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New realities, new challenges: Future proofing?

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Tuning Journal for Higher Education (TJHE), Tuning Journal in short, is an international peer-reviewed journal publishing in English original research studies and reviews in all aspects of competence-based, student-centred, and outcome-oriented education reforms at university level across the globe. It is a joint initiative of the University of Deusto (Spain) and the University of Groningen (The Netherlands) that is run by the Tuning International Academy (http://tuningacademy.org/): an international meeting point for fostering innovative teaching, learning, and research in higher education.

The main goal of the Journal is to promote quality research into the 'Tuning Methodology' for designing, implementing, and assessing context-sensitive degree programmes and to subject the tools developed during Tuning projects and other educational projects to full academic scrutiny and debate among students, teachers, policy makers, administrators, and academics across societies, cultures, professions, and academic disciplines. To this end, the Journal invites applications for thematic issues, conference proceedings or monographs from all stakeholders. Guidelines for the preparation and submission of manuscripts are appended to this Issue and available at the web of the Journal: http://www.tuningjournal.org/

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Tuning Journal for Higher Education (TJHE)

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Editorial

New realities, new challenges: Future proofing?

Editorial

Mary Gobbi
Editor

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"*And the times they are a changin'"*

(Bob Dylan, 1964)

As I pen this editorial, on the eve of Remembrance Day, Bob Dylan's song and lyrics to "*And the times they are a changin'* "resonate in my mind. How apt are the lyrics for today's challenges, be it COP26 in Glasgow and the endeavours to gain cooperation and collaboration to mitigate and prevent the desecration of our planet, or the tragedy of famine unfolding in Afghanistan, the continuing battle with COVID-19. Dylan's lyrics have a special message for academics when he wrote:

> Come writers and critics who prophesize with your pen
> And keep your eyes wide, the chance won't come again
> And don't speak too soon, for the wheel's still in spin
> And there's no tellin' who that it's namin'
> For the loser now will be later to win
> 'Cause the times they are a-changin'
>
> Lyrics to the single 'And the times they are a changin'

The urgency, drive and warning in the lyrics remind us to have our eyes wide open, not to miss the moment, yet not speak too soon. We know our world is changing, be it climate, science, culture, politics, morals, or viruses. The question is whether we have the motivation and energy to change ourselves as well as the world around us.

> *The measure of intelligence is the ability to change*. (Albert Einstein)
>
> *Everyone thinks of changing the world, but no one thinks of changing himself*. (Leo Tolstoy)

Changing the world and changing individuals (be they students or staff) are the cornerstones of good university education. They are present in

mission statements, programme outcomes and the hearts and minds of those eager to learn, enquire, research, critique and innovate. The Higher Education Community comprising students, staff, local community, business partners and other stakeholders, is uniquely placed to both study, critique and create change. Each paper in this edition bears witness to this endeavour. The manuscripts evoke aspects of change: some are innovative, others adaptive, some evolutionary and some are simply pragmatic response to a problem or quality issue. None the less, as a Community, we must identify *what we need to change,* and *how the times are changing* and what this means for our Higher Education structures, policies, practises, student competences and strategic direction. Yet Tolstoy asks whether we, as academics, seek to change ourselves. Of course, those who subscribe to reflective practice /critical reflection commit themselves to a never-ending journey of discovery.

Historically, today, the 10th of November, is also the anniversary of many events that have changed the world, our concepts, and experiences. On this day, battles have been won (1444, Sultan Murad II beats crusaders at the Black Sea); freedoms lost (1917, Lenin suspends freedom of the press during the October Revolution); discoveries made (1493, Christopher Columbus finds Antigua; 1897, Henry M. Stanley finds Dr. Livingstone at Ujiji near Unyanyembe in Africa); and freedoms regained (1989, German citizens begin tearing down the Berlin Wall). Each one of these events not only represents a significant change in the lives of people impacted by that historical moment, but also provides wider ripples and consequences with far reaching effects. Our task is to continue the legacy of discovery; to strive for the (re)gaining of freedoms and to engage -when appropriate- in ideological battles.

Our ability to change minds through the effective communication of science is after all a generic competence! However, when faced with the belief that 5G masts spread the COVID-19 virus, how can we respond in a meaningful way? What is the role of the academy? To what extent do members of the public 'trust' the scientist or the science? How do we engage with the changing times of social media in an ethical way? What do our ethicists, experts in international relations, politics and economics have to offer the global 'movers and shakers' with respect to the future of Afghanistan or the migration crises?

Some of these ideological and expert knowledge battles engage the academy with politics or one view of science with another. Given the pressing demands of climate change, the Journal would welcome papers that explore the ways in which Higher Education can foster change and provide research-based education that enables students and staff to create the initiatives needed

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to literally 'save our planet', 'face the times' and leave a positive legacy for future generations.

Once again, we would like to thank our reviewers.

The last 18 months have been challenging for authors and reviewers alike, so we have asked, and do ask for patience and forbearance with the response times.

From our end, we continuously strive for a smooth submission, review, and production process. In this regard, we are pleased to announce that as from 1st January 2022, authors can format their citations and references in either of the two referencing systems of the Chicago Manual of Style (16th or later edition): **Notes and Bibliography** and **Author-Date** systems (https://www.chicagomanualofstyle.org/tools_citationguide.html). They however are required to use either system consistently. Until to date, they could use only the **Notes and Bibliography** system.

Wishing our readers, good health, and the greetings of the Winter/Summer seasons in North and South.

The editorial team

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Introduction

New realities, new challenges: future proofing?

Introduction

Mary Gobbi and Anca Greere
Editors

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Abstract: The papers in this edition of the Journal bridge the gap between initiatives that occurred before the pandemic and those developed in response to the pandemic. They illustrate how an institution's ability to implement rapid change is to some extent predicated on the institutional culture and adaptability before crises arise.

Keywords: change management; student satisfaction; regional strategies; COVID-19; language development.

In this edition of the Journal, we are delighted to have the first papers in the COVID-19 Section edited by Professor Anca Greere. The COVID section follows the main papers with its own unique section editorial. First, however, we offer an overview of the general papers comprising this edition.

We commence with two papers, both of Spanish origin, that report educational innovations within single institutions. The first concerns an eight-year longitudinal institution-wide case study- *"The e-portfolio in higher education: The case of a line of teaching innovation and complex change management"* by Berbegal Vázquez, Merino Orozco, Arraiz Pérez and Sabirón Sierra. This paper can appear deceptive in that while the case study is of e-portfolio development, the analytical frame of the paper is the complexity of innovation and the learning points gleaned through in-depth case study evaluation using mixed methods and informed by theories of change. Although action research cycles were not mentioned within the methodology, there were similarities in that the project comprised three different teacher training courses and six projects whose learning points fed chronologically into subsequent phases. At the heart of the initiatives were practical projects underpinned by relevant theories and research. The three key components centred on (1) the development of learning-centred and

skill-based assessment; 2) definition, optimisation, and transfer of the Mahara e-portfolio solution; and 3) design of a policy for expansion and dissemination of the MaharaZar digital personal learning environment. Three critical dimensions were relevant to the implementation of the projects: technical, political, and cultural aspects. The authors concluded that four criteria were necessary for an appropriate use of the e-portfolio in higher education namely (1) Adapted sustainability; (2) Oriented digitalisation; (3) Transversal nature and ongoing continuity and (4) Strategic institutional change. Furthermore, they concluded that the e-portfolio is an 'analyser of disruptive, pedagogical, technological and institutional changes'. The paper offers insights into the merits of planned and linear development projects that are critically evaluated and can enable change within the institution.

The second manuscript analyses an initiative in teacher education where Content and Language Integrated Learning (CLIL) is employed through fieldwork trips aimed to develop disciplinary, social and linguistic competences in the trainee teachers [Martínez-Hernández and Albaladejo-Albaladejo, *"Geohistorical, didactic and linguistic competencies learning through a bilingual (Spanish/English) fieldtrip project with teachers in training"*]. Martínez-Hernández and Albaladejo-Albaladejo's paper focuses uniquely on the potential of urban fieldtrips to improve the disciplinary competences (namely: geography and history 'geohistorical') and linguistic competences of trainee teachers. This well-designed study comprised twenty-seven trainees who volunteered to engage in three complementary workshop field trips with didactive components in the second language (English). The paper analyses the CLIL model and debates the respective merits of bilingual fieldtrips on the cognitive and linguistic development of students. Their study confirmed that the pedagogy using CLIL promoted learning on several competence domains and using bilingualism did not hinder development. Indeed, there was no statistical difference between students who were bilingual and those who were not at the outset of the study. As the authors noted, the use of the fieldtrip in a subject area to enhance linguistic and disciplinary competencies is under researched. What is interesting here is the use of natural communication activities that enable the dialogues to be meaningful rather than learning by rote. In this case, the geography and history trainee teachers engaged in a guided tour in the second language in which key points of geographical and historical interest were the 'stopping' points on the tour. The urban fieldwork was akin to being a tourist. This paper challenges other disciplines to consider natural communicative events that could enhance both the disciplinary competences (in this case teaching and the subject area) and language skills. The authors

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also produced an insightful section on 'limitations' which was both refreshing and realistic.

Our third, fourth, and fifth papers reflect upon historical and future trends within the university sector that impact upon the countries concerned (Africa, the Czech Republic and Khuzestan Province Iran, respectively).

Adamu offers a critical reflection on the *"Harmonisation of higher education in Africa: 20 years after the Bologna Process*" and argues for the crucial necessity of Africa needing genuine and strong "conainsation" which the author describes as 'the process of continentalisation, nationalisation and institutionalisation of theories, ideas, notions, policies, strategies, approaches, initiatives, practices, etc. by putting the intended context at the center of the process'. Adamu's paper is a timely reminder of the issues that arise when policies and practises from one continent are translocated to another without critical reflection. Adamu summarises and debates the impact of the European 'Bologna Process' upon the African continent. The drive to harmonise African Higher Education (HE) was/is situated in a continent with resource challenges, limited experience of intra continent harmonisation, historical differences, less political commitment, and a wider diversity of Higher Education systems at the beginning of harmonisation. The paper provides students of African Higher Education with historical points of reference and their legacy. A classic example is the 1981 Aruba Convention that recruited only 20 signatories and even less to its revised version thirty years later (Addis Addaba Convention 2014). This Convention currently has approximately 12 states that have ratified the Convention. Similarly, Adamu outlines the role of the African Union and other stakeholders in the 'harmonisation' journey. In analysing the impact of the Bologna Process upon Africa, Adamu points out the financial and technical support provided by the EU and the 'soft 'power exerted through grants and other awards that require Bologna inspired activities. This analysis challenges the model of European Union engagement and questions the extent to which this might lead to 'self-imposed colonisation.'

From Africa to the Czech Republic and a study that investigates student satisfaction with the university sector, a key topic given the decline in student enrolments in the sector since 2010 [Chládková, Skýpalová, and Blašková, " *Strengthening the university competitiveness in the Czech Republic"*]. This paper introduces the reader into the socio-historical context of Higher Education in the Czech Republic and shows how several factors have led to the 'persistent seclusion of Czech higher education and an unwillingness to cooperate among various entities (public - private universities)'. The paper provides a detailed background and extensive literature review concerning

rankings, quality, and esteem of universities and how universities in the Czech Republic fare within the different measures of HEIs. The research study at the heart of the project sought to elicit students' perspectives on the factors they consider important and the strengths and weaknesses within their respective Faculties. Conducted in 2019, 595 bachelor's students, aged 21-23 from a Business Faculty in two universities (one public and one private) responded to the survey (no foreign students were included). Interestingly, although perhaps not surprising, were the factors that were similar to both universities and those that differed. Differences between the private and public sector focused on environmental factors like student care, interesting lectures, study materials and opportunities. In contrast, the public university student saw the strengths as image, international links, and modern technologies. Both groups rated atmosphere, facilities, and teachers. Weaknesses were quite different. At the public university students found the study difficult, the image of the university was seen to have declined and there was a lack of practical training. In contrast, for the private university the weaknesses were more structural, for example lengthy processing through the study department, too many seminar papers and insufficient school capacity.

Finally to Khuzestan, Iran, where Farazm, Afghah, and Andayesh *"University in an oil-dependent state economy: The future of Khuzestan higher education"* share their findings from an expert and stakeholder led study that sought to (a) create alternative scenarios and propose the preferred one for higher education in Khuzestan province; and (b) discover how higher education within Khuzestan province could contribute to the socio-economic development of the region. This fascinating study also presents a relevant and interesting socio and historical context to the Higher Education (HEI) Sector in Iran through the comparisons with other global regions and international trends. Drawing on theories of Human Capital and Scenario Modelling, Farazm, Afghah, and Andayesh noted before their fieldwork, that the HE sector had not paid sufficient attention to the local and regional labour market needs and those of a globalising economy. Crucially, Iran is driven by an oil dependent economy which meant the HEI sector was funded by government with the populations having expectations aligned to this method of funding. Farazm, Afghah, and Andayesh used a snowball technique to reach relevant participants whose knowledge, expertise, and familiarity with the regional context, would enable them to critique the current situation and offer potential scenarios for the future. Ten in depth interviews were conducted until theoretical data saturation was achieved. Four alternative scenarios for higher education in Khuzestan province were designed and the

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participants then validated these scenarios which were linked economically to the extent to which Iran remained an oil dependent economy. The four typologies were Universities who were Conservative, Adaptive, Enablers or Developers. Concluding that the Developer scenario was the preferred option, the implications were significant, knowing that there is a wide gap between the traditional and industrial sectors of employment in the province and that funding mechanisms remain unchanged.

What these papers have in common is the endeavour to move with the times, to be responsive and anticipate trends, thereby preparing their department, faculty, university, or region for the future. Albeit a future with predictable, unexpected, and in some cases possibly overwhelming challenges. What is particularly interesting is that these innovations, strategic plans, or responsive evaluations were initiated before the pandemic. So, in Berbegal Vázquez, Merino Orozco, Arraiz Pérez and Sabirón Sierra's introduction of the e-portfolio, one would presume the universities concerned were not only well equipped to exploit further technologies during the pandemic, but also from a leadership perspective, better prepared to manage change. The learning points from Martínez-Hernández and Albaladejo-Albaladejo's study are that 'natural communicative' activities can be best used for developing linguistic competences in the discipline and that more simple uncomplicated activities at low cost can be very effective.

From a strategic and policy perspective, Adamu reminds us to consider local context when applying an education system model to another untrialled setting, particularly those with significant differences in the technical, cultural, political, and infrastructural domains. As an ethnographer, I am sensitive to such nuances and the potential for negative consequences when they are neglected. Adamu revealed another example of potential colonialism. The use of 'soft power' to create change through replication rather than adaption or evolution and the acceptance of such power to acquire funding. This of course is not new in the world of international grants and favours. In this case, one region's 'current reality' becomes another region's 'new reality'. The future proofing lies in mechanisms of grant giving that respect culture, facilitate adaption, evolution, or invention.

For Chládková, Skýpalová, and Blašková, the Czech Republic 'new reality' was a decline in student numbers in the university sector, largely due to a demographic profile and the growing importance of being competitive in both a national and international context. The challenge was to ascertain factors influencing student choice and experience between public and private universities. What the study revealed is key similarities that apply to all students, but specific features associated with the respective university and

the students they attract. This paper illustrates the journeys that universities and their country policy makers must travel if they are to be 'future proofed' when the realities change.

Similarly, identifying and facing the 'new realities' was the goal of Farazm, Afghah, and Andayesh. Their paper argues for a particular model of university organisation, ethos, and mission. The challenge is the current reliance on an oil driven and state economy. To prepare for the future a significant change at state level is argued to be a necessity, with strategies to address a new economic/governance model. Mindful of the climate implications of fossil fuels, countries like Iran and Saudi Arabia face specific challenges to meet the 'new reality' of climate control and the link to their current and future economic success and societal expectations.

As we move to the COVID-19 section, the 'new reality' was the impact of COVID-19 on Higher Education and the extent to which the institutions concerned were 'ready', 'challenged' and 'future proofed' as the pandemic emerged and developed.

Indeed, the COVID-19 pandemic has created multiple challenges across the higher education sector. Every stakeholder group was affected equally but differently. Students found themselves engaged in distance learning, a mode of delivery some had not opted for; teaching staff had to rapidly rethink delivery and train on new technologies; researchers had to methodologically reinvent projects and collaborations; professional staff had to pivot emphasis on areas in more demand, such as mental health or legal advice; senior management were acting with less autonomy, as governmental restrictions dictated possible actions. Undoubtedly, the pandemic situation has also created opportunities from increasing digitalisation, more flexible ways of working, expediting networking and collaborations, etc. Into the future, every stakeholder group will continue to aim to cope as best as possible with the emerging 'new normal' and any support from various contexts across the world will be helpful in this regard. The two papers on COVID-19-related realities, although documenting very different areas of higher education, contribute relevant insights and offer clear guidance for action and, where necessary, for change.

The first paper in the COVID-19 special section by Matthew Kitching "*A mixed methods contribution analysis of UK students' unions' internal communications response to addressing staff motivation during the Covid-19 pandemic*" is set against the backdrop of COVID-19 developments in the United Kingdom. The findings, however, demonstrate transferability across international settings and can prove relevant at a time when institutions/organisations are deciding what they may retain from the pandemic experiences.

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In a description that will resonate as familiar with many of us in higher education, Kitching recognises that the shift to online delivery achieved mixed success and lockdown-induced working from home arrangements exacerbated existing challenges in many contexts. Student Unions were strongly exposed as the demand for advice and representation grew, while extra-curricular and community-based activities came to a complete halt. This meant that student union employees were under mounting pressure to deliver on their responsibilities. The study looks at the communication received by employees (from all-staff, departmental, and individual emails to social media communications and online and face-to-face meetings) and establishes a link between those communications and staff motivation. Using Mayne's Contribution Analysis and Maslow's Hierarchy of Needs, the author places these communication strategies in perspective and develops recommended actions for viable change. 151 responses from across 35 student unions meant conclusions could be relevantly formulated, emphasising considerations of job security, capability, socialisation, recognition, and development to underpin communication constructs. Not surprisingly, misalignment between manager's intentions and employee expectations resulted in dissatisfaction or frustration which evidently led to demotivation. What the author does not explore, but could be extremely interesting for future research, is how these variations in motivation may have impacted perceptions of student union performance as experienced by the student body.

The second of our COVID-19-focussed papers shifts attention to research and researchers, as White, Alders, Patocs and Raina explore how the pandemic has impacted the potential to conduct interdisciplinary research, through collaborative approaches. The paper "*COVID-19 and interdisciplinary research: What are the needs of researchers on aging?"* rightly acknowledges the need to intensify research on aging, especially given the pandemic consequences on older people. The authors describe a case study of managing change under pandemic restrictions to ensure much needed continuity for research activities. An initial survey tested the needs of researchers under newly imposed circumstances, followed by two Co-design Idea Exchange sessions which aimed at alleviating concerns and finding solutions for the future. Remote researching protocols, virtual collaboration spaces and innovative stakeholder engagement for funding and data collection, all feature as areas in need of detailed consideration. Findings focus on capacity and adaptability of researchers to move to virtual platforms, their eagerness to consider opportunities for instituting new methods to connect disparate interdisciplinary parts for more comprehensive analyses, as well as continuity of day-to-day activities and overcoming safety anxieties. The authors offer

clear direction how the McMaster Institute for Research on Aging engaged researchers to support them to successfully pivot and optimise activities under the restrictions. This paper offers timely insights derived from a methodology which is most certainly adaptable to other institutional contexts where researchers have been confronted with major challenges.

As the Journal captures both the non-COVID and COVID-19 related dimensions of Higher Education, and their inter-relatedness, we can appreciate how the capacity, readiness to change, and competence of all the Higher Education Community actors at the start of the pandemic influenced their subsequent experience of the pandemic. As editors, we will continue to review the next batch of papers to elicit the themes and trends that emerge through the on-going iterations with the stake-holding community, the pandemic, historical good practises and the 'new normal'.

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Articles

The e-portfolio in higher education: The case of a line of teaching innovation and complex change management

Alfredo Berbegal Vázquez, Abel Merino Orozco,
Ana Arraiz Pérez, and Fernando Sabirón Sierra*

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Abstract: This work proposes a line of innovation to implement possible uses for the e-portfolio in higher education. We present an initial framework for analysis with attention to three main arguments: the validity of the interest of the e-portfolio for higher education in light of the current challenges posed by the knowledge society; the relevance of complex change management within organisations such as universities; and the identification of critical elements in the relevant literature concerning experiences similar to the case analysed here. The milestones for the line of innovation include six projects and three teacher training courses. Once data had been gathered in the respective assessment phases for each milestone by means of document analysis techniques (e-portfolios, teaching materials, usage statistics), questionnaires,

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Acknowledgements: The innovation projects took place within the context of the programme for incentivising teaching innovation by the Vice-chancellor of Academic Policy at the University of Zaragoza. The work was financed by the Government of Aragón (reference group S63_20R, GIA), co-financed by the European Fund for Regional Development 2014-2020 "Construyendo Europa desde Aragón" (Building Europe from Aragón). Certain milestones in the innovation programme were achieved thanks to the collaboration of the Vice-chancellor of Technology and Communication, the Management of the Virtual Campus and the Institute of Education Sciences at the University of Zaragoza.

discussion groups, in-depth interviews, and self-assessments (responsible academics, teachers, and students), a global analysis of the whole line was conducted from a complex approach to the problems of teaching change and innovation. A technological, political and cultural reading of innovation reveals emerging problems to reconsider: the attainment of deep learning; the standardisation of academic tutoring; the formation of learning and practice communities; the reconceptualisation of the e-portfolio as a personal learning environment; and the transformation of the university institution as a learning organisation. The premature condition of higher education to deal with the change in the teaching paradigm and the urgency to revisit its innovation policies to overcome it stand out among the critical conclusions of this study.

Keywords: e-portfolio; personal learning environment; teaching innovation; academic tutoring; change management.

I. Introduction

This article proposes a line of research for possible uses of the e-portfolio in higher education. We present a longitudinal case study on comprehensive and institution-wide implementation of an e-portfolio programme from 2011 to 2019. A review of the literature, analysing the line of teaching innovation as a horizon, forms the basis of the first part. The literature can provide us with a complex framework for current interest in teaching research and change management, especially concerning e-portfolio experiences at university. The main purpose of the article is discussed in the second part. We present three key branches of e-portfolio innovation developed in six projects: 1) exploration of learning-centred and skill-based assessment; 2) definition, optimisation and transfer of the Mahara e-portfolio solution; and 3) design of a policy to expand and disseminate the MaharaZar digital personal learning environment. For each branch, we apply analytical models of the revised framework, describe the principal projects involved, sum up partial results and highlight emerging problems and lessons learned. Finally, we end the article with a discussion on practical implications, limitations, future research and critical conclusions.

II. Literature review

Analysing the line of research first requires a theoretical review of three key questions: 1) Why innovate in higher education?; 2) How can innovation processes and change in complex organisations such as universities be undertaken?; and 3) What is the current situation at universities regarding e-portfolio innovation and use?

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II.1. Why? Teaching innovation attractors in higher education

As argued in the systematic review by Cai,[1] universities promote better ways of doing the same things (sustaining innovation), although current knowledge society leads to radical changes in the traditional organisation of universities (disruptive innovation).[2] The objectives of innovation address the new preoccupations of the University-Market (employability of graduates, economic and territorial policies, links with companies, knowledge management). Although all academic fields are addressed, innovations in curriculum and in teaching-learning methods are more numerous: integration of educational technology,[3] adoption of student-centred learning,[4] authentic and formative assessment[5] and collaborative learning.[6] In the areas of research, management and governance, preferred changes suggest capitalising on universities' knowledge and social responsibility and exploring other models of public management, organisational units and academic dynamics.[7] The literature distinguishes between outside-driven innovations (policies, incentives) and inside-driven innovations (professional initiatives);[8] it also analyses preferences and responsibilities in leadership, systematic planning, participative procedures

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[1] Yuzhuo Cai, "From an Analytical Framework for Understanding the Innovation Process in Higher Education to an Emerging Research Field of Innovations in Higher Education," *The Review of Higher Education* 40, no. 4 (2017): 597, https://doi.org/10.1353/rhe.2017.0023.

[2] Anne M. Walder, "Obstacles to innovation: The fear of jeopardising a professorial career," *British Journal of Education* 3, no. 6 (2015): 3-4.

[3] Lai Blaj-Ward, and Kim Winter, "Engaging students as digital citizens," *Higher Education Research & Development* 38, no. 5 (2019): 882-886, https://doi.org/10.1080/07294360.2019.1607829.

[4] David Carless, "Exploring learning-oriented assessment processes," *Higher Education* 69, (2015): 965-969, https://doi.org/10.1007/s10734-014-9816-z.

[5] Monique de Bruijn-Smolders, Caroline F. Timmers, Jason C.L. Gawke, Wouter Schoonman, and Maris Ph. Born, "Effective self-regulatory processes in higher education: research findings and future directions. A systematic review," *Studies in Higher Education* 41, no. 1 (2016): 143-45, https://doi.org/10.1080/03075079.2014.915302.

[6] Swanson, Elizabeth, Lisa V McCulley, David J Osman, Nancy Scammacca Lewis, and Michael Solis, "The effect of team-based learning on content knowledge: A meta-analysis," *Active Learning in Higher Education* 20, no. 1 (2019): 40-42, https://doi.org/10.1177/1469787417731201.

[7] Gulden, Manarbek, Kondybayeva Saltanat, Doszhan Raigul, Turarov Dauren, and Abylay Assel, "Quality management of higher education: Innovation approach from perspectives of institutionalism. An exploratory literature review," *Cogent Business & Management* 7, no.1 (2020): 3-5, https://doi.org/10.1080/23311975.2020.1749217.

