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Managing european interuniversity collaboration: a bottom-up approach to identify digital education challenges from below

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Abstract

The European Comission has engaged with cooperation and collaboration between European universities to ensure digital education sustainability. In this study, we research inter-university collaboration from "below", i.e., considering the actors directly involved in educational activities, such as teachers, students, and academic staff. In this bottom-up approach, and under the frame of an Erasmus+ project, called OpenU, we managed a consortium of European universities which conducted a series of educational experiments that accounted for specific challenges, mainly, from organizational, pedagogical and technological dimensions. Challenges identified in the organizational dimension include HEIs' information flow, staff mobility, alliances, and multistakeholder content. In the pedagogical dimension, challenges include intercultural and adaptable content, pedagogical support, and diploma recognition. Finally, in the technological domain, challenges include advertising and support, and proper infrastructure. Our research aims to contribute to the discussion about the relevance of evidence-based data to feed education policies.

Keywords: *Digital education; european higher education institutions; inter-university collaboration; bottom-up approach; Open-U project; Erasmus+.*

1. Introduction

The digitalisation of education, fostered by the increasing use of information and communication technologies, has promoted different collaboration activities for higher education institutions (Amemado, 2010). The European Commission has encouraged the creation of "digital programmes" between European universities, through the development of innovative joint pedagogical activities, e.g., distributed learning models. In this context, cooperation activities in the educational field are normally encouraged at the policy level relying on a top-down approach (Carpentier, 2012), which often entails implementation tensions among "down-stream collaborators", specially when policies "from above" overlook the different contextual realities of education-related stakeholders.

In the present work, we contend that policy decisions affecting educational cooperation may be efficiently fed through a bottom-up approach. In contrast to the top-down perspective, the bottom-up approach implies researching (innovative) pedagogical methods coming "from below", i.e. the people directly impacted by educational policies, such as teachers and/or headmasters directly (Carpentier, 2012). To research collaboration "from below", we have managed a consortium network of seven European HEIs, which has allowed us to identify critical challenges emerging from inter-university collaboration in the domain of digital education. As a result, challenges were organized around three main dimensions: *organizational*, i.e., aspects related to the logistical part of the cooperation; *pedagogical*, i.e., aspects related to didactics and learning; and *technological*, i.e., elements related to the technologies used for cooperation.

Through our study, we argue that a bottom-up approach to collaboration may be a powerful evidence-based tool to feed education policy reforms.

2. Theoretical background: Inter-University Collaboration and the Bottom-up Approach

Inter-university collaboration is often implemented following education policies, through a process which is complex since several stakeholders are involved. The diversity of actors, for example, in terms of limited resources and institutional restrictions, can lead to "policy failure" if actors "from below" are not "understood" and "known" properly. In this sense, it is important to understand collaboration, clarify its determinants and explore ways to make it more transparent and effective (Viennet & Pont, 2022).

Effectiveness of education policies is often researched following two approaches: top-down and bottom-up (Napoli, 2021). While the top-down research considers policy from the point of view of decision-making and observes how it is implemented by the actors, the bottom-up analysis considers that policy is first and foremost implemented by the actors who interpret

the decisions in light of the situations they encounter with the beneficiaries of the policies (Napoli, 2021). From this approach, the aim is then to direct attention to the individuals situtated "at the bottom of the pyramid", as they play an active role and exert influence by making changes to the policy (Carpentier, 2012).

In the domain of education, specifically, the bottom-up approach aims to improve everyday teaching practice through participatory research and development (Straub & Vilsmaier, 2020). In this sense, bottom-up approaches emphasize the active participation of teachers and (co-) ownership of the initiation, development and implementation of innovations. Thus, bottom-up approaches are dynamic, iterative-cyclical and open-ended processes.

In line with the literature on bottom-up methodologies, we have empirically researched collaboration among European HEIs to shed light on the challenges related to the creation and implementation of innovative pedagogies, such as online and distributed learning, which are currently at the core of education policies in Europe.

3. Methodology

Our objective was to research collaboration "from below", that is to say, to identify HEIs' challenges related to the creation and implementation of innovative pedagogies, such as blended learning, online learning, distributed learning, among other forms.

3.1. Participants

To research collaboration "from below", we coordinated a network of seven "experimenting partners", in the framework of OpenU, an Erasmus+ project which aimed to "foster European cooperation, innovation and sustainability in higher education (…), provid(ing) a digital infrastructure for higher education policy experimentation in blended learning, mobility and networking" (see https://openu-project.eu/).

