches without exploiting the potential of Information and Communication Technologies (ICT) [Y. Hamdani 2021]. The impact of ICT on teachers' teaching practices is closely related to integrating pedagogical innovation approaches in universities.

Table 2. Data Sources and Research outcomes expectations

Data information sources		Research outcomes expectations
Distance learning devices (DLD) report	Report of survey	To evaluate the degree of adaptation of teachers- researchers, and students to the distance learning system as a new teaching approach during the Covid19 outbreak.
Support structures for pedagogy	Focus group	To overview development of tools and support structures for Pedagogy in Moroccan universities
Innovative pedagogical approaches	Questionnaire	-To assess the experiences and the degree of integration of pedagogical innovation approaches in high education

3.2 Support Structures for Pedagogy- Focus Group

A study of support structures for pedagogy was used to complete our purpose of research in the context of pre- operationalization of PICs in Moroccan universities as a condition of sustainability of pedagogical innovation projects [Raucent and al., 2017]; this focus group was carried out in September 2021 by the Erasmus+ national office in Morocco as part of its expertise activities called a technical Assistance Mission TAM. This later is a work group session supervised by national and European experts to discuss and diagnosis a challenging aspect within the ongoing HE reform. The session gathered 30 participants from all the 12 public Moroccan universities and a Public-private university. The participants were: vice-presidents responsible of pedagogical affairs and the directors of pedagogical Support structures (e-learning Centers, CIP, etc.). Prior to the workshop, a questionnaire was sent to the participants to collect a maximum data about the state of art of the pedagogical support available/needed: teachers/students/management, trainings, infrastructures, support staff, etc; the themes: digitalization, assessment, class conception, teaching and learning practices, quality assurance etc.; the existing structures: their names, the human and financial resources allocated and the challenges and expectations. Then, these results were shared and discussed with the participants in the workshop to have more precise overview of development and support for teaching in Morocco but also the perception among this support from the management and the professors.

3.3 Innovative Pedagogical Approaches- Survey

The survey of perception of innovative pedagogical approaches was intended to research teachers in January 2022. As key players in integrating and implementing pedagogical innovation [Audrin, 2020], two objectives are traced, first, to appreciate the experiences of research teachers in terms of pedagogical innovation and second, to identify the degree of integration of innovative pedagogical approaches in their teaching. The survey was carried out via an online-administered questionnaire sent to all university research

Table 3. Data Nature and processing method used

Data nature		processing method
Distance learning devices (DLD) report	Secondary data	Documentary analysis
Support structures for pedagogy	Primary data	Synthesizing and analysing the collected data: -Pedagogical support available/needed: teachers/students/management, trainings, infrastructures, support staff, etc. -Themes: digitalization, assessment, class conception, teaching and learning practices, quality assurance etc.; -Existing structures: their names, the human and financial resources allocated -Challenges and expectations
Innovative pedagogical approaches	Primary data	Descriptive analysis

teachers. Still, the response rate was 134 research teachers out of 1280, or 10, 4% of the population asked (Table 3).

4 Findings and Discussion

In this section, we present the finding according to research outcomes expectations, as mentioned (see Table 2), which are structured around the component below:

1) Degree of adaptation of teachers- researchers, and students to the distance learning system as a new teaching approach during the Covid19 outbreak.
2) Overview of the development of tools and support structures for Pedagogy in Moroccan universities.
3) Experiences and the Degree of Integration of Pedagogical Innovation Approaches in High Education;

4.1 Degree of Adaptation of Teachers- Researchers, and Students to the Distance Learning System as a New Teaching Approach During the Covid19 Outbreak

The documentary analysis of the DLD report was mainly oriented toward the shortcomings in the use of distance learning devices, which will identify the appreciation of the experiences of teacher-researchers in distance education as a new pedagogical approach; the results are grouped around three components (Technical, Pedagogical and Institutional) selected as a basis to discuss our research results:

- Technical component, which occupies an important place in this study, has made it possible to identify several recommendations, including the need to develop a much-diversified platform, efficient and specific to the university (or for each institution) with technical assistance and computer support would be essential for both the student and the teacher researcher.
- Pedagogical component: has listed several orientations: - Technical and pedagogical support for teachers to improve their DLD method and to innovate according to the streams and the needs of each. -Organize and make available to all students and teachers tutorials for all the tools used in DLD.
- Institutional component: raised the issue of the description of accredited courses that did not provide for evaluating practices for distance learning. As a result, the problem is how to assess students in the absence of official regulations and especially valid for all streams.