[8] Sandra Hasanefendic, Julie M. Birkholz, Hugo Horta, and Peter van der Sijde, "Individuals in action: bringing about innovation in higher education," *European Journal of Higher Education* 7, no. 2 (2017): 103-106, https://doi.org/10.1080/21568235.2017.1296367.

and multi-directional communications. The institutionalisation stage is reached in the medium and long-term and requires longitudinal studies in both formal (structures, organisations, functions) and informal dimensions (values, attitudes, rules), each with their different rhythms and speeds. The success of institutionalisation depends on understanding the potential use of innovation, its compatibility with the sociocultural organisation in which it evolves and the agency or capacity to act of the stakeholders involved.[9]

In this respect, it is possible to define three main attractors in the field of teaching innovation required to adjust to the needs of modern societies: knowledge, language and activity.

A. Knowledge. University institutions have been buffeted by the transformations brought about by the knowledge society.[10] Higher education cannot remain indifferent to the decentralisation and dispersion of knowledge sources in the globalised world;[11] to the transformation of knowledge management services into knowledge economy services;[12] to the usefulness of new forms of knowledge, both performative and situated;[13] to the reconfiguration of interactive, portable and transferable knowledge; to the exponential growth of information and the vertiginous speed with which it becomes obsolete; to the substitution of expert dialogical validation for standardised assessment systems and flows;[14] and to the multi-systemic and continuous accountability used to guarantee institutional excellence.[15] The historical mission of higher education with respect to knowledge appears to have reached its end point, overcome by a crisis of identity

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[9] Cai,"From an Analytical Framework," 605-606.

[10] Ronald Barnett, "University knowledge in an age of supercomplexity," *Higher Education* 40, no. 4 (2000): 416-20, https://doi.org/ 10.1023/A:1004159513741.

[11] Andrew Wernick, "University. Theory," *Culture & Society* 23, no. 2-3 (2006): 561-563, https://doi.org/10.1177/0263276406062810.

[12] Erik E. Lehmann, Michele Meoli, Stefano Paleari, and Sarah A. E. Stockinger, "The role of higher education for the development of entrepreneurial ecosystems," *European Journal of Higher Education* 10, no. 1 (2020): 3-4, https://doi.org/10.1080/21568235.2020.1718924.

[13] Vikki Bell, "Performative Knowledge," *Theory, Culture & Society* 23, no. 2-3 (2006): 216, https://doi.org/10.1177/026327640602300245.

[14] Leeuwenkamp Gerritsen-van, Karin J., Desirée Joostenten Brinke, and Liesbeth Kesterd, "Assessment quality in tertiary education: An integrative literature review," *Studies in Educational Evaluation* 55 (2017): 95-96, https://doi.org/10.1016/j.stueduc.2017.08.001.

[15] Hora, Matthew T., Jana Bouwma-Gearhart, and Hyoung Joon Park, "Data driven decision-making in the era of accountability: Fostering faculty data cultures for learning," *The Review of Higher Education* 40, no. 3 (2017): 396-398, https://doi.org/10.1353/rhe.2017.0013.

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in substantive (the loss of institutional status), ideological (lack of social legitimacy) and procedural (institutional vulnerability and increasing instrumentalisation) terms. However, the revision of the canonical knowledge of higher education and the fall of the monopoly it has traditionally held over knowledge management does not need to be read as the end of knowledge: its mission must be transformed in the era of supercomplexity. Universities have a duty to offer new references for understanding, to facilitate the interpretation and comprehension of emerging forms of knowledge and to facilitate means and resources for learning how to live in supercomplex societies.[16]

B. Language. The challenges of the digital university call for a conceptual restructuring of academia. Digitalisation comprises those cultural and information environments that condition the things we know and how we know them.[17] The ubiquity of the digital media radically resignifies the communication processes in post-industrial societies, thus generating profound tensions and forms of resistance within the organisational and professional cultures of university institutions.[18] Similarly, the exponential growth in social, informational, educational and training spaces relocates higher education on the continuum of lifelong learning. From the perspective of teaching-learning systems, educational technologies update the cognitivist and socio-constructivist focus from connectivism.[19] There is, indeed, a proliferation of alternative training designs to adjust to the new routines and needs of citizens (ad hoc, online programmes, in-service, blended, flipped classrooms, through learning communities, skill-based, MOOCs, etc.).[20] Training spaces are being substituted by user-centred digital environments, thus stimulating a complete restructuring

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[16] Francisco Del Canto, "University As a Global Actor in the International System of the 21st Century," *Tuning Journal for Higher Education* 6, no. 1 (2018): 182-87, https://doi.org/10.18543/tjhe-6(1)-2018pp169-198.

[17] Norm Friesen, "Media: Digital, Ecological and Epistemological," *E-Learning and Digital Media* 8, no. 3 (2011): 176-78, https://doi.org/10.2304/elea.2011.8.3.175.

[18] Malcolm Brady, and Naoimh O'Reilly, "Learning management systems and their impact on academic work," *Technology, Pedagogy and Education* 29, no. 3 (2020): 252-54, https://doi.org/10.1080/1475939X.2020.1743746.

[19] George Siemens, "Connectivism: A learning theory for the digital age," *International Journal of Instructional Technology & Distance Learning* 2, no. 1 (2005): 4-6, http://itdl.org/Journal/Jan_05/article01.htm.

[20] Phil Hill, "Online educational delivery models: A descriptive view," *Educause Review* (2012): 95-97. https://er.educause.edu/-/media/files/article-downloads/erm1263.pdf.

of formal education and the integration of non-formal and informal education.

C. Activity. The ambiguity of the notion of skill generally invites either economicist–balancing human capital and productivity demands of the environment–or behaviourist and cognitivist acceptations–preferred in instructional designs. The most extensive, socio-constructivist, ethnomethodological acceptations of the activity theory[21] show the interdependence with respect to a context where activities are interpreted and assessed dynamically and with self-determination.[22] In the context of higher education, these acceptations entail the creation of opportunities for situated learning[23] that lend value to skills due their authenticity, their suitability and their relevance with respect to the contexts of professional coping and performance.[24] Translating training into a referential of skills represents a paradigmatic revolution[25] that addresses three key challenges: 1) the readjustment of academic-professional skills to confront inconsistent and supercomplex futures;[26] 2) the identification and appraisal of tacit knowledge and transversal life-skills;[27] and, 3) the harmonised recognition of skills in open, ubiquitous and transversal training spaces (virtual, cross-border, multi-agent campuses).

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[21] Yrjö Engeström, "Activity theory and individual and social transformation," in *Perspectives on Activity Theory. Learning in Doing: Social, Cognitive and Computational Perspectives*, ed.Yrjö Engeström, Reijo Miettinen, and Raija-Leena Punamäki-Gitai (Cambridge: Cambridge University Press, 1999), 19-21.

[22] David Holman, "A dialogical approach to skill and skilled activity," *Human Relations* 53, no. 7 (2000): 962-64, https://doi.org/10.1177/0018726700537003.

[23] James G. Greeno, "The Situativity of Knowing, Learning, and Research," *American Psychologist* 53, no. 1 (1998): 14-17, https://doi.org/10.1037/0003-066X.53.1.5.

[24] Kevin Ashford-Rowe, Janice Herrington, and Christine Brown, "Establishing the critical elements that determine authentic assessment," *Assessment & Evaluation in Higher Education* 39, no. 2 (2014): 206-09, https://doi.org/10.1080/02602938.2013.819566.

[25] Jim Cumming, "Contextualised performance: reframing the skills debate in research education," *Studies in Higher Education* 35, no. 4 (2010): 412-15, https://doi.org/10.1080/03075070903082342.

[26] Valentina C. Tassone, Catherine O'Mahony, Emma McKenna, Hansje J. Eppink, and Arjen E. J. Wals, "(Re)designing higher education curricula in times of systemic dysfunction: a responsible research and innovation perspective," *Higher Education* 76 (2018): 346, https://doi.org/10.1007/s10734-017-0211-4.

[27] Dian Bunney, Elaine Sharplin, and Christine Howitt, "Generic skills for graduate accountants: the bigger picture, a social and economic imperative in the new knowledge economy," *Higher Education Research & Development* 34, no. 2 (2014): 259-263, https://doi.org/10.1080/07294360.2014.956700.

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In light of the challenges of an epistemology of uncertainty, these attractors call for an exercise in social responsibility.[28] Professional identities, organisational and institutional cultures face ongoing dilemmas between responsible adaptation (third mission, triple helix) and perverse survival (industrial university, academic capitalism).[29] Innovation arises precisely in the middle of these internal contradictions of the University-Market, coexisting with other residual models such as the University-Academy and the University-State.

II.2. How? Complex change management

Some classical analyses that advance multidimensional interpretations of the processes of innovation[30] and the "perverse" nature of their planning[31] should also be considered.

In the first place, innovation problems do not respond solely to an instrumental ethic (means-ends) from regulatory rules (coordination) and expert leadership (competency) to address the interests of sponsors (governance, responsible academics). In contrast to this technological approach, the political perspective examines the commitments and conflicts of those involved that are resolved using a contractual ethic by means of rules of cooperation (competitiveness and negotiation) and focuses of influence (persuasion, stimulation, coercion). The cultural perspective acts through norms, values and beliefs of a community comprising different cultures and subcultures (conceptual antithesis, rivalry, complementarity, reciprocity) that relate through rules of cooperation (resistance, approval) and from a relativist ethic (a problematic agreement in itself).

In the second place, problems related to innovation cannot be domesticated. They are acquiescent and irreversible and they require ongoing and up-to-date solutions.[32] In contrast with the analytical model of innovation,

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[28] Jack Stilgoe, Richard Owen, and Phil Macnaghten, "Developing a framework for responsible innovation," *Research Policy* 42, no. 9 (2013): 1570-1574, https://doi.org/10.1016/j.respol.2013.05.008.

[29] Fadia Dakka, "Competition, innovation and diversity in higher education: dominant discourses, paradoxes and resistance," *British Journal of Sociology of Education* 41, no. 1 (2020): 89-91, https://doi.org/10.1080/01425692.2019.1668747.

[30] Ernest R. House, "Technology versus craft: a ten-year perspective on innovation," *Journal of Curriculum Studies* 11, no. 1 (1979): 2-5, https://doi.org/10.1080/0022027790110102.

[31] Horst W. J., Rittel, and Melvin M. Webber, "Dilemmas in a general theory of planning," *Policy Sciences* 4 (1973): 160-167, https://doi.org/10.1007/BF01405730.

[32] Sandra Waddock, Greta M. Meszoely, Steve Waddell, and Domenico Dentoni, "The complexity of wicked problems in large scale change," *Journal of Organizational Change Management* 28, no. 6 (2015): 999, https://doi.org/10.1108/JOCM-08-2014-0146.

which manages actions over a limited period of time and aims at achieving goals and solving problems of interest, innovation in open, social organisations requires interpretive models focused on processes and with broader time scales to redirect the solutions and their emerging effects.

These concerns have been analysed through the lens of complexity theories.[33] Complexity is an umbrella theory covering a diverse array of theories and approaches, with the common interest in the emergence of order in dynamic, non-linear,[34,35] self-organising, socio-ecological[36] and adaptive complex systems.[37] Using these approaches, the nature of change management is cyclical, horizontal, divergent, democratic, disruptive, with indeterminate margins of tolerance and it acts as a catalyst for expansive changes, by reassessing questions such as the balanced distribution of power, a preferential focus on the stakeholders directly involved, strategies for lifelong learning and the commitment of the organisation to serving the community. Such considerations have consequences in the field of organisational development and, especially, in stances that consider organisations as learning systems. Learning organisations are the regulators of lifelong personal learning (reflective practice, adaptation of professional skills), of mental models (openings for change), of shared vision (individual and organisational harmonisation), of learning communities (social learning),[38] and systems thinking (pattern for change).[39] Likewise, these are sustained by forms of

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[33] Robert MacIntosh, and Donald MacLean, "Conditioned emergence: researching change and changing research," *International Journal of Operations and Production Management* 21, no. 10 (2001): 1352-53, https://doi.org/10.1108/EUM0000000005973.

[34] Caroline Trautwein, Matthias Nückles, and Marianne Merkt, "Complex dynamics in academics' developmental processes in teaching," *Higher Education Research & Development,* 34, no. 3 (2015): 653-55, https://doi.org/10.1080/07294360.2014.973376.

[35] David A. Harper, Félix-Fernando Muñoz, and Francisco J. Vázquez, "Innovation in online higher-education services: building complex systems," *Economics of Innovation and New Technology* (2020): 6-10, https://doi.org/10.1080/10438599.2020.1716508.

[36] Michele-Lee Moore, and Frances Westley, "Surmountable chasms: networks and social innovation for resilient systems," *Ecology and Society* 16, no. 1 (2011): 4-5, http://www.ecologyandsociety.org/vol16/iss1/art5/.

[37] Jaakko Kauko, "Complexity in higher education politics: bifurcations, choices and irreversibility," *Studies in Higher Education* 39, no. 9, 1684-88, https://doi.org/10.1080/03075079.2013.801435.

[38] Etienne Wenger, "Communities of Practice and Social Learning Systems: the Career of a Concept," in *Social Learning Systems and Communities of Practice*, ed. Chris Blackmore (London: Springer, 2010), 179-81.

[39] Constantin Bratianu, "Organizational learning and learning organization," in *Organizational Knowledge Dynamics: Managing Knowledge Creation, Acquisition, Sharing and Transformation,* ed. Constantin Bratinu (Hershey: IGI Global, 2015), 278-79.

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organisational learning such as exploitation of knowledge, problem solving, information exchange, forms of leadership and psychological and social processes of intuition, interpretation, integration and institutionalisation of changes.

When learning organisations fail to understand their own learning practices, a theoretical difficulty arises. In the analysis of the systems, the structures and the rules governing organisations–leaving out their practices and the agents that constitute them–there is a risk of subsuming individual and group capacity for action into an archetypal form of behaviour, a cognitive model or mechanism for transmitting the properties of the system. Learning practices are sociocultural practices that unite presupposed understanding, forms of practical knowledge, tacit knowledge and informal rules. Even from the pioneering work by Kurt Lewin, which explores the complexity of change through consultations and interventions by means of action research and training groups, the agency of the individuals involved is key to the analysis of generative changes.[40,41,42] The demand for change should also be questioned, which implies radicalising the agency of the members of the organisation and, therefore, prioritising the policy dimension. Disruptive changes (instituting) trigger critical resistance that reveals the arrangement of the cultural premises in terms of influence practices within a particular institutional configuration (instituted). The ensuing crisis acts as an institutional mirror to recognise oneself in–up until that point–latent beliefs, rules and values and, through this recognition, open a dialogical process for change institutionalisation (institutional analysis). Regarding sustaining innovations, certain micro-political practices allow for change and offer margins for action and opportunity conditions within the routines of organisations (internal analysis).[43] In any case, there is a strong transformational component acting on both group and individual dimensions of members in terms of self-determination (agency over the instituted and authorisation over the instituting).

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[40] Bernard Burnes, "Kurt Lewin and complexity theories: back to the future?," *Journal of Change Management* 4, no. 4 (2004): 318-320, https://doi.org/10.1080/14697010420003 03811.

[41] Robert Louis Flood, "The Relationship of Systems Thinking to Action Research," *Systemic Practice and Action Research* 23 (2010): 272-76, https://doi.org/10.1007/s11213-010-9169-1.

[42] Schon Beechler, Rachel Ciporen, and Lyle Yorks, "Intersecting journeys in creating learning communities in executive education," *Action Research* 11, no. 3 (2013): 254-55, https://doi.org/10.1177/1476750313485608.

[43] Jacques Ardoino, Patrick Boumard, and Jean-Claude Salaberry, *Actualité de la théorie de l'institution: hommage à René Lourau* (Paris: L'Harmattan, 2003), 17-50.

Although the resulting theoretical frameworks differ, these approaches see change as a social practice and as an opportunity for learning that comprise an intimate interdependence between individual, group, organisational and environmental dimensions.

II.3. What? The e-portfolio: Catalyst for complex change in higher education

The e-portfolio is a tool that allows documenting and managing learning sources, resources, products and processes in the modern digital culture, in a deep and continuous way throughout the life cycle. Although this is perhaps a conciliatory definition, the reality is that the specialised literature experiences huge difficulties in specifying what an e-portfolio is and its applicability to higher education.[44,45,46] It represents a system of social learning with highly varying aim (reflective purposes), function and role (audiences), and structure and activity (artefacts)[47] and whose operational realisation, therefore, implies several practical dilemmas. Connectivism and hypertextuality grant the e-portfolio a specific character when compared to the traditional portfolio.[48]

Its first applications in a higher education setting took place in the 1980's, in the context of initial teacher training. Towards the end of the 1990's, a time with extensive academic output in the field of metacognition and educational technology, its use became widespread. Since 2000, the development of Web 2.0 and social media, the inconsistencies between learning and assessment arising in higher education plus the internationalisation of universities made the e-portfolio a more attractive solution.[49] However,

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[44] Wil Meeus, Linda Van Looy, and Peter Van Petegem, "Portfolio in higher education: Time for a clarificatory framework," *International Journal of Teaching and Learning in Higher Education* 17, no. 2 (2016): 129-30, https://www.isetl.org/ijtlhe/pdf/IJTLHE27.pdf129-30.

[45] *JISC, Effective Practice with ePortfolios: Supporting 21st century learning* (Bristol: HEFCE/JISC, 2008), 6-7.

[46] Gillian C. Hallam, and Tracy Creagh, "ePortfolio use by university students in Australia: a review of the Australian ePortfolio Project," *Higher Education Research & Development* 29, no. 2, (2010): 181-182, https://doi.org/10.1080/07294360903510582.

[47] David C. Gibson, "ePortfolio decisions and dilemmas," in *Handbook of research in eportfolio,* ed. Ali Jafari, and Catherine Kaufman (London: Idea Group Reference, 2006), 136-37.

[48] Helen Woodward and, Phil Nanlohy, "Digital portfolios: fact or fashion?," *Assessment & Evaluation in Higher Education* 29, no. 2 (2004): 228-230, https://doi.org/10.1080/0260293042000188492.

[49] Darina Scully, Michael O'Leary, and Mark Brown, *The Learning Portfolio in Higher Education: A Game of Snakes and Ladders* (Dublin: CARPE/NIDL, 2018), 17-18.

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although it represents a good alternative to respond to the attractors introduced, its application in higher education has been limited to theoretical research or to the development of digital platforms and environments. Moreover, the majority of this research was limited to defining the perceptions and attitudes of stakeholders during a relatively brief period of time rather than understanding and demonstrating the effective achievement of skills through comparative and longitudinal studies.[50,51,52] Judging by the literature reviewed, the current situation regarding the e-portfolio within the higher education setting is as follows:

- It is reduced to storing learning evidence, as a filing cabinet.[53] It is limited to acting as a form of submission that does not go beyond an isolated realisation of the task without exploring its inherent meaning nor connecting it with personal experience, prior knowledge or the real world. The digitalisation and adaptability of these tools can outshine their teaching potential.[54] On occasion, technology serves as the scapegoat for failed initiatives that are actually due to serious conceptual shortcomings related to the way in which learning portfolios have been implemented.[55]

- Deep learning is the exception. It is rare for content to be selected on the basis of audiences and purposes and processes of self-regulation and critical reflection are confused with descriptions or lists of completed tasks.[56,57] The basic skills that allow documenting learning

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[50] Diler Oner, and Emine Adadan, "Are integrated portfolio systems the answer? An evaluation of a web-based portfolio system to improve preservice teachers' reflective thinking skills," *Journal of Computing in Higher Education* 28, no. 2 (2016): 254, https://doi.org/10.1007/s12528-016-9108-y.

[51] Erik Driessen, "Do Portfolios have a future?," *Advances in Health Sciences Education* 22 (2017): 226, https://doi.org/10.1007/s10459-016-9679-4.

[52] Scully et al., "The Learning Portfolio," 7.

[53] Patrick Lowenthal, John White, and Karen Cooley, "Remake/Remodel: Using ePortfolios and a System of Gates to Improve Student Assessment and Program Evaluation," *International Journal of ePortfolio* 1, no. 1 (2011): 68, http://www.theijep.com/pdf/IJEP37.pdf.

[54] Woodward and Nanlohy, "Digital portfolios," 232-33.

[55] Scully et al., "The Learning Portfolio," 14.

[56] Katrien Struyven, Yves Blieck, and Véronique De Roeck, "The electronic portfolio as a tool to develop and assess pre-service student teaching competences: Challenges for quality," *Studies in Educational Evaluation* 43 (2014): 52, https://doi.org/10.1016/j.stueduc.2014.06.001.

[57] Diler Oner, and Emine Adadan, "Are integrated portfolio systems the answer? An evaluation of a web-based portfolio system to improve preservice teachers' reflective thinking skills," *Journal of Computing in Higher Education* 28, no. 2 (2016): 252-53, https://doi.org/10.1007/s12528-016-9108-y.

must be exercised explicitly and over relatively long periods of time.[58] The only way to transform these skills into thinking habits is over several academic years, taking on the threats to sustainability and initial resistance and insecurities.[59,60] Consequently, there is a need for teacher and responsible academics training with a strategic focus on academic guidance and coordination.

- The e-portfolio is limited to academic life within universities and usually to specific subjects. Its use in later professional development and throughout life is not reached by trusting in the intrinsic motivation of graduates or in the inertia of a continuing and massive demand on the part of universities. It involves an online vision and a reconceptualisation of e-portfolios (focused on institutions, training services and users) as digital personal learning environment (focused on citizens and their professional career and personal lives);[61,62,63] evidence of this is the scarcity of e-portfolios by faculty members or those for university or professional guidance.

This diagnosis indicates that the potential of the e-portfolio has not been sufficiently explored, mainly due to a lack of knowledge of its possibilities of use by educational communities. In addition, evidence from research is somewhat hesitant and, as a consequence, the large-scale take-up of e-portfolios by universities is fraught with uncertainty.[64,65]

Using its potential requires organisational learning in innovative collectives and complex changes within organisations as follows:

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[58] Pauline Roberts, "Developing reflection through an ePortfolio-based learning environment: design principles for further implementation," *Technology, Pedagogy and Education* 27, no. 3 (2018): 321, https://doi.org/10.1080/1475939X.2018.1447989.

[59] Gibson, "ePortfolio decisions," 139-140.

[60] Christine Slade, and Terry Downer, "Students' conceptual understanding and attitudes towards technology and user experience before and after use of an ePortfolio," *Journal of Computing in Higher Education* 32 (2019): 532, https://doi.org/10.1007/s12528-019-09245-8.

[61] Helen C. Barrett, and Nathan Garrett, "Online personal learning environments: Structuring electronic portfolios for lifelong and life wide learning," *On the Horizon* 17, no. 2 (2009): 145–147, https://doi.org/10.1108/10748120910965511.

[62] Kelly A. Parkes, Katie S. Dredger, and David Hicks, "ePortfolio as a measure of reflective practice," *International Journal of ePortolio* 3, no. 2 (2013): 108-9, http://www.theijep.com/pdf/IJEP110.pdf.

[63] Tilisa Thibodeaux, Cynthia Cummings, and Dwayne Harapnuik, "Factors that Contribute to ePortfolio Persistence," *International Journal of ePortfolio* 7, no. 1 (2017): 8, http://www.theijep.com/pdf/IJEP257.pdf.

[64] Hallam and Creagh, "ePortfolio use by university students," 10-11.

[65] Struyven et al., "The electronic portfolio," 53.

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- a structural consensus concerning the paradigms of teaching-learning that demand the use of e-portfolios (shared visions);
- lifelong and individual learning by agents within the educational community through transfer of educational research and innovation in universities (professional development);[66]
- opening up towards deeper curriculum reforms, with new training modalities, harmonisation and interoperability with other universities and socioeconomic agents, standards of accreditation with respect to official audiences (mental model);[67]
- learning communities, professional learning and practice communities that share a transversal and coordinated vision of the e-portfolio, organised according to teaching activity spaces (social learning);[68] and
- political action at regional, national and international levels in order to advance towards personal learning spaces that are integrated between services, programmes and social agents that take part in the needs of citizens throughout their lives, thus building strong cohesion between higher education and university, professional and employment guidance (systems thinking with patterns for change).[69]

A comprehensive implementation of the e-portfolio seems to be a priority in higher education, thus bringing into question whether universities are providing the deep learning demands of the 21st Century and if this learning continues throughout life.

III. The case of a line of innovation in the e-portfolio

Taking place between 2011 and 2019 at the University of Zaragoza (Spain), the project comprised three key branches: 1) the development of learning-centred and skill-based assessment; 2) definition, optimisation and transfer of the Mahara e-portfolio solution; and 3) design of a policy for expansion and dissemination of the MaharaZar digital personal learning environment. The following figure gives a global view of the line.

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[66] Scully et al., "The Learning Portfolio," iii.

[67] Barrett and Garrett, "Online personal learning," 147-48.

[68] Inken Gast, Kim Schildkamp, and Jan T. van der Veen, "Team-Based Professional Development Interventions in Higher Education: A Systematic Review," *Review of Educational Research* 87, no. 4 (2027): 758, https://doi.org/10.3102/0034654317704306.

[69] Maria Sticchi, "From 1999 to 2019: 20 Years of European Debate, Development, and Achievements," *Tuning Journal for Higher Education* 6, no. 2 (2019): 65-66, https://doi.org/10.18543/tjhe-6(2)-2019pp51-71.

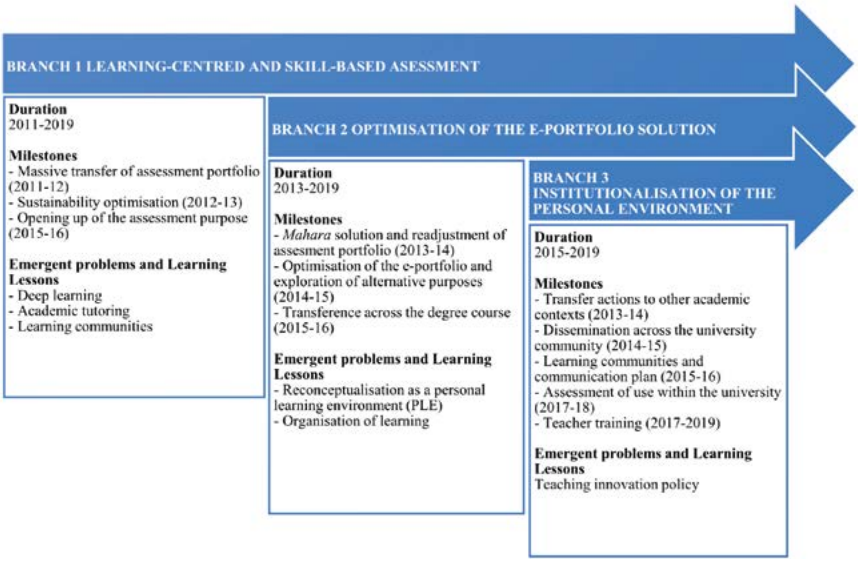

Figure 1
Milestones of the line of innovation

What follows is a description of the nature, objectives, types, contexts and resources of the various milestones,[70] including the most relevant results and the emerging problems and learning lessons for each branch.