To attract researchers from the OpenU network, we designed a "Pre-Call" and a "Call" template, which were revised and iterated at least three times by organizers. The Pre-Call aimed to target internal "experimenters", either academics or staff participating already in international projects in the field of education (e.g., UNAEUROPA, EIT Digital, among others). The Call aimed to promote the activity at a general level, including researchers from different departments and units. Through both calls, interested researchers had to express their motivation, describe additional collaboration networks, and provide a preliminary description of their potential projects.

As shown in Table 1, 8 projects were finally developed in partnership with contributors from and outside the consortium (marked with *) while four experimentations were developed without partners because they consisted in pedagogical activities whose aspect to be tested

would not require further cooperation. In all experimentations, different actors (teacher, staff, and student) and settings (micro-course, course, program) were considered.

Table 1. Projects including leaders and internal and external (*) contributors.

Projects Under Experimentation Management	Source (leader)	Target (contributor)
1. “Educating the Trainers — Blended Content Production Catalyst”	Aalto	UCM, FUB
2. “Scientific posters across boundaries: design of distributed group research activity”	UCM	Rennes, Trento
3. “Joint digital, interactional teaching formats –How to implement collaborative online and blended courses”	UCM	FUB
4. “eTandem - Online Language Partnerships”	FUB	Bologna, *Edinburgh
5. “Designing and supporting Virtual Mobility activities”	KULeuven	*Others
6. “Definition of users’ needs in the digitalization of EU HEIs”	Paris1	JUKrakow
7. “Preparation and delivery of an international collaborative MOOC: an analysis on the pedagogical and technical implementation”	Bologna	KULeuven, *Wurzburg *diParma, *Hamburg
8. "One Health in Bloom"	Bologna	FUB, *Edinburgh, *Helsingin y liopisto, JUKrakow, KULeuven, UCM, Paris1
9. “Gamification tools in Higher Education: Implementation of the Escape Room in the Pharmacy Degree”	UCM	No partner
10. “Students as main actors of European HEIs: general survey of student population in the aim of establish needs, aspirations, fears and hopes in the digital turn of EU HEIs”	Paris1	No partner
11. “Distributed training of students for the quality improvement of their bachelor's and master's theses”	UPM	No partner
12. “Technology Watch to find Solutions to Social Challenges of our Society”	UPM	No partner

3.2. Data and data analysis

Challenges were identified along the experiments conducted by the network of partners. Experiments were conducted directly by the actors in the field (teachers, students, university members, etc.). A wide variety of methodological techniques were included, for example, interviews, focus groups and surveys. Experimenters used different devices (video conferences, platforms) or tests including synchronous and asynchronous activities to achieve their objectives. Experimentation leaders reported on the experiments, following a pre-defined template, including the following information:

- Identification details (leading partner and contributors)
- Experimentation name
- Dates of execution
- Level of application (session, module, course, program, other)
- PAs
- Abstract
- Context
- Research justification
- Questions and objectives
- Methodology
- Results and discussion
- Conclusions

The article-based format of the reporting allowed us to identify three patterns of results in relation to organization, pedagogical and technological aspects. Reported results were analyzed and more specific patterns related to challenges emerging from digital cooperation were identified.

4. Results

The analysis of the experiments conducted within the framework of the Open-U project allows us to clearly identify three dimensions impacting the collaboration between universities in the domain of digital education: organizational, pedagogical and technological.

4.1. Organizational dimension

In the organization dimension, we found four main aspects: information flow, staff mobility, alliances, and multistakeholder content. In terms of *information flow*, i.e the way information moves throughout the education system, researchers at Paris 1 found that students and teachers tend to be unaware of the collaborative projects conducted by the university, which clearly results in a disconnection between academics and students. Regarding *staff mobility*, researchers at KU Leuven observed that an effective e-mobility policy requires an "interdisciplinary approach" articulating systematically actors with different hierarchies and from different departments or faculties. Regarding *HEI alliances*, several experiments (UPM, Aalto, FUB) have revealed the importance of including partners other than universities, with the development of an ecosystem of partners to share relevant information, for example. Finally, *collaborative creation of content and pedagogical activities* was identified as an important sub-dimension to maintain sustainability in the inter-university relationship. Researchers from Bologna and UPM have shown that the creation of educational content

should involve the design of a transnational collaborative environment, involving the best professionals of the partner network, and using distributed repositories accessible to any member of the community, either student, teacher or staff.