4.2 Overview of the Development of Tools and Support Structures for Pedagogy in Moroccan Universities

The outcome of the focus group conducted during the activity of TAM highlights the involvement of several centers as support structures for Pedagogy and as future PICs in the universities; the data collected through those structures outlines the following findings:

- These structures are named differently: (e-learning center, language center, and pedagogical center…): three universities from 12 do not bear the name of PIC.
- Six universities from 12 universities have set up the PIC, but they still need to set up a training program for teachers regarding pedagogical innovation; these structures do not have any coordination between them, which creates confusion around their fundamental missions.
- The activity of these centers is far from capacity building in pedagogical innovation because the training is mainly focused on digital pedagogy and not pedagogical innovation.
- The exchange on existing initiatives and practices identified the practical needs regarding resources and capacity building for the ongoing PIC strengthening.

4.3 Experiences and the Degree of Integration of Pedagogical Innovation Approaches in High Education

The survey findings of appreciating innovative pedagogical approaches are grouped under three dimensions according to the information processing (perception of the use of pedagogical innovation, experiences in pedagogical innovation, and perception of the integration of pedagogical innovation centres in the universities), which led to the following findings:

- From the point of view of *perceived use of pedagogical innovation approaches*: Eighty-seven percent (87 percent) of respondents expressed an awareness of its importance as an imperative approach (80%) and a priority (76%) for quality training (Fig. 1).

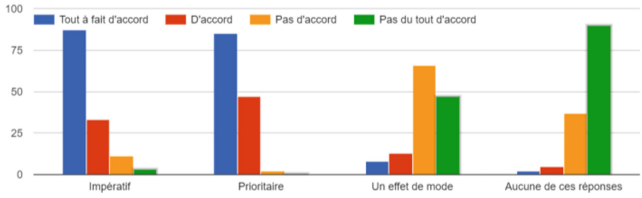

Fig. 1. Use of pedagogical innovation

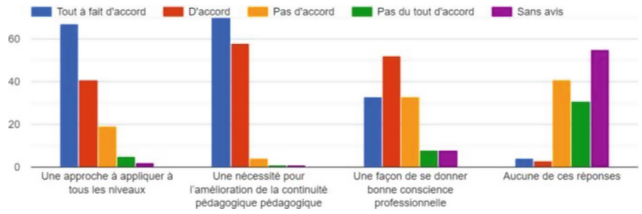

Fig. 2. Qualification of using new pedagogical approaches in higher education

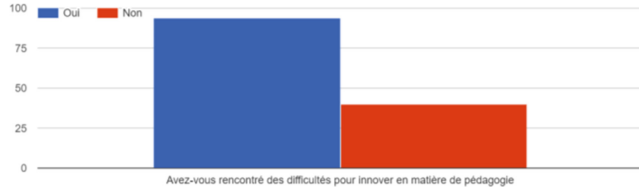

Fig. 3. Characteristics of the difficulties encountered in Pedagogical

In addition, they are positively motivated (98%) to use new pedagogical approaches in higher education that they qualify (90 percent) for favourably benefitting the student.

Although other respondents (40 percent) perceive the use of pedagogical innovation to build a professional consciousness (Fig.2).

- In terms of *experiences with pedagogical innovation*, 87% of respondents expressed difficulties in innovating in pedagogy (Fig. 3).

Innovation Two aspects justify this difficulty:

– The first aspect concern professorial development: we identified limited support for research teachers through training on pedagogical innovation: +47% of respondents said that they have not benefited from professional development in pedagogical innovation over the past two years (Fig. 4).

On the other hand, 98% of respondents expressed their wish to benefit from pedagogical support and innovative academics with an in-service training program for research teachers (Fig. 5).

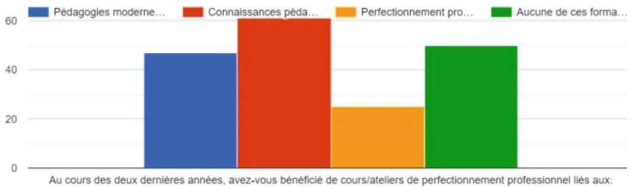

Fig. 4. Characteristics of Educational Innovation Experiences

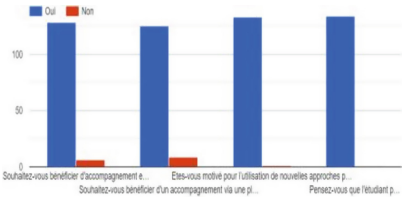

Fig. 5. Perceived importance of CPIs

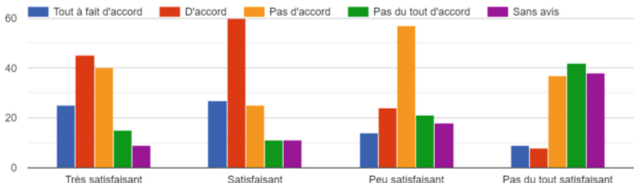

Fig. 6. Institution/university commitment to educational innovation

– The second aspect focuses on the commitment of institutions/universities to pedagogical innovation (Fig. 6)

Perceived unsatisfactory for 39% of respondents, 63% of respondents describe pedagogical innovation as an approach to be applied at all levels to improve pedagogical sustainability.