This is an evaluative research that attempts a comprehensive and institution-wide analysis of implementation of an e-portfolio programme. The information presented was provided by the research participants (students, staff, organisations, third parties or others), whose confidentiality has been adequately protected with descriptions and systematic interpretations. Any personal and professional reference is irrelevant. Data analysis, full results of the inquiry and critical conclusions focus exclusively on levels and structural dynamics of teaching innovation practices and institutional change management.

[70] Anahita Baregheh, Jennifer Rowley, and Sally Sambrook, "Towards a multidisciplinary definition of innovation," *Management Decision* 47, no. 8 (2009): 1333–34, https://doi.org/10.1108/00251740910984578.

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III.1. Branch 1. Development of learning-centred and skill-based assessment

This branch of the work appears in the six innovation projects and its adaptation to teaching contexts continues to the present time. It comprises three specific innovation projects in development between 2011- 2016.

III.1.1. Methodology

It comprises three specific innovation projects in development between 2011- 2016.

- First project (2011-2012). It aimed to tailor the skill-assessment portfolio for each of the subjects of the reference area of the promoting collective in the degrees in primary and early childhood education at the Faculty of Education (350 students and 5 lecturers). This adaptation process was analysed through the portfolios produced (evidence and good practices), guided self-assessment (perceptions and degree of self-regulation), discussion groups and in-depth interviews with students (explicit and shared needs) and revision tutoring and formative assessment (critical incidents). Areas related to pedagogy (tasks and resources, tutoring and mediation, authentic assessment), didactics (defining and communicating aims, artefacts and assessment criteria), technology (adaptation to the digital platform, Blackboard 9.1) and organisation (sustainability and teaching coordination) were analysed.

- Second project (2012-2013). It involved tailoring the skill-assessment portfolio by another academic collective–innovative and with background–for use in the undergraduate and master programmes at the Faculty of Business and Public Management in Huesca (300 students and 6 lecturers). Innovation was also maintained in the context of the innovation collective (400 students and 6 lecturers). There were both intragroup (portfolios produced, guided self-assessment, discussion groups and in-depth interviews) and intergroup (discussion groups of teaching teams) analyses. The dimensions examined included assessment sustainability and institutionalisation. The project culminated in the adoption of Mahara as digital solution and its installation in the university openly accessible to the whole educational community.

- Third project (2015-2016). It concerned opening up the e-portfolio assessment. Skill-assessment in other contexts–such as teacher training placements in external educational establishments and end-of-degree

projects–was explored. It involved a modular, promotional, tutoring- and showcase-related vision of the e-portfolio. A total of 23 lecturers from 9 different departments and the coordinators of the degrees in primary and early childhood education participated in the project. The perceptions of faculty members were assessed through a questionnaire, with attention given to the type and degree of use of the e-portfolio, its potential to respond to academic demands, needs of initial and emerging training, and attitudes and skills promoted and needed for the integration of the regular teaching practice. Good practices (portfolios produced, derived training materials) were assessed and the perception of degree coordinators on the viability and continuation of the space and the possible strategic actions to promote regarding all the degrees were investigated.

III.1.2. Contexts, objectives, and resources

This branch of the work involves a massive transfer of critical knowledge generated in works prior to the line of innovation.[71,72,73] It attempts a progressive normalisation of the practices of learning-centred and skill-based assessment in specific and local teaching contexts. In this sense, it addresses the following generic objectives: continuous reorientation of the design and implementation of the skill-assessment portfolio for new scenarios; definition of interpretive keys for its consolidation; exploration of effective digital solutions; and opening up the portfolio to more understanding, stable and durable aims. Various types of innovation are developed: teaching models and supports, institutional digital alternatives and progressive regulation of aims and designs of tasks and activities. The first two projects take place in specific teaching contexts and focus on mainly pedagogical needs. At the time, the new curriculums of the degree courses had only been running for a short time and the culture of assessment was in a process of generalisation. The third project takes place when the discussion surrounding innovation in universities is reaching culmination. It aims to consolidate the change in the culture of

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[71] ETNOEDU, The ethnographic portfolio: a tool of assessment skills [In Spanish] (Zaragoza: PUZ, 2007), 1-20.

[72] Ana Arraiz, and Fernando Sabirón, The ethnographic portfolio: a socio-constructivist device for the recognition of learning, [in French,] *Carriérologie* 12, no 3-4 (2012): 333-334.

[73] Fernando Sabirón, and Ana Arraiz, Learning from assessment: a decalogue for developing professional skills through portfolio authentic assessment, [in Spanish,] *Revista Iberoamericana de Evaluación Educativa* 6, no. 1 (2013): 149-151, https://revistas.uam.es/riee/article/view/3846/4031.

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assessment beyond the context of local innovation (departments and faculties). With respect to the resources generated, these can be categorised in three ways: pedagogical (spaces for innovation, instructional manuals and guides, reports, publications), technological (the Mahara digital solution and adaptations) and organisational (academic and teaching coordination).

III.1.3. Multidimensional results

- Technological dimension. Two critical questions stand out: assessment sustainability and portfolio digitalisation. On the one hand, an analysis model is generated that defines interpretive keys to improve sustainability. Considerations on design indicate a clear definition of the portfolio's aim (priority core and professional skills) and an appropriate construction of tasks to produce significant, authentic, scaffold, modular learning with no dispersions regarding teaching interactions. Academic tutoring reveals itself as the central branch for assessment, enabling the understanding of the aim and meaning of tasks and creating opportunities to develop the core skills necessary to document learning (critical reflection, communication, self-regulation, collaboration). Academic guidance and tutoring generate the necessary support structures, considering content assimilation and consolidation times, with-out ever reaching a corrective nature, and offering opportunities for peer learning. On the other hand, three preferred criteria for digital solutions are defined: institutional control, communicative potential and personalisation. The aim is creating a space linked to the user, not to the institution, allowing the exploration of several purposes, audiences and artefacts with the prospect of building lifelong learning. Finally, Mahara is established as solution and, a formal and reasoned proposal is made for its pilot installation at the University of Zaragoza.

- Political dimension. The line is progressively entwined in a rhetoric of innovation. The results translate into arguments to persuade responsible academics of the need for an institutional digital medium and of its potential for promoting the change of the teaching-learning paradigm and the progressive adoption of the new assessment culture. Micro-policy change in teaching contexts defines resistance and obstacles that are not strictly pedagogical in nature and more connected with structural questions (degrees, departments, faculties). The agency of subjects and degree coordinators to establish synergies between local assessment experiences and to facilitate the adoption of innovations through training modules over more extended time cycles is emphasised.

- Cultural dimension. It is clear that this innovation has a strongly disruptive character. In this case, it is a matter of resistance and obstacles associated with students' assessment cultures of origin and old teaching cultures–especially intense during the first years of the line of innovation. Despite being immersed in incentivising policies for teaching innovation, reaching the deeper meanings of paradigmatic change produces sets of conceptual antitheses within most collectives. There are clashes between beliefs and values associated with learning and assessment and also between professional development and concomitant identities. In the case of the teaching activity, the new mediating identities found in the literature (informer, coordinator, encourager, facilitator, model) are established. The first signs of the need for a global institutional stance arise from these cultural questions, incorporating the paradigmatic change as the strategic branch in the medium and long-term. In contrast, critical questions such as assessment sustainability are difficult to overcome.

III.1.4. Emerging problems and learning lessons

Three key issues are defined (see figure 1): deep learning, learning and/or practice communities and academic tutoring.[74] The difficulties faced by faculty members in accommodating continuous change in their teaching performance and those by students in attaining deep learning must be addressed. In this way, the space for innovation becomes an opportunity context for mutual learning in consolidated teaching teams and those for mentoring new teaching staff. Academic tutoring is indispensable for regulating the process and, in particular, for exercising the cross-sectional skills that allow students to document learning in their e-portfolios.

III.2. Branch 2. Shaping, optimising and transferring the Mahara e-portfolio Solution

III.2.1. Methodology

This branch has been in development since 2013 up to the present through three specific projects.

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[74] Alfredo Berbegal, Ana Arraiz, Fernando Sabirón, and Carolina Falcón, The MaharaZar Portfolio at the University of Zaragoza: Emerging Reflexions, [in Spanish,] in *Good Practices in ICT-supported University Teaching: Experiences in 2014,* ed. José-Luis. Alejandre (Zaragoza: PUZ, 2015), 140-143.

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- First project (2013-2014). It was the onset of an iterative process in uses and practices of the Mahara digital resource. Prior to its implementation there was a period of wide-ranging exploration in order to understand how Mahara was used at other universities (Castellón, Barcelona, Bath, Glasgow, Alberta). The specific objective adapted the skill-assessment portfolio to the new space in three subjects linked to the innovation collective (100 students and 5 lecturers). The interface, the resulting e-portfolios and possible examples of "good practices" were analysed; discussion groups and in-depth interviews with students were also conducted. Working groups of students and lecturers were also convened within the digital environment itself. The dimensions assessed of the digital solution included stability (continuity of the environment during and after university studies), profitability (cost and synergies with other institutional platforms), versatility (formats and languages used in representing evidence and mediations), pedagogical understanding (adaptation with respect to prior portfolio experiences), sustainability (global workloads) and institutionalisation (change of assessment culture in the medium and long-term). Strategic actions for transfer to other subject areas were identified, so it became necessary to develop generic frameworks for support and guidance for future experiences.

- Second Project (2014-2015). It took place within the MaharaZar space, as the environment is termed within the University of Zaragoza. Pilot experiences continued in the innovation context (120 students and 5 lecturers), consolidating pedagogical adaptations and achieving technical stabilisation of the digital resource. Its use was also integrated into the development of other innovation projects concerning mentoring for new teachers and academic tutoring; in addition, some isolated cases of tutoring for teaching placements at external centres and supervision of end-of-degree projects were initiated. The reconceptualisation of the e-portfolio as a personal digital learning environment, which is key for the institutionalisation stage, appeared for the first time in this project (third branch of work).

- Third project (2015-2016). It contributed to opening up the assessment purpose, by transferring its use to other groups and exploring new areas within the faculty as an innovation unit. A transfer phase to common and transversal tasks and subjects in degrees in primary and early childhood education was outlined from the conceptualisation of personal learning environment. The digital space could confer

coherence and a modular structure to what was originally fragmented as subjects from different academic years, thus taking the first steps towards extensive acceptance of the e-portfolio as a way of documenting learning in the form of an academic-professional biography line. The experience allowed the evaluation of the technological solution from the viewpoint of teaching staff outside the line of innovation.

III.2.2. Contexts, objectives, and resources

This branch of work introduces an assessment nature of the technological solution reached as an institutional resource: MaharaZar. The initial premise always assumes that digitalisation, despite its ability to transform processes of representation, integration and mediation of artefacts, must be understood as a facilitating means, without lessening the governing pedagogic sense. The central objective was to evaluate the new technological solution with respect to the already existing critical knowledge regarding the skill-assessment portfolio. Nevertheless, other more overarching ideas derived from the stability and the ubiquity of a user-focused space emerge. These acquired a strong boost in this period within the field of educational technology (personal learning environment, alternatives such as flipped or hybrid training environments). The innovation milestones take place within the reference training contexts, since they concern pilot experiences, although there will be an impulse towards a shift to the faculty as the unit for innovation with common, interdepartmental aims. Support guides and tutorials for students and lecturers are produced and included in the common dynamics of subjects and in work groups within the digital space. Self-regulation and formative assessment (direct and personalised feedback) and peer learning (social networks, forums and work groups) processes are specially explored.

III.2.3. Multidimensional results

- Technological dimension. Most noteworthy are the stability and profitability of the MaharaZar resource. It enables a range of purposes over long timescales, is easy to install and free. However, its stability can be upgraded for speed and storage and there could be better use of the economy of Moodle-Mahara resources. Although Mahara is highly versatile (social media, hyperlinks and hyper-texts), the potential for personalisation is reduced due to the rigid counter-intuitive interface in terms of navigation and construction of the e-portfolio structure. Features such as institutional control (centralised security and training), potential for communication (academic social network) and for hybrid academic

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practices (feedback on learning) prevail. Regarding the results from the experiences, some minimal achievements were reached in the production of e-portfolios (efficiency in obtaining the assessment sense) and in autonomy in their digital and organised submission (effective assessment management). Although the sense of authorship is motivating, few users take advantage of the versatility of artefact use in the showcase portfolios (20%) or in profiles and walls (5%). Pedagogical understanding is barely developed: resistance and obstacles for students that were common and previously associated with the traditional portfolio now associated with technology (scapegoat); the majority of task submissions are partial and integrated documented learning is uncommon; the exploitation of collaborative learning potential is fairly limited. These issues are revealing for the initiation of new teachers that are not trained in the use of the e-portfolio, which suggests the need for intense and ongoing initial training. With respect to sustainability, digitalisation improves assessment management by articulating evidence in terms of preselected presentations and defences: effectiveness (time and workload) and efficiency (credibility and consistency in decision-making). However, this is affected by teachers' efforts and mediation times to maintain the pedagogic sense during implementation.

- Political dimension. The rhetoric of innovation is intensified. The pilot experiences highlight the teaching and organisational needs and define the demand for a digital solution to university governance. The cross-sectional coordination of degrees is confirmed, especially to develop the full potential of MaharaZar as a personal learning environment. Without disrupting the administrative management of study programmes, the user-centred environment reverts to a global and modular resignification of the curriculum, which confers pedagogical continuity to the administrative discontinuity of credits and subjects. This potential shows the great distance between the real and the possible but, above all, the overriding political nature of the change from a different mental model. In the era of an innovation conditioned by policies of accountability for universities, initiatives compete within a framework of conflicting interests. The adoption of innovation requires relationships of persuasion and incentivisation within the university complex that should be mostly financial and meritocratic, and whose leadership involves the distribution of power within the organisation.

- Cultural dimension. The adoption of innovation is resolved through the social and professional relationships that constitute the synergies

and collaborations within the cultures of research groups, teaching teams and departments. They are obvious in areas of knowledge and research groups in the case of pilot experiences and in interdepartmental and academic relationships when faculties are considered as innovation units. This affiliation is more likely if innovation provides a solution to explicit teaching issues requested from teachers' onset premises and not when, as is the case of the e-portfolio, pedagogic references are questioned and new needs that require profound changes in professional world-view are generated. It is clear that the acculturation of innovation needs learning and practice communities amongst groups with heightened awareness, but driven forwards by institutional teacher training and students' initiation structures.

III.2.4. Emerging problems and learning lessons

Those arising from the first branch remain (deep learning, academic tutoring and learning communities). From the perspective of deep learning, digitalisation alters language, so new artefacts resignify the authorship and personalisation of showcase portfolios, thus discovering a new self-reflection and professional dialogical purposes. The processes of teaching mediation are enriched and redefined, thus confirming their value. However, dilemmas concerning directivity and modelling and the difficulty in confronting them are identified.[75,76] These issues are the inspiration for the first experiences with the university guidance portfolio, and the potential to develop programmes for university guidance from critical incidents and transitions in the academic-professional careers of students is inferred.[77]

Two new problems are defined (see fig. 1): the personal learning environment and learning organisation. On one hand, the technological solution, open to integrate academic activities in terms of life-long learning, clearly surpasses the e-portfolio concept. On the other hand, attention must

[75] Ana Arraiz, Alfredo Berbegal, and Fernando Sabirón, Academic tutoring focused on assessment: analysis of needs from the perspective of students and teachers, [in Spanish,] *REDU* 16, no. 2 (2018): 224, https://doi.org/10.4995/redu.2018.5992.

[76] Abel Merino, Alfredo Berbegal, Fernando Sabirón, and Ana Arraiz,Academic tutoring at the university: a hybrid space for constructing professional identity, [in Spanish,] in. *Edunovatic 2019: 4th Virtual International Conference on Education, Innovation and ICT*, ed. REDINE (Madrid: REDINE, 2019), 239-41.

[77] Carolina Falcón, and Ana Arraiz, Efficient and sustainable career construction: the professional portfolio as a resource at university guidance, [in Spanish,] *REOP* 28, no. 2 (2017): 12, http://revistas.uned.es/index.php/reop/article/download/20116/16665.

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be drawn to how the university institution is unable to reach a definitive understanding to implement the learning environment, since it is not sufficiently prepared to undertake the necessary strategic commitments. Change complexity points to the need for new institutional beliefs and attitudes to be adopted by the university organisation.

III.3. Branch 3. Designing a policy for expansion and communication of the MaharaZar digital personal learning environment

III.3.1. Methodology

This is developed through four projects starting in 2013 and up to the present.

- First project (2013-2014). It concerned the transfer into other contexts of the innovation collective. It was the onset of the first phase of a policy to expand the personal learning environment. The relevance of its potential was emphasised, not only to address the needs already identified within specific groups of lecturers but also to offer alternatives to change and improve a diversified training, academic and professional reality in higher education.
- Second project (2014-2015). It worked on disseminating the institutional resource throughout the university community. The focus was a training programme for university teaching staff within their campuses and faculties. A total of 47 lecturers from a diverse range of fields and specialisms took part in this experience. The quality and impact of the dissemination process was evaluated through questionnaires, training materials (student and teacher manuals, results from workshops, good practices, etc) and statistical reports on the use of the resource.
- Third project (2015-2016). Already mentioned within the other branches, it took the faculty as the innovation unit, which meant a key milestone in the institutionalisation phase. The experience allowed for the evaluation of more relevant and effective paths to greater visibility of the resource; the validity of strategies and opportunities already explored in other areas of learning and other departments; and the reactions, perceptions, needs and attitudes of the teaching staff in their first contact with the environment. The results of this experience were presented to the responsible academics of the faculty and the university in order to refine an expansion plan for the resource.

- Fourth project (2017-2018). It proposed to assess the MaharaZar environment in the university during the first five years after its installation. The assessment design involved the use of surveys and in-depth interviews with teaching staff (61 lecturers in 13 departments) and the analysis of the documents produced during the experience (teaching folders, self-reports, and narrative accounts). There was a descriptive phase (who uses it, for what reason and how it is used) and an interpretive phase (meaning attributed to working dynamics and the processes and products of the learning achieved). These collectives recovered assessment with the aim of consolidating learning communities.

III.3.2. Contexts, objectives, and resources

This branch is concerned with the institutionalisation phase, which focuses on the teaching staff. The possibility of directing dissemination and training towards the students was considered, but its autonomous adoption was not viable without a prior promotion by the teaching staff of specific pedagogical conditions. The experience assessed the degree of use (perceived benefits), compatibility (adaptability in the recipient context) and agency (entrepreneurial and support actions). The objectives evolved from dissemination (pilot experiences in collectives and faculties), to training (learning and practice communities, teacher training programmes) and to the design of an expansion policy (project for a communication plan). With respect to the context, the innovation units experienced a micro-macro shift, from immediate teaching contexts, to the faculty as innovation unit and, finally the whole university community. Resources produced included mailing lists (98 lecturers), guides and support materials for dissemination and training (work groups and courses), institutional portal and an executive project for a 5-year communication plan.

III.3.3. Multidimensional results

- Technological dimension. Although the projects reveal new requirements for institutionalisation, in general terms, they confirm the results from related international scientific production. Despite the portfolio was considered as part of the great majority of degree assessment processes, the use of the environment in the university is low, inefficient, and inappropriate. The resource is little known and, once known, there are difficulties in achieving full understanding of its potential of use. Therefore, it can be stated that institutional interest is

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based on its profitability, widening the breadth of available resources without any cost to the university.

- Political dimension. Although MaharaZar is offered as part of the teacher training programme since 2017, the environment has a disruptive nature that is not taken care of nor redirected. It is apparent that the integration of the personal learning environment implies a curriculum revolution in and a high level of institutional commitment. The steps towards dissemination that have been taken through the innovation milestones are defined within a non-reformed institutional vision, achieving, at best, an exchange of experiences between innovation collectives that share certain professional sensitivities. This reality can be verified both by innovation groups and by centres and units responsible for the management of innovation incentive programmes. The agency of responsible academics is not about resolution but about compensation: either the interests of teaching and curricular innovation are not sufficiently important, or there is not sufficient vision and foresight to distinguish the relevance of these changes with respect to other pressing concerns.

- Cultural dimension. The complexity of the acculturation process with regards to these innovations is obvious. Clearly, there is an incompatibility between the multidimensional character of innovation and university culture, its centres, groups and professional identities of its teaching staff. The milestones identify the need for realistic actions up and down the spectrum. Actions at the top of the spectrum would be directed at structures (services and programmes, institutional circles and protocols), while actions further down the spectrum would consider structures as constituted from specific social practices; the former prioritise policies of accountability and the latter address whether effectiveness and continuity are compromised if learning communities continue to be promoted via self-organisation within the innovation collectives and local networks.

III.3.4. Emerging problems and learning lessons

This policy of teaching innovation is revealed as ineffective. Attempts at institutionalisation show that the usefulness of innovation is devalued when the way problems are formulated does not evolve, thus weakening its rhetoric to promote change. Although innovation has been strategically adopted in order to transform the university model, paradoxically it was not done to boost and consolidate change in the teaching paradigm.

IV. Conclusions

IV.1. Practical implications

The analysis results define criteria for an appropriate use of the e-portfolio in higher education as follows:

- Adapted sustainability. This requires a viable e-portfolio design that prioritises academic and professional skills and that has significant and authentic tasks for every academic context, which are adapted to the students' initial level and to the requirements of developing the required transversal skills (critical reflection, communication, self-regulation and collaboration). Academic tutoring makes a substantial contribution to this sustainability, which is presented as an unavoidable area of action in current university teaching culture.

- Oriented digitalisation. This appeals to the possibilities of personalisation and communication that technological solutions can provide and requires support for gradual and increasingly complex immersions (user guides, examples, models, etc.). From a learning standpoint, these possibilities consolidate deep learning (metaphor, analogy, irony, simulation, comparison, transfer and design) and a significant connectivity with activity contexts that are as authentic as possible.

- Transversal nature and ongoing continuity. This concerns the e-portfolio as a personal learning environment during higher education and throughout life. Digital solutions should offer institutionally controlled personal spaces and ensure skill validation and accreditation throughout students' time at university (degrees, transitions, mobility, non-formal and informal education and university orientation). It also appeals to a culture of coordination and collaboration between teaching staff and responsible academics, forming a personal environment as a common and shared scenario of educational construction and reconstruction.

- Strategic institutional change. It requires a university roadmap outlining gradually more integrated e-portfolio uses. A framework should be adopted for the various university levels: subject assessment, subject module assessment, course assessment, degree assessment, show-case portfolio and, from a transversal perspective, university orientation assessment. On an operational level, we need to consider how partial use results in every educational structure recover in more inclusive structures over time.

These practical implications would form a shared vision and become one of the critical conclusions detailed below.

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IV.2. Limitations

For a better and more exhaustive exploration of e-portfolio uses and of personal learning spaces at the university, limitations arise from the current status of the institution. Lack of knowledge of the e-portfolio's potential by most of the university community stems from hardly any or inappropriate use of it. Consequently, studies are restricted to highly aware minority collectives with extremely specific purposes. This makes it hard to compare with other teaching scenarios and to research other purposes and target audiences that facilitate lifelong learning in higher education. The literature review of the projects in the line of research proves that this situation occurs in all Spanish universities.

IV.3. Future research

Further research would cover these areas:

- Exploring proposals, target audiences and artefacts. The aim is to expand on and take advantage of the potential of the e-portfolio through case studies and new innovative teaching experiences in other scenarios and collectives to meet higher education's many and diverse requirements.
- Impact on developing academic and professional skills and on consolidating deep learning. Conducting longitudinal studies is unavoidable to assess the quality of the education in terms of skills and achieving authentic learning in emerging personal and social situations.
- Usefulness for lifelong continuing professional education and development. Essential and theoretical research seems necessary to ensure effective transfer into university academic policy and, therefore, that e-portfolio uses can contribute to the stable development of new educational methods in a knowledge society context (blended, online, alternance and multi-agent training).
- Strategy to improve the communication plan and the expansion policy plan. The research results need to yield applied and operational models that can provide the university community with educational information on how the e-portfolio can be used. Technological solutions must also be adapted coherently, and opportunity management is necessary for gradual institutionalisation. Evaluative research to understand explicit needs perceived by the university community would lead to more effective and suitable institutional responses.

These proposals would have to be integrated in specialised institutional structures that can be transferred for professional development in all educational communities.

IV.4. Critical conclusions

Considering universities as learning organisations, the following critical issues are presented:

- Mental model. The lessons learned transcend individual experiences and point to the institutional rationality that supports and tolerates them. The resistance and obstacles detected while implementing the e-portfolio and the challenges involved in it being adopted across the university community can be interpreted as symptoms of greater resistance; that is, the resistance of universities to constitute themselves as learning organisations. The supports required to optimise sustainability and institutionalisation of teaching practices are generally scarce and limited. In the complex management of organisational change, abandoning bureaucratic and linear models of teaching innovation to adopt specific professional models seems appropriate. This conclusion, viewed as trivial in other areas of innovation, reports an institutional immaturity within the field of university teaching innovation and it affects any change or improvement in teaching systems and training modalities in the digital university.
- Shared visions. This involves implementing an activity theory in personal learning environments, in specific teaching contexts and, from an accumulative perspective, on other more major educational units. Universities need to evolve in the four practical implications highlighted above and to promote actions, such as the following: students (developing transversal skills based on initial training and throughout degrees, academic tutoring and university orientation with responses integrated into building a career plan), teaching staff (lifelong and initial training programmes on socio-constructivist principles, situated learning and authentic assessment, and professionally oriented models for university academic tutoring) and coordinators and responsible academics (strategic programmes and plans for communication and expansion phases and teaching coordination).
- Social learning. This would be standardised through learning communities and communities of professional practice and learning among teachers, technical staff and responsible academics. Consequently, difficulties and

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solutions would be shared, and repositories established for resources and materials, lessons learned and frequently asked questions in the format of discussion fora and didactic guides for various collectives.