4.2. Pedagogical dimension

In the pedagogical dimension, we found three aspects: intercultural and adaptable content, pedagogical support, and diploma recognition. Regarding *intercultural and adaptable content*, Paris 1 researchers found that the adaptability of learning content and assessment methods are crucial for a "digital university". Interestingly, researchers from FUB, Bolgona and KU Leuven argue that networked education implies both new course content and new learning and teaching methods that should take into account language differences and cultural exchanges. Regarding *pedagogical support,* Aalto researchers found that there is a need to support teachers in the design and delivery of e-learning or blended learning activities (e.g. through video recording). They argue that when organisations start to produce their first units of e-learning or blended learning content, they generally do not understand the process involved and the key elements needed at each stage to succeed. With regard to the *recognition of qualifications*, UPM researchers stressed that one of the first steps for the creation and implementation of distributed learning should be the exploration of local regulations on the use of educational infrastructures, such as ECTS, for example. These researchers propose that consortia providing short collaborative modules could benefit, for example, from the use of one ECTS, which could be inserted into pre-existing courses of formal masters courses currently running at partner universities.

4.3. Technological dimension

Regarding technological dimension, we found two aspects: advertising and support; and proper infrastructure. In relation to *adversiting and support*, KU Leuven researchers suggested that digital infrastructures could be used to market learning and vocationalization opportunities to educational developers and teaching staff. FUB researchers emphasised the importance of the possibility of offering real-time support to teachers and students. They point to the need for sustainable support services for teachers (technical, didactic and pedagogical) and for student mobility. Regarding *infrastructure*, most researchers (e.g. Paris 1, KU Leuven and UPM) identified the need to develop an infrastructure with a high level of interoperability, i.e. that can be connected to other European platforms, databases and repositories. Easy access to these platforms, "with minimal registration requirements", was also highlighted by Bologna and Aalto researchers.

5. Discussion

The analysis of the experiences of the Open-U project highlighted a number of challenges of virtual collaboration at the organizational, pedagogical and technological level. In terms of the organizational dimension, Coombe (2015) highlights that the most frequently mentioned barriers to inter-university collaboration are conflicting interests and expectations of partner universities, lack of allocated time, lack of support or inconsistent leadership, geographical distances and incompatible and bureaucratic systems. The challenges related to faculty workload and lack of institutional support seem to be confirmed by the literature. Indeed, Caluianu (2019) showed that increased workload and lack of administrative support are challenges faced by teachers in adopting this type of teaching.

Pedagogically, our findings on intercultural and adaptable online content are confirmed by the literature, which recognizes that there is a need to integrate and connect the inter-university online curriculum with international dimensions through international curriculum, co-design and collaboration (Devonshire & Siddall, 2011). Secondly, about the challenge of multi-actor content, the literature emphasizes that inter-university collaborations from different countries require an additional effort from educational teams, because this implies that they go out of their comfort zone and work against barriers (differences in academic standards, languages, academic calendars and time zones) that hinder this collaboration. Interestingly, the temporal challenges encountered in implementing these innovative modalities are consistent with those identified in the literature.

In terms of the technological dimension, literature has highlighted the importance of instructors and students being familiar with the technology used, as this plays an important role in the success of exchanges (Avgousti, 2018). Among those technological aspects, the platform, ICT tools, student learning materials, software and formats, and characteristics of course management should be considered (Soto-Acosta et al., 2014). As shown from the literature, the quality of the ICT infrastructure and the lack of technical experts may impact the successful implementation of distance education policies.

6. Conclusion

We have explored collaboration among HEIs to shed light on the challenges related to the creation and implementation of innovative pedagogies, which are currently at the core of education policies in Europe. To this end, we have examined European inter-university collaboration from a bottom-up approach, in which a consortium of institutions have accounted for specific challenges emerging from three dimensions: a) organisational (HEI information flow, staff mobility, alliances and multi-stakeholder content), b) pedagogical (intercultural and adaptable content, pedagogical support, recognition of diplomas), and technological (publicity and support, adequate infrastructure). Thourgh our results, our

research aims to contribute to the discussion about the relevance of evidence-based data to feed education policies.

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