- The third dimension concerns the *perception of the integration of a pedagogical innovation center*. In this respect, respondents (68%) consider that the integration of a pedagogical innovation center requires (Fig. 7):

– First, the institutionalization of these centers of pedagogical innovation, with a strong implication of the university's leadership at 78%, must guarantee the implementation of a natural and sustainable policy in pedagogical innovation (83%).
– The second requirement (86 percent of respondents) concerned establishing an approach for capitalizing on knowledge in pedagogical innovation through a support platform dedicated to the PIC;

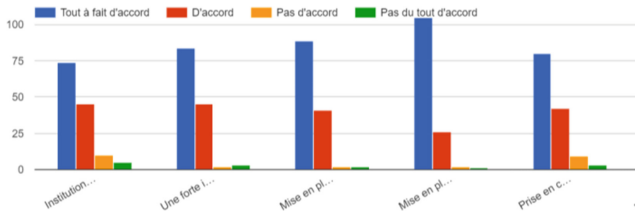

Fig. 7. Integration of an educational innovation center (CIP) within your university

4.4 Implications, Limitations and Prognoses

The synthesis of the results of the three studies highlights that the integration of innovative pedagogical approaches in teaching in Moroccan universities is still in its primary phases; several gaps are identified through our research, which can be regrouped as described above:

- Limited training program for trainers in pedagogical innovation in Moroccan universities.
- Lack of approach for capitalizing on knowledge in pedagogical innovation.
- Lack of a national collaborative platform dedicated to pedagogical innovation

As an implication of our research, we can say that pre-operationalization of PICs is a challenging project, requiring real involvement of all stakeholders around a national capacity-building project in pedagogical innovation.

As this research project is still in its early stages, several paths for further development support for the PICs operationalization can be structured in the short, medium and long term.

In this regard further research can be expanded according to the following aims and axis:

- Development of the pedagogical innovation and digital skills of teacher-researchers: To take stock of existing pedagogical innovation training at Moroccan universities and to assess the conditions that may favour or disadvantage their development, including personal, subjective and institutional issues.
- Improving innovation in the design- setting up and carrying out training programs: Benchmarking good practice on pedagogical innovation training centres.
- Promoting the exchange of experiences, the transfer of skills in the field of pedagogical innovation and their capitalization.

Other research can be structured over strengthening Pedagogical Innovation Centres (PICs) at the Moroccan university level, using “The Center for Teaching and Learning (CTL) matrix” as reference to guide PICs development, practice, and assessment around three broad domains of practice such defined in the matrix: 1) Organizational Structure, 2) Resource Allocation and Infrastructure, and 3) Programs and Services.

5 Conclusion

In our research, we aim to explore and apprehend the needs of Pedagogical Innovation Centers (PICs) for pre-operationalization within Moroccan universities. For this, we have traced the objective of research: the appreciation of teacher-researchers experiences in pedagogical innovation and the degree of integration of innovative pedagogical approaches in their teaching. To achieve our objectives, a qualitative exploratory approach was adopted to elaborate a thematic analysis through three studies conducted at the level of Moroccan universities. To achieve our objective, a qualitative exploratory approach was adopted to elaborate a thematic analysis through three studies conducted at the level of Moroccan universities. As implications of research, the study shows the absolute need to strengthen the capacities of PICs and their operationalization and an eminent need for institutional support around the following components:

1) To strengthen the development of the pedagogical innovation and digital skills of teacher-researchers
2) To improve innovation in the design- setting up and carrying out training programs;
3) To promote the exchange of experiences, the transfer of skills in the field of pedagogical innovation and their capitalization.

Research Contribution: This article shows some limitations that hinder the proper integration of innovative pedagogical approaches in teaching at Moroccan universities; these limits are closely related to the poor training on pedagogical innovation approaches and digital skills of teacher-researchers and the lack of a system for capitalizing on knowledge in pedagogical innovation.

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