- Professional development. This cannot be left to goodwill or be reduced to exceptional spaces where collectives exchange practices. It requires specific institutional structures that address the abovementioned prospective lines of research and that convey educational research and innovation results in the university. Insurmountable ethical-professional dilemmas are inferred, highlighting the precarious nature of university infrastructure for teaching and guidance. Guidance and multimedia services, centres of educational research and technological innovation are essential for universities' political agendas so they can map out training and professional situations, design and implement integrated programmes, build specific learning communities and establish themselves as interoperative networks with other agents so they can be co-responsible for the quality of university training and lifelong learning. One important mission of these centres would be issuing guidelines to attain a paradigm shift that would enable deeper and more enduring learning.
- System thinking. The above transformations require incentives that stem from outside the university sphere, in other words regional, national and international policies promoting a university social training and orientation model. This involves consolidating change patterns such as the following: creating an integrated professional orientation system, ensuring quality lifelong continuing education, reviewing emerging academic and professional skill models, alliances among higher education, other educational levels and other social agents in the area, etc. This system thinking would be based on three aspects: users (person-focused responses), skills (qualification and transversality), educational and orientation services (integrated and interoperative) and professional services (expert knowledge, programme and service coordination).

It is clear that the e-portfolio is an analyser of disruptive, pedagogical, technological and institutional changes.

IV.5. Specific policies

Finally, the above-mentioned practical implications and critical conclusions will be implemented by adopting specific policies at several levels:

1. Institutional policies. University strategic plans will establish a system of incentives to promote continuous quality towards teaching excellence and collaboration with their educational units to evaluate research and innovation. The aim is to select teaching innovation lines and programmes that underpin and consolidate experiences with the e-portfolios and personal learning spaces.
2. Academic policies. They will boost long-lasting intensive and professional theoretical models on the use of e-portfolios and personal learning spaces, thus validating content, resources and lessons learnt from teacher training programmes and from university managers in the three prioritised focal points: development of competences, academic tutoring and mentoring, and institutional coordination and communication.
3. Teaching policies. They will promote the leadership of reference innovation groups in building professional communities by launching a transfer and normalisation plan of e-portfolios and personal learning spaces in centres and faculties through a nested logic, in other words, structured in the different intervention spheres at medium and long term (courses, module, degree and career development).

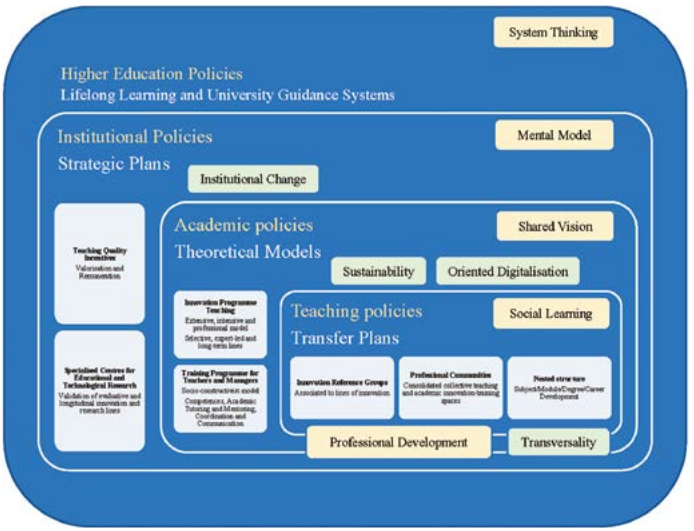

Figure 2

Levels of specific policies

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The ongoing standardisation of personal learning spaces and of the use of e-portfolios in their several forms has huge potential to align with the model of lifelong learning and lifelong orientation in our universities and to help meet the major challenges of the future.

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Geohistorical, didactic, and linguistic competencies learning through a bilingual (Spanish/English) fieldtrip project with teachers in training

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Abstract: This research is predicated on the hypothesis that a fieldtrip project adhering to a CLIL (Content and Language Integrated Learning) philosophy can be effective in promoting learning of both social and linguistic competencies. The main objective was to evaluate the didactic efficacy of a bilingual urban itinerary with teachers in training (from bilingual and non-bilingual groups) to develop geohistorical, didactic and linguistic competencies. Procedural and consolidated learning was assessed, via a dossier of activities and a statistically validated pretest-posttest. High development values were obtained in procedural tasks (average =

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8.8/10), as well as a high increase in consolidated acquisition (average = +24.5% students). The greatest growth was observed in language skills (+ 26.4%). The assessed knowledge after the itinerary was significantly higher than before, for all competencies. However, there was no statistically significant difference between students belonging to bilingual or monolingual groups. Students positively valued these results. It is concluded that a local didactic fieldtrip is an effective CLIL strategy to develop social and linguistic competencies, and yet it is rarely discussed in the scientific literature and curricula.

Keywords: Didactic itinerary; bilingualism; competencies learning; geography; history; higher education; innovative project.

I. Introduction

Didactic fieldtrips to the nearby environment of the student conducted in a second language have not received much attention from either teaching practice or educational research. The focus is usually separate, either on the learning associated with the knowledge of the environment generated by the didactic fieldtrips, or on the linguistic learning that generates the use of a language in a transversal way.

These are two lines of action and research present in teacher training, where fieldtrips are conceived as a strategy to develop didactic and geohistorical competencies, and bilingualism, as a strategy to develop didactic and linguistic competencies.

However, within the framework of competency-based learning implemented in the EHEA, it is worth asking if it would be possible to carry out a didactic fieldtrip that, by both visiting the student's environment and using bilingualism, would allow the joint development of these geohistorical, didactic and linguistic competencies. This research explores a new path in the absence of similar studies.

I.1. Learning by competencies

Education is currently in a competency-based learning paradigm, which is present in European higher education through the EHEA (European Higher Education Area).[1] Students become the protagonists of the teaching-learning process, in an active methodology, for the acquisition of professional

[1] Rosaria Lumino, and Paolo Landri, "Network time for the European Higher Education Area," *Philosophy and Theory* 109, no. 6 (2020): 522-543.

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competencies.[2,3,4] In compulsory education, we speak of common "key competencies",[5] but in higher education the competencies refer to professional skills depending on the field of training, considering labour, business, research and individual capabilities that lead to success.[6] Acquiring competencies means achieving the knowledge, skills and attitudes necessary to adapt and respond to any situation, regardless of the context.[7]

According to López-Pastor, Molina, Pascual, and Manrique, the active methodology that best allows the achievement of the competencies that university education requires is dialogic learning.[8,9] However, traditional learning still predominates in higher education.[10] Faced with this, a didactic and methodological change from the different areas of knowledge is the starting point towards the development of competencies. The training of teachers and their change of attitude is essential. In this change, the organization of the didactic action will also become relevant for the construction of learning based on the acquisition of competencies. EHEA is still working on it.[11]

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[2] Ramón Vicente López Facal, "Competencies and social sciences teaching [Competencias y enseñanza de las ciencias sociales]," Íber*: Didáctica de las ciencias sociales, geografía e historia* 74 (2013): 5-8.

[3] Víctor Manuel López-Pastor, "The rol of formative assessment in competency assessment: contributions from the formative and shared assessment in higher education network," *Revista de Docencia Universitaria* 9, no. 1 (2011): 159-73.

[4] Finn Mogensen, and Karsten Schnack, "The action competence approach and the 'new' discourses of education for sustainable development, competence and quality criteria," *Environmental Education Research* 16, no. 1 (2010): 59-74.

[5] Gábor Halász, and Alain Michel "Key Competences in Europe: interpretation, policy formulation and implementation," *European Journal of Education, Research, Development and Policy* 46, no. 3 (2011): 289-306.

[6] Outi Kallioinen, "Defining and Comparing Generic Competences in Higher Education," *European Educational Research Journal* 9, no. 1 (2010): 56-68.

[7] José Tejada, "The alternation of contexts aimed to the acquisition of competencies in complementary settings of higher education: concepts and strategy," *Educación XX1* 15, no. 2 (2012): 17-40.

[8] Víctor Manuel López-Pastor, et al., "The importance of using Formative and Shared Assessment in Physical Education Teacher Education: Tutored Learning Projects as an example of good practice," *Retos. Nuevas tendencias en Educación* Física, Deporte y *Recreación* 37 (2020): 620-27.

[9] Paulo Freire, *Political nature of Education: culture, power and liberation [La naturaleza política de la Educación: Cultura, Poder y Liberación]* (Barcelona: Paidos-MEC, 1990).

[10] Juan Antonio Rodríguez, and Pablo Joel Santana, "The distance between teachers' and students' work in EHEA: A dangerous gap?", *Profesorado. Revista de Currículum y Formación de Profesorado* 19, no. 3 (2015): 380-404.

[11] Sjur Bergan, "The European Higher Education Area: A road to the future or at way's end?" *Tuning Journal for Higher Education* 6, no. 2 (2019): 23-49.

Good practices in the educational field are determined by active learning and an innovative character, in which the result is effective and efficient and can be systematized and extrapolated. In addition, good practices must be essential, core and quantifiable, responding to all identified needs.[12]

I.2. Didactic fieldtrips as good practices to acquire competencies

An urban itinerary, as a type of didactic fieldtrip, can be an appropriate example of good practice due to the possibilities in dialogic learning and the development of competencies from an interdisciplinary approach. It is a group fieldwork activity in urban space intended to motivate students and promote their personal development.[13]

At the time of undertaking this evolution of university education and of the teaching mentality, educational proposals arise that are approached jointly between various subjects (i.e., in an interdisciplinary way). As Lavega, Sáez de Orcáriz, Lasierra, and Salas point out, these present a series of benefits[14] such as the active involvement of both students and teachers or the integration of the knowledge and competencies shared by the different subjects involved. The different personal competencies that facilitate interdisciplinary proposals, such as collaboration, communication or informal learning, among others, are essential elements of 21st century learning[15] and coincide with competency benefits that many authors attribute to didactic fieldtrips.[16]

According to Crespo, Gómez, & Cruz, fieldtrips facilitate a holistic understanding of the environment in which they operate, favouring the development of multicausal understanding of spatial processes, factors and elements,[17] and therefore a competency learning. This circumstance

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[12] Javier Fombona, and María Ángeles Pascual, Adult education, approach based on the analysis of European good practices. *Revista Complutense de Educación* 30, no. 2 (2019): 647-65.

[13] Carlos Martínez-Hernández, and Claudia Yubero, "Explaining Urban Sustainability to Teachers in Training through a Geographical Analysis of Tourism Gentrification in Europe," *Sustainability* 12, no. 1 (2020): 67.

[14] Pere Lavega, et al., "Intradisciplinarity and Interdisciplinarity in the acquisition of competencies: a study of a cooperative learning experience," *Revista Electrónica Interuniversitaria de Formación del Profesorado* 16, no. 1 (2013): 133-45.

[15] Christine Redecker, and Yves Punie, "The future of learning 2025: developing a vision for change," *Future Learning* 1 (2013): 3-17.

[16] David Aguilera, "Field trip as a didactic resource to teach sciences. A systematic review," *Revista Eureka sobre Enseñanza y Divulgación de las Ciencias* 15, no. 3 (2018): 3103-19.

[17] José Manuel Crespo, María Luisa Gómez, and Luis Alfonso Cruz, "An approach to the National Parks landscapes and educational itineraries," *Espacio, Tiempo y Forma* 11 (2018): 121-140.

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turns fieldtrips into a strategy of proven efficacy in the didactics of different disciplines, such as Geography, History, Art, Natural Sciences, Physical Education…,[18,19,20] as well as for interdisciplinary learning,[21] in urban[22] or natural environments.[23] The Manifesto for Learning Outside the Classroom emphasizes that any young person should experience the world beyond the classroom, as an essential part of learning and personal development.[24] In addition, didactic fieldtrips allow the development of observation, inquiry and discussion, elements involved in the motivation of students.[25]

Despite the long historical journey of didactic experiences outside the classroom, Pedrinaci points out that the current number of didactic fieldtrips is relatively low, which produces a sensation of novelty in the student.[26] Peasland, Henri, Morrell, & Scott point out that higher education should include more training in field work.[27] Domínguez Almansa & López Facal demonstrate the didactic benefits of carrying out fieldtrips outside the classroom in the development of competencies of teachers in training.[28]

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[18] Silvia Aparecida Sousa Fernandes, Diego García Monteagudo, and Xosé Manuel Souto González, "Educación geográfica y las salidas de campo como estrategia didáctica: un estudio comparativo desde el Geoforo Iberoamericano," *Biblio3W, Revista Bibliográfica de Geografía y Ciencias Sociales* 21, no. 1155 (2016): 1-22.

[19] James Farmer, Doug Knapp, and Gregory M. Benton, "An Elementary School Environmental Education Field Trip: Long-Term Effects on Ecological and Environmental Knowledge and Attitude Development," *The Journal of Environmental Education* 38, no. 3 (2007): 33-42.

[20] Antonio Granero-Gallegos, and Antonio Baena-Extremera, *Physical activities in natural areas: Theory and practice for Physical Education [Actividades físicas en el medio natural: Teoría y práctica para la Educación Física]* (Sevilla: Wanceulen, 2010).

[21] Pilar Benejam, "The aims of fieldtrips," *Iber: Didáctica de las ciencias sociales, geografía e historia* 36 (2003): 7-12.

[22] Carlos Martínez-Hernández and Cladia Yubero, "Explaining urban", 67.

[23] Ryan G. Dale, et al., "Influence of the natural setting on environmental education outcomes," Environmental Education Research 26, no. 5 (2020): 613-31.

[24] Council for Learning Outside the Classroom, *Learning Outside the Classroom. Manifesto* (Nottingham: DfES Publications, 2006).

[25] Cecily Jane Maller, "Promoting children's mental, emotional and social health through contact with nature: a model," *Health Education* 109, no. 6 (2009): 522-43.

[26] Emilio Pedrinaci, "Fieldwork and sciences learning [Trabajo de campo y aprendizaje de las ciencias]," *Alambique: Didáctica de las Ciencias Experimentales* 71 (2012): 81-9.

[27] Emma Peasland, et al., "The influence of fieldwork design on student perceptions of skills development during field courses," *International Journal of Science Education* 41, no. 17 (2019): 2369-88.

[28] Andrés Domínguez Almansa, and Ramón Vicente López Facal, "Heritage, landscape and education: initial teacher education and civic education of pupils in primary," *CLIO. History and History teaching* 40 (2014): 1-26.

Since fieldtrips are very effective for the development of social sciences competencies (geographical, historical and didactic), in this research we propose an enrichment of their disciplinary effectiveness through the incorporation of linguistic competencies within the framework of bilingualism.

I.3. Didactic fieldtrips in the teaching of languages

Bilingual programs involve the use of two languages as teaching tools[29] so that teaching is done using the foreign tongue but without teaching the language as the main content. There are numerous studies that demonstrate the advantages of this type of education, among others, in the cognitive and linguistic development of students.[30] On the other hand, there is also evidence that, in certain subjects, especially those related to science, learning is limited to memorizing vocabulary and does not deepen the understanding of or ability to interact with the environment.[31] That is why choosing an appropriate method and strategies is essential.

One of the most widespread bilingual methods is "Content and Language Integrated Learning" (CLIL). It is a dynamic approach that aims to create situations in which communication takes place naturally,[32] promoting all kinds of communicative activities, so valued in multilingualism.[33] In other words, the most important thing is not the correct use of the language, but the understanding of the content to be able to interact in the foreign language.[34] With this aim as a starting point, it is possible to work on contents by creating authentic learning contexts, multidisciplinary projects, or tasks in which students have an active role and must act cooperatively.[35] These characteristics

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[29] Liz Dale, and Rosie Tanner, *CLIL Activities: A resource for subject and language teachers* (Cambridge: Cambridge University Press, 2012).

[30] Melody Wiseheart, Mythili Viswanathan, and Ellen Bialystok, "Flexibility in task switching by monolinguals and bilinguals," *Bilingualism: Language and Cognition* 19, no. 1 (2015): 141-6.

[31] Jasone Cenoz, Fred Genesee, and Durk Gorter, "Critical analysis of CLIL: Taking stock and looking forward," *Applied Linguistics* 35, no. 3 (2014): 243-262.

[32] Christian Abello-Contesse, "Bilingual and multilingual education: An overview of the field," in *Bilingual and multilingual education in the 21st century: Building on experience*, ed. Christian Abello-Contesse et al. (Bristol: Multilingual Matters, 2013), 2-23.

[33] Anne Biedermann, "Linguistic mediation in a foreign language teaching context," *Synergies Chili* 10 (2014): 83-91.

[34] Do Coyle, "Content and Language Integrated Learning: Towards a Connected Research Agenda for CLIL Pedagogies," *The International Journal of Bilingual Education and Bilingualism,* 10, no. 5 (2007): 543-62.

[35] Esther Cristóbal-Aragón, and Ileana M. Greca, "Science teaching in a bilingual context: proposal for teaching an Astronomy content," *Revista de Enseñanza de la Física,* 30, no. 2 (2018): 31-47.

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mean that this method has been considered effective, with adequate strategies, for teaching non-language subjects.[36,37]

Fieldtrips in language teaching are not usually part of CLIL programs and are more focused on linguistic and cultural immersion trips, usually abroad.[38] However, immersion experiences, in addition to requiring financial and logistical efforts, are based on a non-bilingual conception of language learning, with its own attendant characteristics, which also make them very effective.[39] A recent trend in bilingual teaching is the virtualization of immersion, so as not to disconnect from the native environment, with applications such as "Street View",[40] artificial intelligence[41] or virtual cultural centers.[42]

In any case, these are initiatives that seek to develop linguistic and cultural competencies, leaving aside other more curricular competencies. We wonder, then, if it is possible to design a fieldtrip that seeks the acquisition of competencies more typical of social sciences and also incorporates the development of linguistic competencies in a bilingual framework. If a didactic fieldtrip with teachers in training for geographical and historical purposes is carried out combining the mother tongue and a foreign language that is part of the curriculum, will its effectiveness be maintained in the development of geohistorical and didactic competencies and, even more, will it be possible to incorporate language competencies? Is it possible, in short, to conduct a fieldtrip in accordance with CLIL philosophy?

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[36] Nashwa Nashaat-Sobhy and Ana Llinares, "CLIL students' definitions of historical terms," International Journal of Bilingual Education and Bilingualism, in press (2020).

[37] Aintzane Doiz, David Lasagabaster, and Juan Manuel Sierra, "CLIL and motivation: The effect of individual and contextual variables," *The Language Learning Journal* 42, no. 2 (2014): 209-24.

[38] Montserrat Mir, "Teaching and learning about Spanish L2 compliments in short-term study abroad," Study Abroad Research in Second Language Acquisition and International Education 5, no. 2 (2020): 230-57.

[39] Sean Grant, "Effects of intensive EFL immersion programmes on willingness to communicate," Language Learning Journal 48, no. 4 (2020): 442-53.

[40] Samuel Chabot, et al., "Language learning in a cognitive and immersive environment using contextualized panoramic imagery," in *HCI International 2019 - Posters. HCII 2019. Communications in Computer and Information Science, 1034*, ed. Constantine Stephanidis (Cham: Springer, 2019), 202-9.

[41] Benjamin Chang, et al., 2012. "Foreign language learning in immersive virtual environments" (paper presented at "Proceedings of SPIE - the International Society for Optical Engineering 8289", Burlingame, California, 8 February 2012).

[42] N. Eleni Pappamihiel and Jennifer Hatch Knight, "Using digital storytelling as a language experience approach activity: Integrating English language learners into a museum field trip," Childhood Education 92, no. 4 (2016): 276-80.

I.4. Research approach and objectives

Considering what has been previously stated about learning by competencies, the strategy of an urban itinerary as a possibility within active methodologies and the possibilities of bilingual education, the hypothesis is established that a didactic fieldtrip with CLIL philosophy can be didactically effective. In this way, research has been proposed on the didactic effectiveness of the application of a bilingual urban itinerary (Spanish, as the mother tongue, and English, as the first foreign language, EFL) in the acquisition of geohistorical, linguistic and didactic competencies by teachers in training. The research questions (RQ) that are intended to be answered, aimed at demonstrating the hypothesis raised, are:

RQ1. Is the design of an urban itinerary feasible to develop geohistorical, linguistic and didactic competencies?
RQ2. To what degree and in what way would the application of this itinerary be didactically effective?
RQ3. Would there be a significant change in knowledge in students after its completion?
RQ4. Would there be significant differences depending on whether the students belong to a bilingual training group?
RQ5. Would motivation and satisfaction awaken on the part of the students?

Based on these questions, the general objective (GO) of this work is defined as assessing the didactic effectiveness of an urban itinerary designed and carried out with teachers in training, depending on whether they belong to a bilingual training group already through five specific objectives (SO):

SO1. Present the design of the urban itinerary (*RQ1*).
SO2. Establish and validate an itinerary assessment system (RQ1).
SO3. Assess the level of procedural learning in the acquisition of geohistorical, linguistic and didactic competencies during the itinerary (RQ2 and RQ4).
SO4. Evaluate the level of comprehensive learning after the acquisition of geohistorical, linguistic and didactic competencies during the itinerary (RQ2, RQ3 and RQ4).
SO5. Assess the student's assessment of the usefulness and logistics of the itinerary (RQ5).

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II. Materials and methods

The research has been based on a quasi-experimental methodology[43] with a quantitative approach, in which a cross-sectional strategy has been followed and in which the procedure for assigning participants to the research has been laid out. To obtain information, a series of data collection instruments have been used. Finally, different statistical analyses of the results have been carried out.

II.1. Participants and study area

A total of 27 students from a University Degree in Primary Education (ISEN, University of Murcia, Spain) participated in the itinerary, with an average age of 23.5 ± 4.6 years. 67% belong to a bilingual group (EFL) and the remaining 33% do not. 63% are women and 37% are men. From this characterization, the circumstance of belonging or not to a bilingual group has been used for the investigation, through the nominal variable "bilingual", with response categories of "yes" and "no".

The itinerary took place in the Spanish city of Cartagena (Spanish as the native language), where the study centre of the participants is located and which constitutes its urban reference area. There is consensus on the idea that carrying out a teaching activity in a well-known place contributes to achieving more meaningful and motivating learning.[44] In addition, the city has wide-ranging urban characteristics[45] that allow the design of an itinerary focused on geohistorical aspects.

II.2. Activity design

The activity was presented to the students in the form of a complementary workshop to their training, lasting a total of 12.5 hours over three days,

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[43] Thomas D. Cook, Donald T. Campbell, and Laura Peracchio "Quasi experimentation," in *Handbook of industrial and organizational psychology*, ed. Marvin D. Dunnette and Leaetta M. Hough (Sunnyvale: Consulting Psychologists Press, 1990), 491-576.

[44] Joan Pagès, "Teaching and learning social sciences in 21st Century [Enseñar y aprender ciencias sociales en el siglo XXI: reflexiones casi al final de una década]," in *Investigación en Educación, Pedagogía y Formación Docente: La investigación al servicio de una educación incluyente y de calidad en un mundo diverso y globalizado*, ed. several authors (Antioquía: Universidad Pedagógica Nacional, Universidad de Antioquía, Corporación Interuniversitaria de Servicios, 2009), 139-154.

[45] Emilio José López Salmerón, "The creation of a city: urbanistic evolution of Cartagena [La creación de una ciudad: evolución urbanística de Cartagena]" (PhD Diss., University of Alicante, Spain, 2017).

within the official educational offer of the University of Murcia's Own Studies service, under the title of "Workshop Teaching History and Geography in English: walking around Cartagena". The Workshop pursued a three didactic objective: (i) develop geographical skills, (ii) to make the historical learning revealed through urban heritage more meaningful, (iii) in a bilingual linguistic framework that allows the natural use of English in pedagogical tasks with a local focus. The students were provided with a Dossier of activities in Spanish and English with all the logistical and academic information. A structure in three phases (*SO1*) was established (one per day), based on an interaction in the foreign language of training (English) with specific support in the native language (Spanish):

1. *Preparation*: online materials for each stop in the itinerary for home consultation prior to performing the exercise to ensure all students were starting from the same knowledge and were suitably motivated.

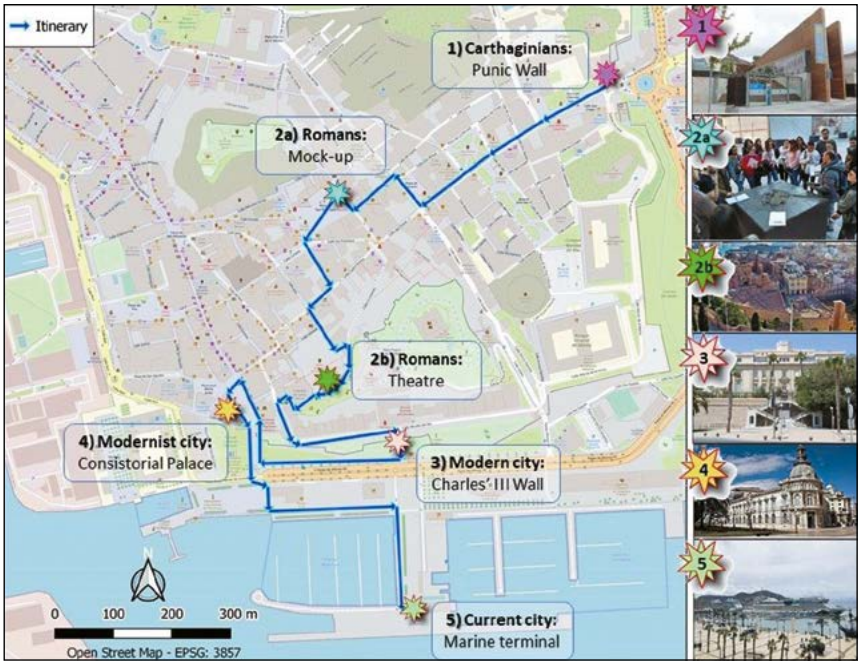

Figure 1

Itinerary with geographical locations and pictures of each stop
(For further information see Table 1)

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Table 1

Logistic and didactic relation of each stop in the itinerary (see locations in Figure 1)

Stop	History context	Material	Exercise	Didactic tasks
1. Punic wall	Carthaginians: they had great impact on the cultural heritage of the city; the world revolved around the Mediterranean and Qart Hadasht (Phoenician name for Cartagena) was a key city (c. III BC)	Topographic recreation of Qart Hadasht	Mark in the current street plan of Cartagena the boundaries within which the old Carthaginian settlement would be (you can use the placement of the five hills to help you)	– Which part of the current city originated in the Punic civilization?
2. Roman Theatre and mock-up	Romans: they conquered Carthaginians after an epical battle through sea, land and a back marsh, in 209 BC. This was the moment of maximum splendour of the city, the time of lead and silver mining, a period when Cartagena was a source of great income for the Roman Imperium. The Theatre is one of the best-preserved theatres throughout the Mediterranean	Graphic recreation of Cartago Nova (ancient Cartagena)	Mark in the previous plan the boundaries in which the marsh would be. This feature was decisive in the conquest of Cartagena by the Romans (take into account it was at the back of the city)	– Why was it crucial in the defeat of the Carthaginians? – Currently, which part of the city can you find in the old marsh? – Is there a connection between the recurrent floods and the fact that the place used to be a marsh?

Stop	History context	Material	Exercise	Didactic tasks
3. Charles' III Wall	Modern city: in XVIII Century, Cartagena recovered its splendour thanks the naval industry, after the loss of its urban importance in the Middle Age due to sea raids and poor hygienic conditions. A new wall, an army space and coastal batteries are built	Street plan from Cartagena in the XVIII Century	Mark in the previous plan the boundaries within the modern metropolis could be found	– How much did the city grow since the classical age? – Which elements of the current street plan can you see for the first time in the XVIII Century and why were they important for the city?
4. Consistorial Palace	Modern city: the naval industry started to lose impact in favour of the mining industry. Many Carthaginian families grew rich and the city invested the new capital in erecting public and private buildings with the modernist style prevailing, as the Consistorial Palace	The 1888 map about the project to expand the city	Mark in the previous plan the boundaries of the Cartagena from the XIX – XX Century	– How much did the city grow at the time? – Where is the marsh and why didn't it limit the urban spread? – How was Cartagena able to become richer and grow in size and population?
5. Marine Terminal by the port	Current city: Cartagena entered a period of decadence due to the mining crisis, but in the 90s there was a noticeable change in urban policy by rescuing the depreciated historical centre. Cartagena's final milestone was to become an alluring dock for cruises. From the old ages until today, the history of the city has always been linked to the evolution and development of a geographic element: the port	The current street plan of Cartagena	Mark in the previous plan which areas would you choose if a cruise passenger asked for information to visit the city in a day	– Which historic period are you referring to? – Why is Cartagena so attractive for tourists? – Is there a risk of deteriorating the patrimony with massive tourism? Why? – Is there a moral obligation to take care of our patrimony? Why?

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2. *Itinerary*: connection route between five representative points of a relevant historical moment in the city, conceived as successive stops based on the historical chronology itself (Figure 1). During the tour, the students had to indicate the route followed on a street map of the city designed in English and, at each stop, after listening to the teachers' presentations (itinerary guides), solve from the Dossier of activities an exercise of geographical focus to promote historical thinking (Table 1), in English.
3. *Teaching exploitation:* within a week after the itinerary, sending a teaching proposal in English for primary education based on an urban itinerary, following a model with the main elements of a teaching plan (course, subject, objectives, competencies, contents, methodology, resources, activities, sequence and evaluation).

II.3. Learning assessment

In this research, learning has been defined as the acquisition of geographic competencies, historical thinking, English as a foreign language skills, and didactic projection capacity. Geographical learning refers to the capacity for location and orientation, awareness of historical dependence on natural elements and critical thinking to interpret reality. Historical learning follows a temporal axis that finds its physical foothold in urban heritage, so that the student is able to learn history, see it in their daily lives and develop a civic awareness towards the material and immaterial legacy. When we want to focus on the relationship between geographical and historical competencies, which are practically unavoidable in this activity, we speak of geohistorical competencies. Language learning is framed within the bilingual background of the entire activity, concretized in the combination of interventions in English and Spanish (FL and mother tongue), both in reception and expression tasks. Finally, didactic learning is materialized with the planning of a teaching proposal comprising the knowledge acquired during the workshop.

In order to quantify the acquisition of these competencies (*SO2*), three assessment procedures were carried out (Table 2). The first consisted of the comparative analysis of a pre-test and a post-test, by filling in a questionnaire by the students in two phases (before starting the activity and once it was finished) with questions structured in three thematic blocks: Geography (five multiple-choice questions), History (nine multiple-choice questions), and English (seven short-answer questions). In the second phase questionnaire, a student assessment block was added, with eight items to be scored with a Likert scale from 1 to 5 from lowest to highest level of agreement on logistical,

motivational and didactic awareness issues, in addition to a question inviting free comment. The second assessment procedure consisted of the elaboration of a learning matrix with the difference between the values of the thematic blocks of the second phase of the questionnaire and the first. The third assessment was the completion of the Dossier of activities, made up of three groups of tasks: marking the itinerary on a map, carrying out practical exercises at the stops on the itinerary and designing the teaching proposal.

Table 2

Summary of the assessment tools

Procedure	Tool	Phase (see section 2.2)
Comparative analysis	Pre-test questionnaire with blocks of questions about Geography, History and English	Before Phase I
	Post-test questionnaire with blocks of questions about Geography, History, English and satisfaction	After Phase III
Statistical elaboration	Learning matrix comparing the values of the thematic blocks in the pre- and post-questionnaires	After Phase III
Analysis of student completion	Dossier of activities: itinerary map, practical activities for each stop, and design of the teaching proposal	During Phase II and III

II.4. Statistical analysis

The completion of the instruments that make up the assessment questionnaire was positively subjected to a degree of validity study (*SO2*) using the Cronbach's Alpha test. It has yielded a very high level of consistency of the set of responses in the case of the pre-test ($\alpha = 0.92$) and a high level in the post-test ($\alpha = 0.62$) and when considering only the student assessment block ($\alpha = 0.65$).

To obtain comprehensive learning results (*SO4*), a variable was configured per thematic block, based on the sum of correct answers in their questions, for the pre-test, post-test and the learning matrix. For multiple-choice cases (Geography and History), the scoring is objective; for the short answer (English), an interpretation was used according to two joint criteria: vocabulary management and response coherence. The resulting ordinal variables were: "Geography" (range 1:5), "History" (range 1:9) and "English" (range 1:7). The grouping variables "Geo + History" were also established for the set of responses to the questions of Geography and History and "Global" to consider all the responses to the questionnaire, both ordinal. For

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the post-test, the continuous variable "Satisfaction" (range 1:5) was added from the arithmetic mean of the items in the student assessment block (*SO5*).

The pretest, conceived as prior knowledge, was completed by the 27 participants; the post-test (later knowledge), by 13; the difference between prior and subsequent knowledge, conceived as consolidated comprehensive learning, has therefore been calculated for the 13 participants who have been assessed throughout the process.

The procedural tasks of the Dossier of activities (*SO3*), completed by 24 participants, were scored on a continuous scale from 0 to 10 from lowest to highest correction, obtaining four continuous variables: "mapping", for the task of marking the itinerary on a Street map; "Notebook", for the exercises performed at the stops; "Teaching proposal", for the design of the teaching proposal; and, finally, "Average", for the arithmetic mean of the set of tasks derived from the Dossier, conceived as procedural learning.

Of all these variables, compiled in Table 3, descriptive and inferential analyses were carried out using Excel (Microsoft) and SPSS v.25 (IBM) programs.

Table 3

Research variables

Variable	Type	Tool
Geography	Ordinal	Pre-test + Post-test + Learning matrix
History		
English		
Geo + History		
Global		
Satisfaction	Continuous	Post-test
Mapping		Dossier of activities
Notebook		
Teaching proposal		
Dossier's Average		

In the descriptive analyses, frequencies (percentages of students with correct answers) and measures of central tendency (mean and median) and variability (quartiles and standard deviation) were calculated. In the inferential analyses, two sets of contrast tests were carried out for the null hypothesis of no

significant differences with p-value < .05: (i) between the variable "bilingual" and the rest of the research variables, to determine if there are significant differences in learning between belonging to a bilingual group or not; and (ii) between the variables that define knowledge prior to the itinerary and the variables of subsequent learning, to check whether the change in knowledge produced is statistically significant. In the case of ordinal variables, non-parametric tests were performed:[46] Mann-Whitney U for independent samples (pre-test and post-test variables) and Wilcoxon signed range test for related samples (variables of the learning matrix). In the case of continuous variables, contrast tests were determined by the Shapiro-Wilk test of normality (n < 30) (Table 4): for procedural learning variables (non-parametric distribution), the U test of Mann-Whitney for independent samples, while for the variable satisfaction (parametric) the Student's T-Test was used for independent samples.

Table 4

Results of the Shapiro-Wilk normality test for continuous variables

Continuous variables		Statistics	Df.	Sig.
Procedural learning	Mapping	.747	24	.000
	Notebook	.752	24	.000
	Teaching proposal	.545	24	.000
	Dossier's Average	.879	24	.008
Satisfaction		.907	14	.144

III. Results

III.1. Procedural learning in the acquisition of geohistorical, linguistic and didactic competencies

The didactic effectiveness of the itinerary at procedural level (*SO3*) is manifested through the score given to the tasks of the Dossier of activities, on a scale from 0 to 10 (Figure 2), which yields a high mean (8.8) and range between high values (7:10). The task with the highest average score was the marking of the itinerary on the map (9.0), with most of the students having obtained a score between 8 and 10. The completion of the practical activities was the task with the lowest average score (8.5), but it is still a high value, with a greater variability than the rest of the tasks. The teaching proposal has

[46] Eudaldo Enrique Espinoza, "Variables and their operationalization in educational research. Part I," *Conrado. Revista Pedagógica de la Universidad de Cienfuegos* 14, no. 65 (2018): 36-46.

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very high values with an average of 8.8, tightly clustered but with several extreme values. Disaggregated data are not shown between students from a bilingual group and those from a non-bilingual group because no statistically significant differences have been observed between them for any of the variables (Table 5).

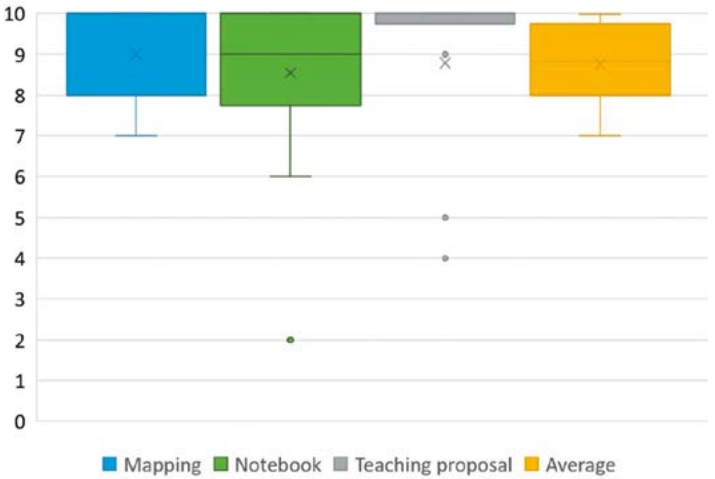

Figure 2

Scoring of the tasks in the dossier of activities, as the procedural learning variables (mark the itinerary over the map, resolve the exercises in the notebook, design a fieldtrip teaching proposal, and average score)

Table 5

Results of the contrasts of hypothesis of statistically significant differences (p-value < .05) between the procedural learning variables and the variable "bilingual"

Variables	Sig.
Mapping	.147
Notebook	.065
Teaching proposal	.951
Dossier's Average	.099

III.2. Consolidated comprehensive learning after the acquisition of geohistorical, linguistic and didactic competencies

The didactic effectiveness of the itinerary from a comprehensive learning approach (*SO4*) has been determined by contrasting the percentage of students who have demonstrated correct knowledge in the post-test with those of the pre-test (Figure 3). It is observed that, prior to the activity, almost 50% of the students had average correct knowledge, while, posteriori, 71.5% of the students have such knowledge, which represents an increase of 24.5%. A greater number of students showed improvement in linguistic competency, from an adequate prior knowledge of very few students (32.3%) to an increase of 26.4% of students with satisfactory later knowledge. Geohistorical competencies are the ones that the most participants had acquired before the activity (61.8%), but even so, 22.6% more managed to develop them after its completion.

These noticeable differences between later and prior knowledge are statistically significant in all variables (Table 6). Disaggregated data are not shown between students from a bilingual group and those from a non-bilingual group because, in this case, no statistically significant differences have been observed between them for any of the variables (Table 7).

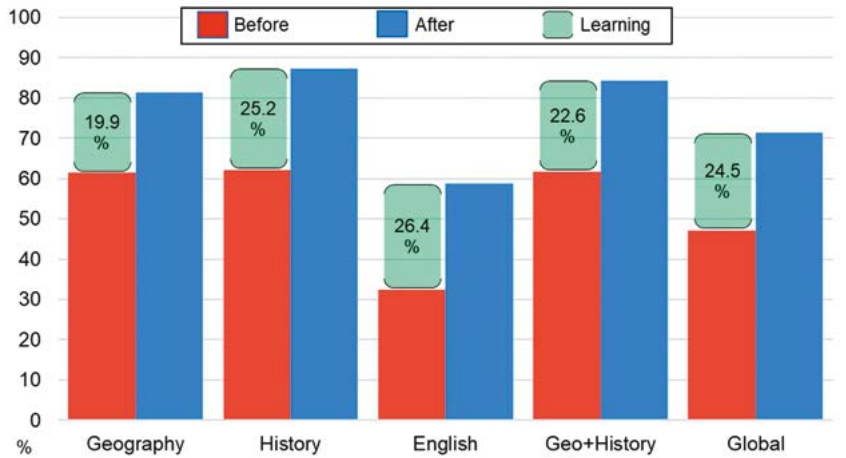

Figure 3

Percentage of students with correct knowledge of the comprehensive learning variables

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Table 6

Results of the contrasts of hypothesis of statistically significant differences (p-value < .05) between the comprehensive learning variables before and after carrying out the activity (related samples)

Variables	Z	Asymptotic Sig. (bilateral/2-tailed)
Geography	-2.342	.019
History	-3.075	.002
English	-2.695	.007
Geo + History	-3.195	.001
Global	-3.111	.002

Table 7

Results of the contrasts of hypothesis of statistically significant differences between the comprehensive learning variables and the variable "bilingual"

Phase	Variables	Mann-Whitney U	Wilcoxon's W	Z	Asymptotic Sig. (bilateral)	Exact sig. [2 * (one-sided sig.)]
Before	Geography	57	102	-1.274	.203	.232
	History	53.5	224.5	-1.45	.147	.160
	English	54	99	-1.396	.163	.176
	Geo + History	74.5	245.5	-.339	.735	.743
	Global	45	90	-1.854	.064	.067
After	Geography	9	12	-.429	.668	.769
	History	10	76	-.206	.837	.923
	English	4	70	-1.395	.163	.231
	Geo + History	6.5	9.5	-.922	.357	.410
	Global	10	76	-.198	.843	.923
After-Before	Geography	8	74	-.618	.536	.641
	History	6	9	-1.005	.315	.410
	English	7.5	73.5	-.693	.488	.513
	Geo + History	10.5	13.5	-.101	.92	.923
	Global	11	77	0	1	1.000

III.3. Student assessment on the acquisition of geohistorical, linguistic and didactic competencies

Without knowing the assessment of their learning and based exclusively on their lived experience with the workshop, the students give a very high average score (*SO5*): 4.5 ± 0.7 in a 1:5 range, based on the score of a variety of items of satisfaction (Figure 4). The best valued items (4.7 ± 0.5) are related to the acquisition of greater sensitivity towards urban heritage. The least valued, though with average values that remain

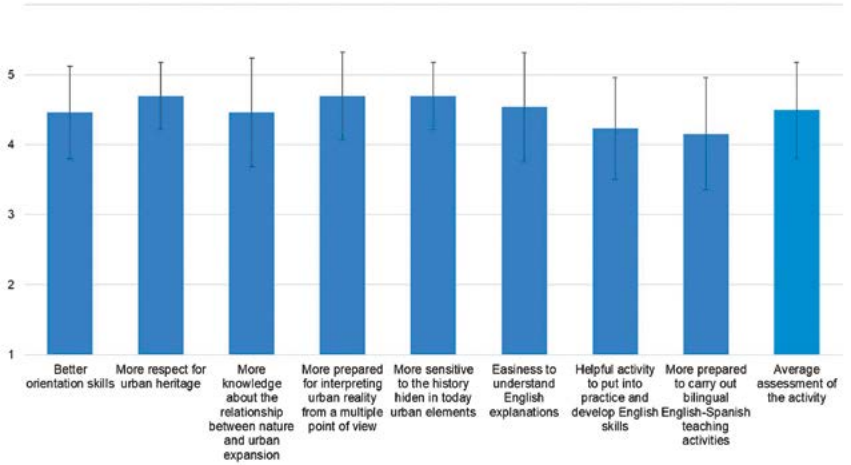

Figure 4

Average rating and standard deviation of the students' satisfaction items after carrying out the activity

Table 8

Results of the contrasts of hypothesis of statistically significant differences between the variable satisfaction and the "bilingual" variable

Equal variances	Levene's test of equal variances		T-test comparing means		
	F	Sig.	t	Gf	Sig. (bilateral)
Assumed	3.216	.098	.670	12	.516
Not assumed			1.141	11.175	.278

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high (4.2), are those related to the implementation of bilingual teaching. No disaggregated data are shown between students from a bilingual group and those from a non-bilingual group because no statistically significant differences have been observed between them for the satisfaction variable (Table 8).

Finally, from the open opinions of the students about the workshop, a higher frequency of mentions of positive than negative aspects is observed (Figure 5). This review highlighted that more than half of the students believe that the activity is interesting and pleasant. 38.5% value their contribution to learning Geography and History in a practical way. 23.1% consider that it is very useful for teaching Social Sciences and English. There are only two types of negative opinions, relative to the duration, considered excessive by 23.1% of the students, and to the involvement of the students, which 15.4% remark as insufficient.

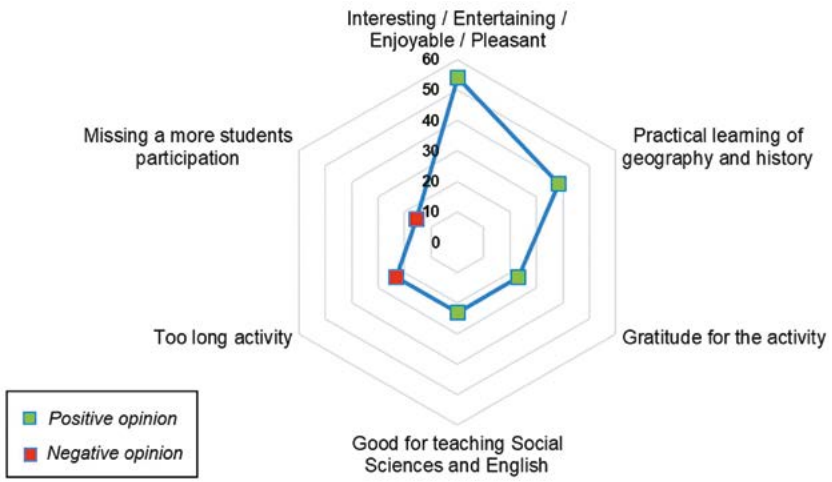

Figure 5

Categories of open opinions about the activity and percentage of students who submit them

IV. Discussion

The results confirm the main idea of the scientific literature that a didactically planned fieldtrip, such as the urban itinerary (*SO1*), can promote the learning of participants through the development of

competencies.[47,48,49] This has been verified here both from a procedural point of view during the course of the itinerary and from a point of view of comprehensive learning after its completion (*RQ2* and *RQ3*).

The competencies that have been assessed in this work are geographical, historical, linguistic and didactic (*RQ1*, *SO2* and *SO3*). Geographic competencies are those that are most clearly acquired in a didactic itinerary,[50,51] by its own definition as a journey through a space, which must be completed by applying skills of location, orientation, cartographic interpretation, recognition of territorial landmarks, etc. In this itinerary, based on the teaching explanations during the trip, all participants are able to draw the route reliably on an urban map of Cartagena that has been followed. Other studies also confirm this geographic learning based on cartographic management,[52,53] which is present in all geographical tuning projects.[54]

The acquisition of historical competencies is very clear in the resolution of the practical activities proposed at each stop, where the participants know how to rigorously relate geographical factors and historical events. Although these exercises are assessed with slightly lower values than those of the geographical route, probably due to their greater complexity and therefore difficulty, the results are still high. The use of didactic fieldtrips to make geography-history relationships explicit is frequent in the scientific literature and also presents good learning results.[55]

These geographical, historical, and combined competencies can also be developed in a consolidated learning process (*SO4*), with students recognizing

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[47] Faith Tucker and John Horton, "'The show must go on!' Fieldwork, mental health and wellbeing in Geography, Earth and Environmental Sciences," Area 51, no. 1 (2019): 84-93.

[48] Anttoni Kervinen, Anna Uitto, and Kalle Juuti, "How fieldwork-oriented biology teachers establish formal outdoor education practices," Journal of Biological Education 54, no. 2 (2020): 115-28.

[49] Trevor H.B. Sofield and Lawal Mohammed Marafa, "Revitalizing fieldtrips in tourism: Visual anthropology, photo elicitation, rapid appraisal, participant observation and Habermas," Tourism Management 75 (2019): 522-46.

[50] Silvia Aparecida Sousa Fernandes, et al., "Educación geográfica," 1-22.

[51] Amy Richmond Krakowka, "Field Trips as Valuable Learning Experiences in Geography Courses," *Journal of Geography* 111, no. 6 (2012): 236-44.

[52] Carlos Martínez-Hernández and Claudia Yubero, "Explaining urban", 67.

[53] Christian Schott, "Virtual fieldtrips and climate change education for tourism students," Journal of Hospitality, Leisure, Sport and Tourism Education 21 (2017): 13-22.

[54] Karl Donert, *Aspects of the State of Geography in European higher education. TUNING Geography: a report of findings and outcomes* (Liverpool: Herodot Network, 2007).

[55] Helena Pinto, and Jaqueline Zarbato, "Constructing a significant learning through local heritage: Practicing heritage education in Portugal and Brazil," *Estudios Pedagógicos* 43, no. 4 (2017): 203-27.

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historical events and milestones and geographical factors in the urban development of the city where it has taken place after completion of the activity (*SO2*). The geographical and historical knowledge of the city was already high before carrying out the activity, probably because it was the urban center of vital reference for the participants,[56] but after the itinerary the knowledge is extended to many more participants. It seems that the itinerary has contributed to developing long-term geohistorical skills, not only applied at the time of the outing but also significant and consolidated. This represents a great didactic milestone, recently sought in numerous educational practices in the didactics of social sciences.[57,58]

From the point of view of long-term learning, didactic fieldtrips have shown to be more successful in emotional issues than in disciplinary matters.[59] The key to making this itinerary a good practice for consolidated disciplinary learning, without giving up the emotional benefit, may lie in its structuring based on an explicit and well-sequenced geohistorical context, without which the route loses its temporal-space meaning. Therefore, any memory of the itinerary also entails a review of the context.

When a didactic fieldtrip is carried out with teachers in training, it is not limited to being conceived as a strategy to transmit knowledge, but also becomes knowledge in itself.[60,61] One of the tasks of the itinerary is the submission of a didactic proposal to teach social sciences through fieldwork precisely to develop didactic skills among the participants (SO3). The result is very positive, since in a generalized way proposals are designed that adequately promote the development of geohistorical competences, presenting a rigorous teaching planning. One of the didactic strengths of fieldtrips, very relevant to teacher training, is the high degree

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[56] Daniele T.P. Souza, et al., "Learning in, with, and through the territory: Territory-based learning as a catalyst for urban sustainability," Sustainability 12, no. 7 (2020): 3000.

[57] Subadrah Madhawa Nair and Moganasundari Narayanasamy, "The effects of utilising the concept maps in teaching history," International Journal of Instruction 10, no. 3 (2017): 109-26.

[58] Edward Jadallah, "Constructivist Learning Experiences for Social Studies Education," *The Social Studies* 91, no. 5 (2000): 221-25.

[59] Ryan G. Dale et al., "Influence,", 613-31.

[60] Emilio Costillo, Ana Belén Borrachero, et al., "Contributions of the nature field trips as teaching and learning activities in the opinion of the prospective teachers," *Indagatio didáctica* 6, no. 3 (2014): 10-22.

[61] Bryan Rebar, and Larry Enochs, "Integrating Environmental Education Field Trip Pedagogy into Science Teacher Preparation," In *The Inclusion of Environmental Education in Science Teacher Education*, ed. Alec Bodzin, Beth Shiner Klein, and Starlin Weaver (Dordrecht: Springer, 2010), 111-26.

of transfer they generate[62] due to the teacher imitation technique. This effect may also be heightened when the activity is well structured and sequenced.

One of the keys to the research approach consisted in the uncertainty of the influence that the vehicular language of the itinerary could exert on the acquisition of skills. Our results show that the combination of the mother tongue (Spanish) with the first curricular foreign language (EFL) has not impeded the development of the geohistorical competencies that are presupposed in well-planned fieldtrips[63] and didactic competencies in the case of its application with teachers in training.[64] On the contrary, measurements of the degree of participants' learning produced high values, and the development of a new type of non-habitual competencies in the didactic itineraries has been verified in this demonstration of the potential of incorporating linguistic competencies. During the route, these competencies are continuously developed by the participants, passively and actively, listening to the teaching explanations in English with support in Spanish for the more complex technicalities or expressions, consulting the map in English, reading the activities in both languages and resolving them in English and when raising questions and comments doing so mostly in English. In fact, the assessment of these tasks has taken into account the capacity for linguistic expression and, as previously mentioned, the learning results have been high (*SO2* and *SO3*).

The degree of acquisition of linguistic competencies has been more explicitly quantified in the form of consolidated learning (*SO4*), contrasting the knowledge after carrying out the activity with what previously held. Very few students demonstrated an adequate level of English (according to the standard expected in the design of the activity) before carrying out the itinerary; however, after its completion, almost twice as many were capable of reaching a good level, which was the greatest increase in learning from this exercise. This level is demonstrated in the acquisition of vocabulary and in the ability to understand and express urban events.

There are few similar experiences for the development of language competencies. In bilingual education, fieldtrips are conceived of more as cultural immersion than as disciplinary learning strategies, which makes

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[62] Emilio Costillo et al., "Contributions", 10-22.

[63] Nikos Lambrinos, and Fani Asiklari, "The introduction of GIS and GPS through local history teaching in primary school," European Journal of Geography 5, no. 1 (2014): 32-47.

[64] Bryan Rebar and Larry Enochs, "Integrating", 111-26.

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them more frequent abroad,[65,66,67] virtually,[68,69] in closed and isolated spaces[70,71] or in non-formal education[72] than in familiar and formal settings.

Beyond the integral experiences of cultural immersion, we can make a comparison with the research of Papadopoulos & Griva, which manages to increase the level of language and vehicular culture in immigrant students through trips through the host country,[73] thus as with the work of Montero Pozo & Jerez García, who design a bilingual environmental itinerary for Erasmus students and aim to achieve results in linguistic and geographical competencies at the level of those obtained in our research.[74] As local experiences, we can highlight the studies of Halloran et al., who also demonstrate an improvement in language learning during a didactic fieldtrip, in this case creative writing on fieldtrips to the natural environment,[75] and Brox, who confirms language learning in a bilingual environmental education experience outside the classroom.[76]

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[65] Sean Grant, "Effects", 442-53.

[66] Montserrat Mir, "Teaching", 230-57.

[67] Beatriz De Diego-Lázaro, Kevin Winn, and María Adelaida Restrepo, "Cultural competence and self-efficacy after study abroad experiences," American Journal of Speech-Language Pathology 29, no. 4 (2020): 1896-909.

[68] Benjamin Chang, et al., "Foreign language".

[69] N. Eleni Pappamihiel, and Jennifer Hatch Knight, "Using digital", 276-80.

[70] Fabiana Fazzi, and David Lasagabaster, "Learning beyond the classroom: Students' attitudes towards the integration of CLIL and museum-based pedagogies," Innovation in Language Learning and Teaching 15, no. 2 (2021): 156-68.

[71] Johanna M. Tigert and Sheila Kirschbaum, "How Museum Teachers Scaffold Emergent Bilingual Learners' Meaning-making During Field Trips," *Journal of Museum Education* 44, no. 4 (2019): 439-47.

[72] Haim Eshach, "Bridging In-school and Out-of-school Learning: Formal, Non-Formal, and Informal Education," *Journal of Science Education and Technology* 16, no. 2 (2007): 171-90.

[73] Isaak Papadopoulos, and Eleni Griva, "Learning in the Traces of Greek Culture": A CLIL Project for Raising Cultural Awareness and Developing L2 Skills," *International Journal of Learning, Teaching and Educational Research* 8, no. 1 (2014): 76-92.

[74] Jonathan Montero Pozo, and Óscar Jerez García, "The Teaching Itinerary as a Resource for Development of Communication Competences: Design of a Bilingual App," in *La competencia lingüística en la comunicación: visiones multidisciplinares y transversalidad*, ed. José Vicente Salido López and Pedro Vicente Salido López (Cuenca: Ediciones de la Universidad de Castilla-La Mancha, 2019), 199-207.

[75] John Halloran, et al., "The literacy fieldtrip: Using UbiComp to support children's creative writing (paper presented at the *Proceeding of the 2006 Conference on Interaction Design and Children, Tampere, Finland, June 2006),* 17-24.

[76] Ali Brox, "Notes from the Field: Course Design and Instruction Strategies in Environmental Studies classes for Bilingual Student," *Issues in Language Instruction at the Applied English Center* 4, no. 1 (2015): 9-11.

However, it is striking from our research that, despite the increase in learning, a few students did not achieve the adequate level in EFL, while learning in geohistorical competencies was more generalized. It may be that linguistic competencies are the most difficult to develop of those studied, perhaps due to lack of sufficient prior knowledge in urban semantic fields, because of little habit of approaching urban reality in another language, or due to the very nature of language learning, more linked to a process of cognitive change than a specific change in knowledge. Among the few didactic fieldtrips in familiar environments to develop linguistic competencies in formal education, the one studied by Tigert & Kirschbaum coincides in highlighting the difficulty of language learning in very limited contexts.[77]

Regarding linguistic competencies, it could be expected that students with more training in EFL (coming from a bilingual training group) would reach a level of knowledge significantly higher than the rest (belonging to non-bilingual groups), especially prior to the itinerary, as happens in the CLIL experiences.[78] However, there have been no statistically significant differences in the degree of acquisition of any competency or assessment and in any phase of the evaluation procedure (*RQ4*). This may be due to a bias in the students, since participation in the itinerary was voluntary, which could be interpreted as an offer of supplementary training especially aimed at students interested in linguistic competencies who may come from both non-bilingual groups with linguistic concerns as well as bilingual groups with extra training needs. These circumstances may have equalized the level of linguistic competency prior to completing the itinerary.

In any case, the itinerary of our research has led to the development of all the competencies studied, including linguistic ones. In this case, the differences between the knowledge demonstrated after its completion and the previous one, in any of the competencies, are statistically significant (*RQ3*). This gives more value to the verified learning and reinforces the idea that a didactic fieldtrip can be a very valid interdisciplinary teaching / learning strategy in the paradigm of competency education, in line with studies on didactic fieldtrips that highlight its valuable role in integral learning,[79,80] although not all improvements recorded were significant. The main implication of these results is that didactic fieldtrips can be part of CLIL

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[77] Johanna M. Tigert and Sheila Kirschbaum, "How Museum", 171-90.

[78] Dieter Wolff, "Integrating language and content in the language classroom: Are transfer of knowledge and of language ensured?," *ASp* 41/42 (2003): 35-46.

[79] José Manuel Crespo et al., "An approach", 121-40.

[80] Jennifer DeWitt, and Martin Storksdieck, "A short review of school field trips: Key findings from the past and implications for the future," Visitor Studies 11, no. 2 (2008): 181-97.

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programs, by allowing content to be worked through what Cristóbal-Aragón & Greca define as authentic learning contexts with an active role of the students and based on cooperation,[81] despite the fact that there is hardly any scientific literature on this relationship between didactic fieldtrips and bilingual education.[82]

The students themselves are aware of the importance of the itinerary in their competency training (*SO5*), highlighting above all three great achievements: (i) their learning in geographical skills, as is usual in this type of experiences;[83] (ii) the development of historical thinking and heritage awareness, a recent concern in the didactics of social sciences and which is being observed to have been significantly enhanced in recent years compared to traditional, imminently passive and rote historical learning;[84,85,86] and (iii) contact with bilingual educational practices of comprehensive training to take as references, in the face of the current conflict around bilingual education due to the fear that advanced linguistic training will happen at the cost of non-linguistic training.[87,88]

Finally, the students highlight a dimension of the didactic fieldtrips widely verified in the scientific literature but no less important: its contribution to increasing motivation,[89,90,91] as a result of a playful and pleasant conception of the itinerary carried out (*RQ5*). There are only two aspects that can be

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[81] Esther Cristóbal-Aragón and Ileana M. Greca, "Science", 31-47.

[82] Isaak Papadopoulos, and Eleni Griva, "Learning", 76-92.

[83] David H. Uttal, et al., "The Malleability of Spatial Skills: A Meta-Analysis of Training Studies", *Psychological Bulletin* 139, no. 2 (2013): 352-402.

[84] Cosme Jesús Gómez Carrasco and Pedro Miralles Martínez, "Thinking historically or memorizing the past? assessing historical content in compulsory education in Spain," *Revista De Estudios Sociales* 52 (2015): 52-68.

[85] Jan Karkdijk, Joop Van Der Schee, and Wilfried Admiraal, "Effects of teaching with mysteries on students geographical thinking skills," International Research in Geographical and Environmental Education 22, no. 3 (2013): 183-90.

[86] Bruce A. VanSledright, *The challenge of rethinking history education: On practices, theories, and policy* (New York and London: Routledge, 2011).

[87] Dominik Rumlich, "Bilingual education in monolingual contexts: a comparative perspective," *The Language Learning Journal* 48, no. 1 (2020): 115-9.

[88] Jasone Cenoz, et al., "Critical," 243-262.

[89] Alan Marvell, and David Simm, "Emotional geographies experienced during international fieldwork: An evaluation of teaching and learning strategies for reflective assessment," Journal of Geography in Higher Education 42, no. 4 (2018): 515-30.

[90] Marc Stern, Robert Powell, and Nicole Ardoin, "What Difference Does It Make? Assessing Outcomes from Participation in a Residential Environmental Education Program," *The Journal of Environmental Education* 39, no. 4 (2008): 31-43.

[91] James Farmer, et al., "An Elementary," 33-42.

improved in the opinion of the students: the excessive duration of the itinerary, which left them arriving exhausted to the last tasks, and the limited opportunities they felt they were afforded for participation and interaction throughout the trip. This last perception does not fit with their true participation, adequate in all tasks, possibly highlighting a natural fear of making a mistake when speaking in public in another language, which generates anxiety and persuades them to participate orally more than they would like. It is a common problem in the teaching of foreign languages,[92] specifically that bilingual educational practices can reduce anxiety[93] with the confidence provided by the possibility of resorting to the mother tongue,[94] so perhaps more focus should be placed on this confidence in future planning and research. One the one hand, there are some activities and tasks that could be carried out to defuse language issues and promote a braver use of language before, during and after the itinerary. For instance, before the fieldtrip, vocabulary related to History and Geography could be exercised by asking students to give the definitions of unknown words or draw pictures of specific objects and locations. During the itinerary, students could be given a checklist to go on a fact-finding mission as they do the walking, writing down their discoveries on their maps. Finally, at the end of the itinerary students could be prompted to share and discuss what they liked, learnt and would recommend to others. Furthermore, as a follow-up activity, students could be asked to pretend to be the ones in charge of the itinerary and record a video showing their favourite location. On the other hand, some items about emotional issues could be included in the research questionnaire for future experiences, in order to detect when and how students feel afraid of using language, so that we can effectively respond to their concerns.

V. Conclusions

The results have made it possible to answer the main research question on the viability of a bilingual didactic fieldtrip with teachers in training that maintains the development of geohistorical and didactic competences typical

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[92] Nurhayati Ghazali, Nur Ehsan Mohd Said, and Tan Kim Hua, "Understanding second language anxiety: Feedback from ESL learners in TVET," Universal Journal of Educational Research 8, no. 5 (2020): 2057-63.

[93] María Del Pozo Beamud, "Affective variables and bilingual education: a quantitative study," *ENSAYOS, Revista de la Facultad de Educación de Albacete* 35, no. 2 (2020): 151-69.

[94] Jijia Zhang, et al., "The effects of foreign language anxiety, nervousness and cognitive load on foreign language lying: Evidence from Chinese-English bilinguals," *Acta Psychologica Sinica* 52, no.7 (2020): 861-73.

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of the fieldtrips in the area of social sciences, as well as incorporating the scope of linguistic competences (*GO*). The hypothesis, therefore, that a didactic fieldtrip with CLIL philosophy is a teaching possibility has been confirmed. Specifically, the design of an urban itinerary in the Spanish city of Cartagena has been presented, through five stops representing moments of local historical import, where the participants had to solve a series of tasks mobilizing geohistorical, didactic and linguistic competencies. The teaching staff guided and the participants had to interact, always in the foreign language of training (English) with specific support in the mother tongue (Spanish).

Fulfilling the general objective of the research, the didactic effectiveness of this itinerary has been assessed, distinguishing between participants from bilingual and non-bilingual training groups. To do this, a procedural learning evaluation system has been established during the itinerary and consolidated after the itinerary, resorting to the teaching evaluation of a dossier of activities carried out by the participants and a questionnaire in two phases (before and after the itinerary) through a pre-test and a post-test about the level of knowledge of geohistorical and linguistic aspects of the fieldtrip, adding a student assessment in the last questionnaire. The data have been analysed from descriptive and inferential statistics.

The evaluation of the didactic effectiveness has resulted in very high values of development of geohistorical, didactic and linguistic competencies in procedural tasks during the itinerary, as well as a high increase in the consolidated acquisition of these competencies after completing the itinerary. The greatest growth has been observed precisely in language skills, although it is true that it started from a lower initial level of development than the other skills. The level of knowledge after the itinerary was significantly higher than before, for all competencies (*RQ3*). However, in no case either during the itinerary and after its completion were statistically significant differences observed based on membership in a bilingual training group (*RQ4*). This degree and this form of didactic effectiveness confirm the viability of an itinerary for the development of the aforementioned competencies (*RQ1* and *RQ2*). The students themselves validate this idea by highly valuing the usefulness of the itinerary in their training (*RQ5*), highlighting, within a framework of playful motivation, their improvement in geohistorical skills and awareness and a perception of a teaching reference for bilingual teaching.

These results reinforce the idea that urban itineraries and educational fieldtrips in general promote interdisciplinary learning and strengthen the acquisition of skills that may remain incomplete with only classroom-based instruction. For this reason, it seems reasonable to claim that didactic

fieldtrips should have a greater presence in teacher training, preferably in a curricular way (either through the contents of different subjects or through competencies related to them). This will also have an impact on the transposition that the teachers in training will make with their future primary education students, in whom they will instil the importance of leaving the classroom and, consequently, a holistic knowledge of the environment and greater awareness of heritage.

There are already many studies on experiences of fieldtrips in higher education in the educational area, in a variety of environments. The one that presented in this research, however, in the form of an itinerary in an urban space, has the peculiarity that it has allowed us to incorporate linguistic competencies typical of bilingual education and geohistorical and didactic competencies typical of social sciences. This integrated learning gives the green light to didactic fieldtrips as CLIL method strategies, taking the joint learning of contents and languages outside the classroom, in line with current competencies programmes and tuning projects.

Furthermore, the development of these competencies has followed deep didactic trends, such as: the search for meaningful learning, starting from a local environment; the acquisition of historical thinking and heritage awareness through the critical relationship of geohistorical considerations; and the generation of a climate of trust to mitigate the initial fear of a foreign language student regarding its interactive oral use, due to the possibility of using the mother tongue promptly, maintaining a pseudo-immersive environment that is also pleasant. With these features integrated, there are hardly any experiences of didactic fieldtrips in the scientific literature.

Finally, some limitations of our study should be borne in mind which may mitigate the validity of the quantitative results, although the statistical validations carried out may compensate for them in some way. For example, the sample was of a small size and the exercise was unique, which makes an exact comparison with other fieldtrips impossible. We must also take into account the inevitable halo of subjectivity that can escape in the assessment of a part of the evaluation instruments, as well as the possible bias in the selection of participants because it is a voluntary activity that can bring together students with homogeneous didactic expectations, making inferential statistical analyses difficult. This voluntary nature also produces a certain bias in that not all participants complete the entire evaluation process, and therefore the research does not have data from less diligent students. In successive investigations, the study sample could be increased and extended to include multiple urban itineraries.

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Harmonisation of higher education in Africa: 20 years after the Bologna Process

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Abstract: It has been 20 years since the Bologna Process has been realized, and the present paper examines efforts made to harmonise higher education in Africa. Similar to other continents, the higher education reform in Africa is inspired by the Bologna Process. This is clearly reflected in the African Union strategy for harmonisation of higher education and different reforms and harmonisation initiatives. The reforms in African higher education are directly and indirectly influenced by the European Union which is also the main financer and technical partner in the development and implementation of higher education harmonisation in Africa. There are different factors that affect the institutionalisation and sustainability of harmonisation initiatives in Africa. Some of the major factors include lack of strong and genuine cooperation among African HEIs, lack of nations' political commitment to higher reforms, and lack of contextualisation in adopting reforms and strategies. Although the effort to harmonise African higher education is commendable, it is important to look for innovative strategies and reforms which are mainly based on the actual challenges that Africa is facing and the ultimate goal it envisions to achieve. Africa also needs to earnestly 'conainise' (continentalise, nationalise and institutionalise) reforms and harmonisation strategies adopted from elsewhere.

Keywords: Africa; African Union; Bologna process; Europe; European Union; harmonisation; higher education.

I. Introduction

Globalisation is a phenomenon that requires increased competition, interdependence and interconnectedness, and this is mainly based on

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innovation and information which are knowledge intensive,[1] and has a lot to do with higher education. It is argued that "higher education both drives, and is driven by, globalisation."[2] Higher education drives globalisation through the training of a highly trained workforce that contributes to innovation and research. It is also driven by globalisation as its policies and reforms are often informed and imposed by the process of globalisation.[3]

Internationalisation is another phenomenon that has impacted higher education. It is considered as "both a response to, and a contributing factor facilitating, globalisation."[4] The global higher education sector has been responding to the quest for everlasting improvement, competition and challenges of globalisation and internationalisation through different strategies. One of these strategies is harmonisation of higher education, which is "a process of ensuring articulation, both horizontal and vertical, between programs and institutions among various higher education systems."[5] Harmonisation also implies "the agreement, synchronization and coordination of education systems to strategically develop and strengthen the capacity of HE institutions to respond simultaneously to the educational and employability needs of populations."[6]

Although there are different types and initiatives of harmonisation that have been taking place across the global higher education landscape, one could argue that the Bologna Process, which is a European concerted response to major challenges facing their higher education,[7] is the largest and

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the best example for continental level harmonisation of higher education.[8,9,10] The harmonisation of higher education systems in Europe was first initiated in 1998 in Sorbonne, France by the ministers responsible for higher education from four European countries - France, Germany, Italy and the United Kingdom. In the meeting, the ministers discussed and signed a joint declaration on the "harmonisation of the architecture of the European higher education system."[11] The Sorbonne Declaration is aimed mainly at creating a European Higher Education Area (EHEA) through developing various mechanisms that facilitate student mobility, common degree structure and mutual recognition of studies and degrees. The Declaration is perceived as predecessor of the Bologna Process which was launched in 1999 by 29 signatories of the Bologna Declaration.

The Bologna Process is considered as the most comprehensive higher education reform in the world in the last several decades.[12,13,14] At the outset, it aims at promoting greater compatibility and comparability of the European higher education system.[15] In the last two decades, the Bologna Process has integrated different objectives,[16] including enhancing Europe's scientific

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[8] Roger J. Chao, "Reflections on the Bologna Process: the making of an Asia Pacific Higher Education Area," *European Journal of Higher Education* 1, no.2-3 (2011): 102-118. https://doi.org/10.1080/21568235.2011.629040.

[9] Jane Knight, "A model for the regionalization of higher education: The role and contribution of tuning," *Tuning Journal for Higher education* 1, no. 1 (2013): 105-125. http://doi.org/10.18543/tjhe.

[10] Ayenachew. A. Woldegiyorgis, "Harmonisation of Higher Education in Africa and Europe: Policy Convergence at Supranational Level," *Tuning Journal for Higher Education* 5, no. 2 (2018): 133-157. http://dx.doi.org/10.18543/tjhe-5(2)-2018

[11] Sorbonne Declaration, "Joint declaration on harmonisation of the architecture of the European higher education system," 1998, http://www.ehea.info/media.ehea.info/file/1998_Sorbonne/61/2/1998_Sorbonne_Declaration_English_552612.pdf

[12] European Commission, "Towards the European Higher Education Area by 2025," 2018, https://ec.europa.eu/commission/news/towards-european-education-area-2025-2018-may-22_en.

[13] Tobias Brandle, "Only a Matter of Education Policy Ideals? German Professors' Perception of the Bologna Process," *Higher Education Quarterly* 70, no. 4 (2016): 354-383. https://doi.org/10.1111/hequ.12095.

[14] Barbara M. Kehm, "The Future of the Bologna Process -The Bologna Process of the future," *European Journal of Education* 45, no. 4 (2010): 529-534. https://doi.org/10.1111/j.1465-3435.2010.01453.x.

[15] Bologna Declaration, "Joint Declaration of the European Ministers of Education," 1999, https://www.eurashe.eu/library/bologna_1999_bologna-declaration-pdf/.

[16] Hannah Moscovitz and Hila Zahavi, "The Bologna Process as a Foreign Policy Endeavour: Motivations and Reactions to the Externalisation of European Higher Education," *European Journal of Higher Education* 9, no. 1 (2019): 7-22 https://doi.org/10.1080/21568235.2018.1561316.

capacity, the modernisation, competitiveness and attractiveness of the European higher education,[17,18,19] and facilitation of comparability and recognition of studies and qualifications. Implementation reports indicate that the Bologna Process has achieved most of the goals for European higher education set two decades ago.[20] However, this does not necessarily mean that every plan has been fully achieved.[21] There are criticisms and dissatisfaction among higher education institutions (HEIs) in different countries regarding its ambition, objectives and implementation strategies.[22,23,24] The 2018 Bologna Process implementation report also indicates that the implementation varies across the 48 signatory countries and there are some gaps that need to be addressed.[25]

Based on stable foundations provided through the Bologna Process, the European Commission is now planning to develop a new initiative which is referred to as "Towards the European Higher Education Area by 2025". This initiative aims to improve academic mobility and educational opportunities in the European Union (EU), empower the youth, and "intensify cooperation in areas such as multilingualism, innovation and mutual recognition of diplomas, and also to provide inspiration to non-EU countries to follow."[26]

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[17] Manja Klemenčič, "20 Years of the Bologna Process in a Global Setting: The external dimension of the Bologna Process revisited," *European Journal of Higher Education* 9, no.1 (2019): 2-6. https://doi.org/10.1080/21568235.2019.1570670.

[18] Bergen Communiqué, "European Higher Education Area – Achieving the Goals". Communiqué of the Conference of European Ministers Responsible for Higher Education, Bergen, 19-20 May 2005, http://ehea.info/media.ehea.info/file/20050412-13_Mondorf/67/6/BFUG5_8_Draft_579676.pdf.

[19] London Communiqué, "European Higher Education in a Global Setting: A strategy for the External Dimension of the Bologna Process," London, 17-18 May 2007, http://www.ehea.info/media.ehea.info/file/EHEA_in_a_Global_Context/24/2/Strategy_plus_possible_actions_597242.pdf.

[20] Don F.Westerheijden et al., *The First Decade of Working on the European Higher Education Area: The Bologna Process Independent Assessment: Executive Summary, Overview and Conclusions* (Ghent: University of Ghent, 2010).

[21] David Matthews, "Bologna Process Still 'Treading Water', Say Critics". The World University Ranking, May 29, 2018, https://www.timeshighereducation.com/news/bologna-process-still-treading-water-say-critics.

[22] Brandle, "Only a Matter of Education Policy Ideals?".

[23] Hans Pechar, "The Decline of an Academic Oligarchy: The Bologna Process and 'Humboldt's Last *Warriors,"* in *European Higher Education at the Crossroads: Between the Bologna Process and National Reforms*, ed. Adrian Curaj, Peter Scott, Lazar Vlasceanu, and Lesley Wilson (Dordrecht: Springer, 2012), 613-630.

[24] Kehm. "The future of the Bologna Process".

[25] European Commission/EACEA/Eurydice, *The European Higher Education Area in 2018: Bologna Process Implementation Report*" (Luxembourg: Publications Office of the European Union, 2018).

[26] European Commission/EACEA/Eurydice, *The European Higher Education Area,* 4.

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Although the Bologna Process has been mainly established to address the common European higher education problems, it has clear impacts on the reforms and harmonisation of higher education worldwide,[27,28,29,30] and has become frame of reference in the harmonisation of higher education.[31] Despite a study claiming that "for the moment, the Bologna model's transfer is not a success,"[32] it is becoming more and more evident that African higher education policy makers prefer and tend to rely on 'adapting' the Bologna Process in the harmonisation of higher education in Africa.

It has been 20 years since the Bologna Process has been realized, and the present paper examines efforts made to harmonise African higher education which is inspired and significantly influenced by the Bologna Process. Accordingly, the paper present and discuss the following three sections (i) frameworks for harmonisation of higher education in Africa, (ii) strategies and tools introduced to enhance harmonisation of higher education in Africa, and (iii) EU's influence on the higher education reform in Africa, and (iv) factors affecting the implementation and institutionalisation of harmonisation of higher education in Africa.

II. Frameworks for harmonisation of higher education in Africa

Beside the impact of globalisation and internationalisation, underfunding and different higher education systems in Africa are also challenging the sector.[33] Since the early 1980s, Africa has been striving to address these challenges through developing and implementing different policies and strategies including the frameworks for harmonisation of higher education in Africa. In the African context, harmonisation is considered as "an instrument for enabling African higher education to contribute to and be aligned with the

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[27] David Crosier and Teodora Parveva, *The Bologna Process: Its Impact on Higher Education Development in Europe and Beyond* (Paris: UNESCO, 2013).

[28] Emnet T. Woldegiorgis, Petronella Jonck, and Anne Goujon, "Regional Higher Education Reform Initiatives in Africa: A Comparative Analysis with the Bologna Process," *International Journal of Higher Education* 4, no.1 (2015): 241-253. https://doi.org/10.5430/ijhe.v4n1p241.

[29] Pavel Zgaga, *Looking Out: The Bologna Process in a Global Setting. On the "External Dimension" of the Bologna Process* (Oslo: Norwegian Ministry of Education and Research, 2006).

[30] Aristotelis Zmas, "Global Impacts of the Bologna Process: International Perspectives, Local Particularities," *Compare: A Journal of Comparative and International Education* 45, no. 5 (2015): 727-747. https://doi.org/10.1080/03057925.2014.899725.

[31] Chao, "Reflections on the Bologna Process", 1.

[32] Jean-Emile Charlier and Sarah Croche, "Can the Bologna Process Make the Move Faster towards the Development of an International Space for Higher Education Where Africa Would Find Its Place?", *Journal of Higher Education in Africa* 7, no. 1&2 (2009): 39-59.

[33] Adamu, "Internationalization of higher education in Africa", 209.

African vision of integration."[34] The African Union (AU) clearly indicates that "harmonization is not synonymous with standardization, creating uniformity, or achieving identical higher education systems. [It is rather] the agreement, synchronization, and coordination of higher education provision in Africa."[35]

As clearly indicated in the policy brief of the Association for the Development of Education in Africa harmonisation is a top priority for Africa.[36] The Arusha Convention, which was adopted in 1981, could probably be the first framework developed to harmonise higher education in Africa. This Convention is one of the five regional conventions initiated by UNESCO to promote international cooperation in higher education through facilitating academic mobility and recognition of studies and degrees.[37,38] The other regional conventions include, the convention in Latin America and the Caribbean- 1974 revised in 2019, the Arab States-1978 revised in 2018, Europe- 1979 revised in 2009, and Asia and the Pacific-1983 revised in 2011.

Three decades after its ratification, the Arusha Convention had only about 20 signatory African countries. This indicates that the Convention did not attract as many countries as possible, bring the intended changes and live up to its expectation.[39] While many African countries were not clear on the need of ratifying the Arusha Convention,[40] Europe effectively used its regional convention and advanced on the harmonisation of higher education which ultimately becomes the benchmark for higher education reform, as well as an inspiration for cross-regional cooperation in higher education worldwide including Africa, Asia and Latin America.[41,42]

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[34] African Union Commission and European Commission, "Preface", in T*uning and Harmonisation of Higher Education: The African Experience*, ed. Carles Awono Onana, et al. (Bilabo: University of Deusto, 2014), 9-10.

[35] Sarah Hoosen, Neil Butcher, and Betarice K. Njenga, "Harmonisation of Higher Education Programmes: A strategy for the African Union". *African Integration and Development Review* 3, no. 1 (2009): 1-36.

[36] Association for the Development of Education in Africa, "Policy brief", 1.

[37] UNESCO, *Higher Education in a Globalized Society: UNESCO Education Position Paper* (Paris: UNESCO, 2004).

[38] UNESCO, *Evaluation of UNESCO's Regional Conventions on the Recognition of Qualifications in Higher Education* (Paris: UNESCO, 2016).

[39] Adamu, "Internationalization of higher education in Africa", 204.

[40] Olusola Oyewole, "African Harmonisation: An Academic Process for a Political End?" *Chronicle of African Higher Education*, 2013, http://www.inhea.org/wp-content/uploads/2016/02/Oyewole-Harmonisation.pdf.

[41] Christian Tauch. "The Bologna Process: State of Implementation and External Dimension," in *Opening up to the Wider World: The External Dimension of the Bologna Process*, ed. Franziska Muche (Bonn: Lemmens Verlags- and Mediengesellschaft mbH, 2005) 23-30.

[42] Chao, "Reflections on the Bologna Process", 2.

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The Continental Education Strategy for Africa (CESA 2016-2025) is another framework that facilitates harmonisation of higher education in Africa. CESA aims to come up with a strategy that demands a paradigm shift in the organisation and provision of education and training in Africa, and harmonisation is one of its guiding principles and strategic objectives.

The Plan of Action for the Second Decade of Education for Africa (2006-2015) also aims to strengthen HEIs' capacity through developing and implementing innovative approaches to intra-African collaboration and harmonisation, improving quality of higher education and promoting academic mobility across the continent.[43] Harmonising the diverse systems of higher education in Africa is also an important aspect of the regional integration objective of the continent. To realize this plan and significantly contribute to the development of higher education in Africa, the AU came up with a strategy referred to as 'The African Union Strategy for Harmonisation of African Higher Education Programmes'.[44] The strategy mainly aims to passage the gap in the education systems, promote joint curriculum development initiatives and quality assurance mechanisms, facilitate academic mobility and recognition of qualifications, and enhance continental integration in different aspects. The strategy has also identified different result areas that indicate AU's strategic approach to address the structural and technical challenges faced in ratifying and implementing the Arusha Convention.

The AU strategy for harmonisation, which has taken lessons from similar initiatives, specifically focuses on fostering joint cooperation in information exchange, comparability of qualifications, and standardisation of curricula.[45,46] It is believed that effective implementation of this strategy significantly contributes to strengthening African Higher Education and Research Space (AHERS) which aims to promote intra-Africa academic mobility, enhance quality assurance and promote the establishment of joint degree programmes at continental level.[47] The AHERS, which is significantly influenced by and

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[43] African Union, "Second Decade of Education for Africa (2006-2015): Plan of Action," 2006, http://www.unesco.org/new/fileadmin/MULTIMEDIA/FIELD/Dakar/pdf/AU%20SECOND%20DECADE%20ON%20EDUCTAION%202006-2015.pdf.

[44] African Union, *Harmonization of Higher Education Programmes in Africa: A Strategy for the African Union* (Addis Ababa: African union, 2007).

[45] Hoosen, Butcher, and Njenga, "Harmonisation of higher education programmes", 16.

[46] African Union, "Harmonization of higher education".

[47] UNESCO, "The New Dynamics of Higher Education and Research for Societal Change and Development," World Conference on Higher Education, Communiqué, July 5-8, 2009, Paris: UNESCO.

in many ways similar to EHEA, is supported by the European Commission through its Pan-African programme which in turn provides support to the Africa-EU strategic partnership.

The harmonisation of higher education and the establishment of AHERS have sought to stimulate greater collaboration in research and other missions of higher education in Africa. It also aimed at increasing the continent's share in knowledge creation and research production through enhancing its research capacity and academic standards The AU strategy for harmonisation of higher education also necessitated the revision of the Arusha Convention and this was adopted on 12 December 2014 in Addis Ababa, Ethiopia. One of the aims of the revised Convention (commonly referred to as the Addis Convention) is contributing to the harmonisation of qualifications by addressing limitations observed in the Arusha Convention and taking into account current global trends.[48]

The "Agenda 2063-The Africa We Want", which was adopted 2013 by the African Union Commission (AUC), is also a good framework that facilitated harmonisation of higher education in the continent, inter alia, through fostering harmonisation of educational standards and qualifications; establishing a continental accreditation agency that promotes academic and student mobility; and strengthening the Pan African University.

Within these frameworks, several continental strategies and tools have been introduced to augment the harmonisation of higher education in Africa.

III. Strategies for harmonisation of higher education in Africa

HEIs are expected to play a key role in the global knowledge production and address national and continental priorities while operating in a global context which requires internationalisation of the higher education system. However, the higher education system in Africa is considered as "probably the most internationalized higher education system in the world-not by participation but by omission."[49] Although this is a challenge by itself, the African Union is actively engaged in developing and implementing different continental harmonisation strategies and activities in response to the impacts

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[48] UNESCO. "Revised Convention on the Recognition of Studies, Certificates, Diplomas, Degrees and Other Academic Qualifications in Higher Education in African States," 2014, http://portal.unesco.org/en/ev.php-URL_ID=49282&URL_DO=DO_TOPIC&URL_SECTION=201.html.

[49] Damtew Teferra, "The international dimension of higher education in Africa: Status, challenges, and prospects," in *Higher Education in Africa: The International Dimension*, ed. Damtew Teferra and Jane Knight (Accra: Association of African University, 2008), 44-79.

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of globalisation and internationalisation of higher education. One of the envisioned contributions of harmonisation is facilitating regional integration and inter-institutional partnership. This requires significant commitment of different actors in relation to funding, coordination and institutionalisation of different initiatives which is a challenge encountered by African countries and their HEIs. This lessens the potential contributions of harmonisation to regional integration. However, initiatives that promote academic mobility and joint curriculum development and programme provision have comparative contribution to the inter-institutional partnership in the continent.

As discussed earlier, most of the African higher education harmonisation strategies and tools are developed based on lessons drawn from the Bologna Process, and it is indicated that this is mainly based on the assumption that Africa is facing some similar challenges to that of what Europe has faced before and in the 1990s (e.g. recognition of studies and qualifications, lack of opportunity to study abroad and quality assurance).[50] However, this does not necessarily mean that all the current challenges facing African higher education are similar to that of what Europe has faced before. This paper focuses on selected harmonisation initiatives and strategies that deal with academic mobility and programme development and implementation, and quality assurance and accreditation.

III.1. Academic mobility and programme development and implementation

Students, staff and researchers mobility is one of the strategies that contributed to the harmonisation of higher education in the continent. The Intra-Africa Academic Mobility Scheme (including its predecessor – Intra-Africa, Caribbean and Pacific Academic Mobility Scheme), the Mwalimu Nyerere Scholarship Scheme, Tuning Africa and the Pan African University (PAU) are some of the continental initiatives that promote internationalisation and harmonisation of higher education through activities involving mobility, joint curriculum reform and development and teaching-learning improvement.

The Intra-Africa Academic Mobility Scheme aims to strengthen international cooperation and cooperation between HEIs in Africa, and enhance the quality of higher education. In many ways, this is similar to the Erasmus programme which is a European Union initiative that provides opportunities for students to study in different European countries. The

[50] Goolam Mohamedbhai, "Towards an African Higher Education and Research Space (AHERS): Summary Report", 2013. http://www.adeanet.org/en/system/files/resources/ahers_summary_report.pdf

Mwalimu Nyerere Scholarship aims to improve the skills and competences of students and staff, and promote research in the continent. The PAU, which is a continental university network that supports the development of centres of excellence in Africa, also promotes student mobility and research networking within the continent.[51]

Tuning Africa is another continental initiative that promotes academic mobility and programme development implementation. It contributes to quality enhancement mainly through developing joint curriculum and improving teaching-learning which in turn contributes to recognition of qualifications.[52] It also contributes to improving the quality of education in the continent through matching graduates' academic qualifications with the skills and competences required in the world of work.[53] It is part of the Joint Africa-EU Strategy that aims to support the harmonisation of higher education programmes in Africa. Tuning Africa is not unique to Africa, rather it is a replica of other similar continental initiatives -Tuning Europe and Tuning Latin America.

III.2. Quality assurance and accreditation

Enhancing the quality of higher education is one of the major goals of harmonisation of higher education in Africa and elsewhere. Quality is an important issue that all HEIs are making every effort to ensure. Accordingly, several countries have acknowledged the importance of establishing a national higher education quality assurance (QA) agency.[54]

In a globalized world, quality is not only an issue of a nation, and thus it requires closely working with other similar agencies through establishing sub-continental, continental and international QA agencies and networks. This helps to create collaborations through sharing information, good practices and experiences,[55] which in turn facilitate mobility of students and staff and recognition of studies and qualification. In Africa, sub-continental QA agencies and networks including the Inter-University Council for East Africa (IUCEA),

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[51] African Union, "First Progress Report of the Chairperson of the Commission on Academic Mobility Scheme in Africa," 2018, https://au.int/sites/default/files/documents/34072-doc-auc.report.academic.mobility. prc_.29.03.pdf

[52] Karola Hahn and Damtew Teferra, "Tuning as Instrument of Systematic Higher Education Reform and Quality Enhancement: The African Experience". *Tuning Journal for Higher education* 1, no. 1 (2013): 127-163. http://dx.doi.org/10.18543/tjhe-1(1)-2013pp127-163.

[53] Oyewole "African harmonisation", 3.

[54] Hahn and Teferra. "Tuning as instrument of systematic higher education reform", 134.

[55] Chiyevo Garwe, E. and Lovemore Gwati, "The role of International and Regional Quality Assurance Bodies". *Higher Education Research* 3, no. 1 (2018): 15-22. doi: 10.11648/j.her.20180301.14.

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the Southern African Quality Assurance Network (SAQAN), and the African and Malagasy Council for Higher Education (CAMES) are becoming more active and visible. Most of these agencies and networks had good working relationships with similar agencies, networks and development partners from the global north than their African counterparts. Although these QA bodies have common issues, there has been a lack of strong and active continental QA networks that provide platforms for sharing lessons, information, experiences and practices. The African Quality Assurance Network (AfriQAN), which was established in 2009, aims to fill this gap by serving as a continental network of higher education QA agencies in Africa.[56] AfriQAN aims to promote harmonised QA standards and create a competitive African higher education space through instilling QA culture in African HEIs and encouraging cooperation and association among QA agencies within Africa.[57]

The AUC recognized that lack of a strong regional body responsible for enhancing access to quality higher education and facilitating mutual recognition of academic qualifications are some of the major challenges that hinder the competitiveness of African higher education in the global arena. These necessitate the establishment of a continental quality assurance and regulatory framework which is referred to as the Pan-African Quality Assurance and Accreditation Framework (PAQAF). PAQAF, which is part of the African strategy for harmonisation of higher education, aims to improve the quality of higher education in the continent. Effective implementation of PAQAF is envisioned through the development and implementation of different tools and action lines including the Addis Convention; African Quality Rating Mechanism (AQRM); and the Harmonisation of African Higher Education Quality Assurance and Accreditation (HAQAA).

AQRM is a continental QA tool developed by the AU mainly to enhance institutional culture of quality,[58] compare performance of similar HEIs,[59] and contribute toward making African HEIs more globally competitive and

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[56] Juma Shabani, Peter Okebukola, Olusola Oyewole, "Quality Assurance in Africa: Towards a Continental Higher Education and Research Space". *International Journal of African Higher Education* 1, no. 1 (2014): 139-171.

[57] Garwe and Gwati, "The role of international and regional quality assurance bodies", 16-17.

[58] African Union, "African Quality Rating Mechanism (AQRM) Survey Questionnaire. Revised Version," 2013, https://au.int/sites/default/files/newsevents/workingdocuments/27609-wd-aqrm_q_english_august_2013.pdf.

[59] Lazarus Nabaho and Wilberforce Turyasingura, "An exploration of the 'African (Union Commission's) perspective' of quality and quality assurance in higher education: Latent voices in the African Quality Rating Mechanism (AQRM)," *Tuning Journal for Higher Education* 6, no.2 (2019): 73-95. http://dx.doi.org/10.18543/tjhe-6(2)-2019pp73-95.

locally relevant.[60] It aimed to achieve these by encouraging HEIs to assess and rate their performances against a set of established criteria.[61,62] This indicates that based on the development and context of higher education in Africa the AU and AAU prefer rating to ranking. Hence, regardless of its feasibility and acceptability, AQRM could also subtly serve as a continental replacement for the global university ranking mechanisms.

HAQAA - one of the PAQAF's initiatives - aims to "contribute to and support the harmonisation of higher education programmes and the creation of a distinctive, attractive and globally competitive African higher education space, through enhanced intra-African collaboration."[63] Its major activities include developing the African Standards and Guidelines for Quality Assurance in higher education (ASG-QA). The ASG-QA, which is mainly adapted from the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), provides an overarching framework for quality assurance. It complements the AQRM in enhancing the institutional culture of quality in African HEIs.

The AUC is also developing the African Continental Qualification Framework and planning to establish an African Credit Accumulation and Transfer System, a Continental QA and Accreditation Agency, a Continental Register for QA agencies and quality assured HEIs which are similar to the European Credit Accumulation and Transfer System (ECTS), European Quality Assurance Agency (EQAA) and European Quality Assurance Register for Higher Education (EQAR) respectively. These and the above discussions clearly indicate Africa's over dependence on harmonisation initiatives and strategies that are developed elsewhere.

IV. EU's influence on the higher education reform in Africa

Africa wants to get out of the bottom level of global knowledge production, research and innovation and aspires to become one of the global

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[60] Mohamedbhai, "Towards an African higher education", 6.

[61] Juma Shabani, Peter Okebukola, and Olusola Oyewole, "Regionalization of Quality Assurance in Africa," in *Regionalization of African Higher Education*, ed. Jane Knight and Emnet. T. Woldegiorgis (Rotterdam: Sense Publisher, 2017), 93-112. https://doi.org/10.1007/978-94-6300-956-0_6.

[62] Lazarus Nabaho and Wilberforce Turyasingura, "An Exploration of the 'African (Union Commission's) Perspective' of Quality and Quality Assurance in Higher Education: Latent Voices in the African Quality Rating Mechanism (AQRM)," *Tuning Journal of Higher Education* 6, no. 2 (2019): 73-95, doi: http://dx.doi.org/10.18543/tjhe-6(2)-2019pp73-95.

[63] European Commission, "Harmonisation of higher education in Africa," 2015, https://www.africa-eu-partnership.org/sites/default/files/harmonisation_factsheet.pdf.

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competitive forces in higher education. This requires significant reform at different levels, and major stakeholders and continental policy makers considered the Bologna Process as an ideal strategy for achieving this purpose. This is mainly because first, some of the challenges that Africa is facing are similar to that of Europe. Secondly, the Bologna Process is considered as state of the art in the harmonisation of higher education worldwide. Thirdly, the Bologna Process has been gaining momentum in most African countries,[64] even before the AU has embarked on developing a strategy for harmonising African higher education. From this point of view and theoretically, it can be argued that the 'Bologna-Framed' higher education reform in Africa is a 'voluntary' harmonisation process. However, practically the reform is considerably influenced by the EU. The EU has used different mechanisms to influence and make sure that the higher education reform in Africa adheres to the principles and strategies of its Bologna Process. The following are some of the major mechanisms.

The EU uses the Africa-EU partnership as an overarching strategy to achieve the objectives of the external dimension of the Bologna Process which is a soft strategy that aims to influence the dynamics of higher education beyond Europe. Under this partnership, the EU has provided sizable financial support to a number of higher education strategies and reforms in Africa. These include but are not limited to Tuning Africa, AHERS, PAQAF, and Intra-Africa academic mobility scheme. It ensures that these strategies and reforms are in line with the Bologna Process through its 'technical support'. The EU 'technical support' involves, among others, sharing experiences of reform processes through arranging exposure visit to different groups involved in the reform, and providing consultancy services through European companies and institutions that promote the notions and values of the Bologna Process in the development and implementation of harmonisation projects.

The other mechanism that the EU uses to influence higher education reform in Africa is through including elements of the Bologna Process in its funding opportunities for African HEIs. For example, the Intra-Africa Academic Mobility Scheme requires applicant and partner institutions to include strategies for modernisation and internationalisation, mechanisms for comparability and complementarity of curricula and recognition of study period and qualifications obtained abroad. It also influences the reform through supporting the higher education cooperation between the

[64] Hocine Khelfaoui, "The Bologna Process in Africa: Globalization or Return to 'Colonial Situation'?," *Journal of Higher Education in Africa* 7 no. 1/2 (2009): 23-40.

Bologna member countries and some of the former European colonies that requires the latter to reform its higher education through persuasion or coercion.

One of EU's indirect mechanisms for influencing the higher education reform in Africa is by promoting values and impacts of the Bologna Process through promoting Erasmus Mundus Students and Alumni Association-African Chapter, using its different agencies (e.g. the European Association for Quality Assurance in Higher Education and the Association of European Universities) and using platforms and initiatives organized and developed by international organisations (e.g. UNESCO and the World Bank).[65]

Here, it is important to highlight why the EU wants to influence higher education reform in Africa and why some African countries and scholars are cautious of the EU's interest to support harmonisation initiatives in Africa. Europe had many African colonies which were considered as a source of production of raw materials by their colonial masters. Many years after independence, the global north including Europe still consider Africa as the dominant source of raw materials and major consumers of manufactured products.[66] In relation to this, Europe wants to strengthen its strategic relationship with Africa to ensure and sustain its political and economic interests. Accordingly, it came up with the Africa-EU partnership which includes investing in people – education, science, technology and skills development as one of the priority areas in which most of the higher education harmonisation initiatives are included. Education significantly influences our attitudes, values, norms, opinions and perspectives. It is a gateway to achieve one's (individual, national, regional and continental) interest both directly and indirectly. Hence, it is not surprising to see education, research and innovation as one of the major components of the Pan-African Programme which is one of the main EU's financial instruments for the implementation of the joint Africa-EU partnership.

Africa was intentionally exploited and underdeveloped by European colonial masters,[67] (Walter, 1973) which should be held accountable for the present economic and political situation of the continent. It was unarguable

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[65] Foteini Asderaki, "Researching the European Higher Education Area External Effectiveness: Regime Complexity and Interplay," *European Journal of Higher Education* 9, no. 1 (2019): 40-57.

[66] Stephen Ocheni, Basil C. Nwankwo, "Analysis of colonialism and its impact in Africa," *Cross-Cultural Communication* 8, no.3 (2012): 46-54. http://dx.doi.org/10.3968/j.ccc.1923670020120803.1189.

[67] Walter Rodney, "How Europe underdeveloped Africa," (Bogle-L'Ouverture Publications, London and Tanzanian Publishing House, Dare Salaam, 1973).

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that education was one of the main instruments used by European colonizers to create a continent that serves European interest by disentangling Africans from their identities, values, norms and traditions. Because of their past experience, despite positive elements of continental level partnership in education, Africans have been skeptical of EU's partnership and involvement in education development including its technical and financial support to the harmonisation initiatives.

V. Factors affecting the implementation and institutionalisation of harmonisation of higher education in Africa

The development and implementation of strategies for harmonisation of higher education at supranational and international level requires the political commitment of different countries because harmonisation of higher education is similar to higher education regionalism which is "a political project of region creation involving at least some state authority (national, supranational, international), who in turn designates and delineates the world's geographical region to which such activities extend, in the higher education policy sector."[68] EU's financial support and its nations' political commitment and HEIs' positive response to proposed reforms and changes in structures (e.g. degree structures) are some of the enabling environments for the much acclaimed harmonisation of higher education in Europe. This clearly indicates that developing or adapting different reform strategies, initiatives and tools are necessary but not sufficient conditions for effective implementation and institutionalisation of harmonisation of higher education which also requires national and continental concerted effort, funding and political commitment.

Some of the harmonisation initiatives (e.g. the joint curriculum development and the continental quality rating mechanism) to a certain extent take into consideration the continental and regional educational interests and focus areas. Although such initiatives have been positively received by continental, regional and national educational actors, aligning the initiatives and strategies to the institutional and national context is a major challenge. In Africa, the political commitment of most countries is also one of the biggest challenges and threats to the implementation and sustainability of the strategies for harmonisation of higher education in

[68] Meng-Hsuan Chou and Pauline Ravinet, "The Rise of 'Higher Education Regionalism': An Agenda for Higher Education Research," in *Handbook of Higher Education Policy and Governance*, ed. Jeroen Huisman, et al. (Basingstoke: Palgrave, 2015), 361–378.

Africa. Although most African countries are engaged in the development and adaptation of continental harmonisation strategies, their commitment to the implementation of harmonisation strategies is questionable. For example, as discussed earlier, the Arusha Convention was able to attract about 20 countries within three decades. The revised Convention (the Addis Convention) was endorsed in 2014 and entered into force on 15 December 2019. However, despite continual reminders by UNESCO and the Association of African Universities (AAU), as of October 2020 only 12 countries have ratified the Convention. This clearly shows the lack of most countries' political commitment to the continental higher education reforms.

"It is not surprising that territories and countries that have had colonial ties to Member States of the European Union are offered better treatment than those territories and countries that have not had such ties."[69] While this may be good for different reasons, it is also important to note that there are Africans who do not see this positively because of their experience of colonialism. The colonial education system in Africa, which was based on the needs of European, subjugated indigenous language and culture and perpetuated dependency.[70] The vestiges of the colonial footprint on African education are still evident and enduring. Accordingly, many scholars have promoted decolonisation of the education system in Africa.[71,72,73] Because of this, there are Africans who are critical of Europe's involvement in Africa's education system regardless of its current interest to support harmonisation initiatives. There are also Africans who consider the involvement of Europe in African education through partnership and cooperation as a strategy for facilitating continuation of Western exploitation. This also affects effective implementation of EU driven harmonisation initiatives in Africa.

African countries have widely varying higher education systems and this is a challenge for harmonisation by itself. This is also partly a reason for

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[69] Morten Broberg, "The EU's legal ties with its former colonies: When old love never dies". DIIS Working Paper, No. 2011:01, Danish Institute for International Studies, 2011. https://www.econstor.eu/bitstream/10419/44696/1/64506016X.pdf.

[70] Mamadou Gaye, "Western influences and activities in Africa," *Journal of Third World Studies* 15, no. 1 (1998): 65-78.

[71] Foluke Adebisi, "Decolonising education in Africa: Implementing the right to education by re-appropriating culture and indigeneity," *Northern Ireland Legal Quarterly*, 67, no.4 (2016): 433-451. https://doi.org/10.53386/nilq.v67i4.129.

[72] Ruth M. Mampane, Margaret F. Omidire, and Folake Ruth Aluko, "Decolonising higher education in Africa: Arriving at a glocal solution," *South African Journal of Education*, 38, no.4 (2018): 1-9. https://doi.org/10.15700/saje.v38n4a1636.

[73] Dennis Ocholla, "Decolonizing higher education in Africa: Implications and possibilities for university libraries,". *International Insights,* 81, no.6 (2020).

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some African countries' preference to align their higher education with the higher education system of their former colonies of European countries because of strong relations, strategic alliances and language. Moreover, some countries are more interested and committed to sub-continental than continental level harmonisation activities which are also drawn from the European experiences. This is mainly because, first, some of the continental level harmonisation strategies and tools have been developed after the countries have engaged in the sub-continental level harmonisation process. Second, those already involved in different sub-continental level harmonisation initiatives do not see strong added value that necessitate active engagement in the continental level harmonisation, and some of them even consider their continental level participation as duplication of efforts. This clearly indicates that as much as it is an opportunity, the on-going national and sub-continental level harmonisation is a challenge for the continental level harmonisation process. Moreover, the fragmented sub-continental level harmonisation initiatives promote South-North than South-South cooperation and harmonisation and "present a significant risk of perpetuating dependency on the old colonial legacies"[74].

AU's commitment to harmonise African higher education is clear and important but its financial support to the harmonisation frameworks, strategies, initiatives and tools are not strong and mostly supported by its European counterpart. Most African countries seem to be also interested in the harmonisation strategies and initiatives so long as it has no significant financial implication. Yet, it is clear that harmonisation and its different activities are not that cheap, and this could be considered as a burden for the already underfunded higher education sector.

HEIs are major stakeholders that are responsible for implementing and benefiting from the outcomes of harmonisation of higher education. However, unlike in Europe, many HEIs in Africa are not well informed and actively engaged in the development and adaptation of different continental strategies for harmonisation of higher education. This potentially results in institutional resistance to the implementation of proposed changes and reforms related to harmonisation of higher education. The absence of a strong and committed body that feeds the continental harmonisation process based on empirical data is also another challenge for effectively implementing and fine-tuning the harmonisation process.

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[74] Ement T. Woldegiorgis, *Regionalization of Higher Education in Africa: The Operationalization of the African Union Higher Education Harmonization Strategy* (Berline: Lit Verlag, 2017).

Some studies promote the importance of drawing valuable lessons from the Bologna Process[75,76] because of some similar challenges that both Africa and Europe have faced and the majority of African countries are former colonies of European countries that still have close collaboration in higher education. Other studies consider the Bologna Process as "a new paradigm of domination carried by the agents of globalization",[77] "a tool that European countries used for their hegemonic project on Africa's higher education",[78] "a panacea to African higher education",[79] a strategy that aims "to raise the flow of (good) non-European students into European universities",[80] and a reform which "does not solve the challenges and problems of the African higher education".[81] These kinds of perceptions and understandings are among the potential factors that affect effective implementation and institutionalisation of the "Bologna-Framed" harmonisation of higher education in Africa.

Continental, national and institutional education policies, strategies, initiatives and reforms are often informed and influenced by different global actors. Therefore, it is important and strategic to take good lessons from different experiences. However, the attempt to influence the African higher education systems to fit into the strategies and initiatives formulated and developed elsewhere in different contexts, instead of moulding the strategies and initiatives to align with local higher education systems has been a challenge for the implementation of harmonisation strategies and initiatives.

VI. Conclusion

The efforts made by the AU to deal with this priority are creditable. It is crystal clear that harmonisation of higher education in Africa is shaped by the

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[75] Mohamedbhai, "Towards an African higher education", 38.

[76] Damtew Teferra, The Bologna Process: The Experience and Challenges for Africa," in *The Bologna Process and the Shaping of the Future Knowledge Societies: Conference Report from the Third Conference on Knowledge and Politic*s, ed. Tor Halvorsen and Attle Nyhagen (Bergen: University of Bergen, 2005), 287-293.

[77] Khelfaoui. "The Bologna Process in Africa", 24.

[78] Jean-Emile Charlier and Sarah Croché, "The Bologna Process: A tool for Europe's Hegemonic Project on Africa". *Power and Education* 3, no.3 (2011): 304-316. https://doi.org/10.2304/power.2011.3.3.304.

[79] Zmas, "Global impacts of the Bologna Process", 12.

[80] Charlier and Croche, "Can the Bologna Process", 40.

[81] Sintayehu. K Alemu, "African Higher Education and the Bologna Process," *European Journal of Higher Education* 9 no. 1 (2019): 118-132. https://doi.org/10.1080/21568235.2018.1561313.

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Bologna Process and fundamentally influenced by the EU which is AU's prime political partner in the development of higher education and the principal financer and 'technical supporter' of most of the harmonisation projects in the continent. Africa welcomed the Bologna Process without establishing strong and genuine cooperation among its HEIs and ensuring nations' political and financial commitment to the promotion and implementation of national and continental higher education reforms. These factors led to frivolous adaptation and attempts to influence the African higher education systems to fit into the strategies and initiatives formulated and developed elsewhere in different contexts. This in turn has led to fragmented, inconsistent and ineffective implementation of the "Bologna-Framed" harmonisation of higher education in Africa. Although it is early to generalize, current trends and practice indicate that it is very likely that Africa and its HEIs will continue struggling to institutionalise and ensure the sustainability of the "Bologna-Framed" harmonisation process for a foreseeable future.

Therefore, to turn these around, Africa needs genuine and strong "conainsation" which is the process of continentalisation, nationalisation and institutionalisation of theories, ideas, notions, policies, strategies, approaches, initiatives, practices, etc. by putting the intended context at the center of the process. "Conainsation" thoroughly defies one-size-fits-all approach which often disregards contexts, and paves the way for coerced implementation and "self-imposed colonisation" which is subscribing to external prescriptions through coercion or ignorance or without critical inquiry to its ultimate relevance to local (continental, national and institutional) context. Africa also needs to think about developing innovative strategies for harmonisation of higher education which is mainly based on its identified challenges and problems and actual needs, and clear ultimate goals set to be achieved.

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Strengthening the university competitiveness in the Czech Republic

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Abstract: The number of students at Czech universities had been growing continuously until 2010. In 2010, almost 400,000 students studied there. Since then, this number has declined every year. Pressure on present-day universities has been accruing due to the competitive environment. The only way to strengthen competitiveness is to improve constantly the quality and image. The objective of this paper is to verify what factors are important for students regarding their satisfaction and what factors could be key for supporting the competitiveness of the Czech universities. To assess student satisfaction, the authors conducted a questionnaire survey where students were asked to identify the strengths and weaknesses of the faculty. The survey was carried out within the Faculty of Business and Economics of Mendel University in Brno (FBE MENDELU) and a selected private university in Brno in 2019. Relative frequencies were used in data processing and statistical hypotheses were tested. In addition to the basic classification according to one feature, a combination classification was also processed, and the independence was tested for different combinations of questions. Of the total number (1,020) of identified strengths at FBE MENDELU, 57.7% of students stated, "quality teachers", 32.4% "faculty image" and 31.8% "modern environment" as strengths. Regarding the identified weaknesses, the most frequently mentioned were "study difficulty (42.4%)," weaker image of the university with the public "(31.5%) and not enough practical training (23.2%). At the private college, 47.8% of respondents cited "quality teachers", "interesting lectures and teaching methods" (40.8%) and "study materials for subjects" (29.4%) as the school's strengths.

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Keywords: Czech universities; university students; university rankings; questionnaire survey; strengths; weaknesses; quality; competitiveness.

I. Introduction

In today's globalized economy, universities play a key role and create a significant contribution to the economic and knowledge development of the population. They produce a lot of qualified and educated people who put their acquired knowledge into practice within a complex socio-economic structure.[1] Higher education is a global game. Its success or failure represent an integral part and the important indicator of the ability of individual states to produce knowledge and attract talent.[2] Universities have been gradually adopting new organizational structures and forms to acquire the ability to adapt and meet the needs of the outside world. In addition, in the last two years, higher education, like many other disciplines, has affected the Covid pandemic, in particular the need to switch to online teaching. Therefore, they operate in a market-business environment with the emphasis on innovation.[3] Increased volatility in the external environment brings the need to adopt forms of strategic management that meet current requirements to increase the effectiveness of higher education organizations. Strategic management as said Clark can be defined using the techniques, tools, methods, models, frameworks, and approaches available to support strategic management decision-making. According to Clark, strategic corporate governance can be defined using techniques, tools, methods, models, frameworks and approaches available to support decision-making in the field of strategic management.[4] Strategic planning and benchmarking reflect the different perspectives of universities and provide guidance and recommendations to facilitate the promotion of universities in a globalized economy. Strategic planning is a

[1] Indicators of the Strategy of Educational Policy of the Czech Republic until 2020, [Indikátory strategie vzdělávací politiky České republiky do roku 2020] Ministry of Education, Youth and Sports *(*MEYS*)* online, January 12, 2014, https://www.msmt.cz/file/34419/.

[2] Ellen Hazelkorn, "Rankings and Higher Education: Reframing Relationships within and between States," Center for global higher education, May 2017, https://www.researchcghe.org/publications/working-paper/rankings-and-higher-education-reframing-relationships-within-and-between-states/.

[3] Sara Javan Amoli and Farnouche Aghashahib, "An Investigation on Strategic Management Success Factors in an Educational Complex," *Procedia - Social and Behavioral Sciences* 230 (September 12, 2016): pp. 447-454, https://doi.org/10.1016/j.sbspro.2016.09.056.

[4] Delwyn N. Clark, "Strategic Management Tool Usage: A Comparative Study," *Strategic Change* 6, no. 7 (November 1997): pp. 417-427, https://doi.org/10.1002/(SICI)1099-1697(199711)6:7<417: AID-JSC281>3.0.CO;2-9.

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way of thinking that is gaining considerable attention from many universities in different countries.[5] According to the Ministry of Education, Youth and Sports, there are 26 public universities, 2 state universities and 33 private universities in the Czech Republic in 2020. In addition, 18 foreign universities or their branches also provide higher education.[6] To increase competitiveness, it is necessary for them to improve constantly, look for gaps in the market and use their strengths. According to the annual reports and strategic plans of Czech universities, for most of them the implementation of the strategic plan means the introduction of a system of internal evaluation and quality assurance, which will lead to an increase in the quality of all activities and the acquisition of institutional accreditation. They also want to improve the placement of their faculties and implemented fields in renowned international rankings. In connection with the topic of the quality of education and competitiveness of higher education institutions, the analysis of the external environment shows that the directly influencing, negative effect of the external environment is mainly the persistent seclusion of Czech higher education and an unwillingness to cooperate among various entities (public - private universities). Another important factor influencing the decision making of potential students is the reputation of universities, which seems to be worse for private schools from the public's point of view rather than for public schools.[7]

II. Theoretical background

According to Ondrušová total 290,000 students studied in the Czech Republic the vast majority (90.2%) at public universities in 2018. The number of students at Czech universities had been growing until 2010, when almost 400,000 studied at them, and since then the number has declined every year. The fall in the number of students is mostly related to bachelor's degree programs.8 This decrease causes both, a reduction in the demographic

[5] Zenia Barnard and Derek Van der Merwe, "Innovative Management for Organizational Sustainability in Higher Education," *International Journal of Sustainability in Higher Education* 17, no. 2 (March 7, 2016): pp. 208-227, https://doi.org/10.1108/IJSHE-08-2014-0120.

[6] Overview of Universities in the Czech Republic, [Přehled vysokých škol v ČR] Ministry of Education, Youth and Sports (MEYS), accessed July 2020, https://www.msmt.cz/vzdelavani/vysoke-skolstvi/prehled-vysokych-skol-v-cr-3.

[7] Julie Šmejkalová, "The Process of Evaluating Strategic Trends in the Provision of Quality Higher Education-Analysis of the External Environment," Economic Letters (College of Economics and Management, December 28, 2016), http://search.ebscohost.com/login.aspx?direct=true&db=bsu&an=120576379&scope=site.

curve, and market saturation in the case of applicants who needed to supplement their education in connection with a change in qualification requirements for certain professions (e.g., nurses, police officers).[8] According to the authors, the most significant factor influencing the decline in the number of students at universities is the declining size of the population aged 20 to 29, i.e. the age typical for university studies. Other important factors include changes in the organization of higher education, the current needs of society and, last but not least, the way in which higher education is financed. Universities do not fill their capacities - but this does not apply to all fields; an excess of demand and lower chance of acceptance mainly relates to humanities, social sciences, and medical disciplines. Due to the large number of applicants, these faculties can still choose the best students. Therefore, these universities also require entrance exams. Traditionally, the most difficult entrance exams in the Czech Republic are exams in the fields of art, because they require talent exams. Furthermore, the admission procedure to study medicine, law, psychology, journalism and international relations is difficult. The form of the entrance examinations may vary according to the type of university, tests of study prerequisites may be used or Scio, which organizes national comparative examinations, may be used. Some universities do not take entrance exams at all and accept students according to their high school results. Of course, private universities do not require entrance exams. On the contrary, regarding less interest being shown in technical fields, technically oriented faculties accept the most applicants.[9] Every sixth university student is a foreigner (representing 15.5% of students). A total of 44.8 thousand of them are studying at public and private universities in the Czech Republic in 2020. Ten years ago, only every 12th student at public and private universities was a foreigner. If we focus only on private universities, foreigners represent almost a fifth of all students (19.6%). Foreigners make up 14.5% of public universities.[10] Despite the increase in the percentage of university students, Czechia lags the European Union average, which is

[8] Adriana Ondrušová, Students and Graduates of Universities and Colleges in the Czech Republic, [Studenti a absolventi vysokých a vyšších odborných škol v České republice] Czech statistical Office, 2020, https://www.czso.cz/csu/czso/studenti-a-absolventi-vysokych-a-vyssich-odbornych-skol-v-cr-2018.

[9] Transition of High School Graduates to Tertiary Education – 2017/18, [Přechod absolventů středních škol do terciálního vzdělávání – 2017/18] National institute for education, accessed June 22, 2020. https://www.infoabsolvent.cz/Temata/PublikaceAbsolventi?Stranka=9-0-152.

[10] Adriana Ondrušová, "Students and Graduates of Universities and Colleges in the Czech Republic," Czech statistical Office, 2020, https://www.czso.cz/csu/czso/studenti-a-absolventi-vysokych-a-vyssich-odbornych-skol-v-cr-2018.

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higher by 6.4 percentage points.[11] These facts put pressure on current universities in a competitive environment. Table 1 shows development of the total number of students in the Czech Republic by sex and nationality in selected years.

Table 1

Development of the number of students in the Czech Republic

Year	2001	2005	2010	2015	2016	2017	2018	2019	2020
***Total university students**	203.4	289.5	**396.0**	326.4	311.1	298.7	289.7	288.6	299.4
Female (%)	48.3	52.1	55.9	55.8	56.0	56.1	55.9	55.8	55.5
Foreigners (%)	4.3	7.2	9.5	12.9	14.0	14.6	15.4	16.1	16.7

(*in thousands of persons)

Source: Czech statistical office, https://www.czso.cz/csu/czso/studenti-a-absolventi-vysokych-skol-v-ceske-republice-2020

The only way to strengthen competitiveness is to constantly improve quality and thus support the growth of one's image in the eyes of the public. Dimitrivova G. and Dimitrivova V. came to similar conclusions in 2017.[12] Khairunnisa and Krisnawati show that brand awareness is the most influential factor in strategic competitiveness, however, service quality and factors related to service quality need to be constantly improved.[13] Even though there are several international rankings and the rankings of the Czech media, which, according to various criteria, compare individual universities or colleges, the most important view is still insufficiently processed, namely the view of students.

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[11] Education - Analysis, Comments, [Vzdělávání – Analýzy, komentáře] Czech statistical Office, August 28, 2019, https://www.czso.cz/csu/czso/vzdelavani-analyzy-komentare. statistical Office.

[12] G. Dimitrova and T. Dimitrova, "Competitiveness of the Universities: Measurement Capabilities," *Trakia Journal of Science* 15, no. Suppl.1 (2017): pp. 311-316, https://doi.org/10.15547/tjs.2017.s.01.055.

[13] Khairunnisa Khairunnisa and Nila Krisnawati, "The Emergence of Service Quality and Brand Awareness toward Strategic Competitiveness and Its Impact on Hotel Performance," *Journal of Business on Hospitality and Tourism* 1, no. 1 (2015): p. 16, https://doi.org/10.22334/jbhost.v1i1.22.

II.1. Quality in higher education

Quality assurance in higher education represents a basic priority of this educational sphere. The approaches to quality in education vary from country to country. The education is affected by the political, economy, religion, and cultural factors of every country. Quality of education is totally depending upon the policies of Government. By the authors there financial, religious, and cultural issues are the main causes of different in the education system. Despite significant efforts to converge approaches to quality assurance in higher education in Europe, individual nation states and their policies continue to play a primary role. However, responsibility for the quality of higher education is being increasingly transferred to the individual universities themselves that at the same time does not remove the role of the state as a determining operator, but shifts the emphasis from external evaluation (e.g., accreditation) to institutionalized internal evaluation. It is necessary to focus not only on the area of goals, standards, rules, and criteria, but also on the processes that will enable these goals to be achieved. The quality management system as a part of university management contributes to the creation of a transparent and standardized management system that perceives the requirements of clients of university stakeholders and creates an environment for their fulfillment - ensuring the quality of higher education.[14] At the beginning of the 20th century, the quality of higher education in the United States began to be assessed through rankings but the boom in their use has only occurred in recent years of the 21th century throughout the world. The most well-known of these are Academic Ranking of World Universities (ARWU), Times Higher Education World University Rankings (THE), QS World University Rankings (QS), and Multirank. Rankings are created not only at the global and European level, but also at the level of individual countries, where their creators are media or research institutions. The emergence of rankings is justified by the increasing competition between the world's universities, but it should be noted that the rankings themselves contribute to the intensification of competition.[15] Some articles and publications have been written on the problematic relationship between rankings and quality.

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[14] Milan Hutyra, "The Way from Quality Management System to Excellence at the University Environment," February 15, 2008, https://ep.liu.se/en/conference-article.aspx?series=ecp&issue=26&Article_No=126.

[15] Gero Federkeil, "Rankings and Quality Assurance in Higher Education," *Higher Education in Europe* 33, no. 2-3 (September 1, 2008): pp. 219-231, https://doi.org/10.1080/03797720802254023.

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Ellen Hazelkorn who is one of the most significant experts regarding the quality and rankings of universities and their influence on the development of individual institutions and the entire higher education system, recommends universities to have a realistic strategy and use rankings only as part of an overall system of evaluation or benchmarking as well as providing quality public information about their results.[16] According to Kurbatov rankings are becoming a kind of condensed guideline for university managers on how to reform the university in connection with the creation of a world university within the main trends of academic development of our time.[17] Quality assurance of universities and objective quality assessment is a real and open question today. According to Štefánková and Moravčík this issue is in the center of attention of to all developed and developing countries, which combine their planned economic and educational future with a modern, efficient system of higher education. Today's world is dominated by a generally accepted and recognized system of evaluation and assessment of the Anglo-Saxon environment, which is largely determined by scientific indicators.[18] Researchers from all over the world are interested in the quality of higher education. According to Chui and Ahmad, in search of academic excellence, the Malaysian government is very concerned about the quality of universities. Their study evaluates the quality of services of a Malaysian private university to identify significant variables in education services.[19] In turn, it draws attention to the problems of Indian universities that do not have a chance of reaching the global rankings due to lack of tradition, small size, and insufficient funding.[20] Karadağ and Yücel examined the satisfaction of 10,894 students at 174 Turkish universities to increase the

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[16] Ellen Hazelkorn, "The Dubious Practice of University Rankings," Elephant in the Lab (Elephant in the Lab, April 23, 2019), https://elephantinthelab.org/the-accuracy-of-university-rankings-in-a-international-perspective/.

[17] Sergiy Kurbatov, "University Rankings and the Problem of Competitiveness of National Universities of Post-Soviet Countries in Global Educational Space: the Case of Ukraine," *Evaluation in Higher Education* 6, no. 2 (December 1, 2012): p. 59-75, https://doi.org/ 10.6197/EHE.2012.0602.04.

[18] Jana Štefánková and Oliver Moravčík, "An Approach to the Quality Assessment of Higher Education Institutions via Knowledge Management Principles," DSpace Home page (Academic Publishing International (API), January 1, 2012), https://publikace.k.utb.cz/handle/10563/1003104.

[19] Teo Boon Chui et al., "Evaluation of Service Quality of Private Higher Education Using Service Improvement Matrix," *Procedia-Social and Behavioral Sciences* 224 (June 15, 2016): pp. 132-140, https://doi.org/10.1016/j.sbspro.2016.05.417.

[20] Pankaj Jalote, "India's Quest for World-Ranked Universities," *Current Science* 16, no. 9 (May 2019): pp. 1479-1482, https://doi.org/10.18520/cs/v116/i9/1479-1482.

competitiveness of universities. According to their finding, providing support to students and responding to their needs is more important when choosing a university than the number of scientific publications.[21]

II.2. Increasing competitiveness (international comparison of universities)

Over the last decade the ranking of universities has become an extremely popular and "fashionable" topic for general discussions as well as for academic research. As Hazelkorn stated in her book: "There is a growing obsession with university rankings around the world".[22] Mossa also talks about the problematic criteria of global rankings, as he does not deal much with teaching and the quality of such, which should be given the same importance as research.[23]A similar view is shared by Shin, who also criticizes the idea of evaluation and the existing methodology for assessing the quality of university performance.[24] Other authors state that since the creation of global rankings, it has been impossible for universities to ignore various national and international comparisons. Involvement in rankings is changing and, in some respects, improves the performance of universities.[25,26] Similarly, Avralev and Efimova note that global rankings are employed to reconstruct higher education and contribute to an increase in the competitiveness of Russian universities on the world stage.[27] One of the many uses of the

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[21] Engin Karadağ and Cemil Yücel, "(PDF) Türkiye Üniversite Memnuniyet Araştırması [Tüma-2016]," accessed October 6, 2021, https://www.researchgate.net/publication/305207486_Turkiye_Universite_Memnuniyet_Arastirmasi_TUMA-2016.

[22] Ellen Hazelkorn, *Rankings, and the Reshaping of Higher Education: The Battle for World-Class Excellence* (Basingstoke: Palgrave Macmillan, 2015).

[23] Raazia Moosa, "World University Rankings: Reflections on Teaching and Learning as the Cinderella Function in the South African Higher Education System," *African Journal of Business Ethics* 12, no. 1 (June 26, 2018): pp. 38-59, https://doi.org/10.15249/12-1-165.

[24] Jung Cheol Shin, Robert Kevin Toutkoushian, and Ulrich Teichler, University Rankings: Theoretical Basis, Methodology, and Impacts on Global Higher Education (Dordrecht: Springer, 2013).

[25] Evija Rusite and Biruta Sloka, "Importance of Collaboration with Employers towards the Rankings of Higher Education Institutions," *20th International Scientific Conference "Economic Science for Rural Development 2019". New Dimensions in the Development of Society. Home Economics. Finance and Taxes. Bioeconomy.*, May 8, 2019, https://doi.org/10.22616/esrd.2019.113.

[26] Jalote, Pankaj. "India's quest for world-ranked universities." *Current Science* 116.9 (2019): 1479. https://doi.org/10.6017/ihe.2019.99.11659.

[27] Nikita Avralev and Irina Efimova, "University Rankings as a Tool for Assessing the Quality of Education in the Context of Globalization," *Asian Social Science* 11, no. 10 (2015): p. 292, https://doi.org/10.5539/ass.v11n10p292.

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ranking system can be seen in providing information helpful for making university selection decisions.[28,29]

The high ranking has a strong impact on students when making decisions about choosing the appropriate university.[30] Dearden created a theoretical model characterizing the relationship between the university and potential students, who can use the ranking to decide which university they wish to attend. In addition, they asked students which rankings would better suit their preferences.[31]

Several studies aim to examine the world's leading university rankings and to identify similarities and differences in their evaluation criteria, key indicators, modelling options and their effects on rankings. A comparison of the rankings of universities according to the world's leading ranking systems shows that in some cases the university may be at the top level and in others it may not be ranked at all. This is because some ranking systems use hard data and some soft data. Another important problem in terms of the diversity of indicators is that the two most important functions of a university, research, and teaching, are measured together in quality assessment. Research data shared by universities has also been shown to raise concerns about credibility and authenticity. It is also clear that subjective evaluation tools can lead to erroneous results.[32,33] In their paper, Luca and Smith point out that most universities that publish evaluation rankings conceal some details. Although the reports are of high quality and fully verifiable, companies can choose how to present the result.[34]

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[28] Ronald G. Ehrenberg, "Reaching for the Brass Ring: The US News & World Report Rankings and Competition," *The Review of Higher Education* 26, no. 2 (2003): pp. 145-162, https://doi.org/10.1353/rhe.2002.0032.

[29] Simon Marginson, "Global University Rankings: Implications in General and for Australia," *Journal of Higher Education Policy and Management* 29, no. 2 (April 8, 2008): p. 131-142, https://doi.org/10.1080/13600800701351660.

[30] Nicholas A. Bowman and Michael N. Bastedo, "Getting on the Front Page: Organizational Reputation, Status Signals, and the Impact of U.S. News and World Report on Student Decisions," *Research in Higher Education* 50 (February 24, 2009): pp. 415-436, https://doi.org/10.1007/s11162-009-9129-8.

[31] James A. Dearden, Rajdeep Grewal, and Garry L. Lilien, "Strategic Manipulation of University Rankings, the Prestige Effect, and Student University Choice," *Journal of Marketing Research* 56, no. 4 (May 30, 2019): pp. 691-707, https://doi.org/10.1177/0022243719831258.

[32] Gokcen Arkali Olcay and Melih Bulu, "Is Measuring the Knowledge Creation of Universities Possible? A Review of University Rankings," *Technological Forecasting and Social Change* 123 (October 2017): pp. 153-160, https://doi.org/10.1016/j.techfore.2016.03.029.

[33] Osama H. Sayed, "Critical Treatise on University Ranking Systems," *Open Journal of Social Sciences* 07, no. 12 (2019): pp. 39-51, https://doi.org/10.4236/jss.2019.712004.

[34] Michael Luca and Jonathan Smith, "Strategic Disclosure: The Case of Business School Rankings," *Journal of Economic Behavior & Organization* 112 (2015): pp. 17-25, https://doi.org/10.1016/j.jebo.2014.12.023.

Therefore, many authors claim that global rankings are wrong, which is why some universities ignore them and propose their own metrics.[35,36,37,38] However, as Readings said, evaluation should be seen as a certain innovative technology that is forcing dramatic changes in higher education in the context of globalization and increasing the level of competitiveness.[39]

II.3. Surveys on important factors of higher education institution quality

Research to date has shown that most colleges and universities worldwide use teacher assessment as the primary method of teacher and teaching evaluation, and that this evaluation is a permanent part of educational quality measurement programs.[40,41] Marsh and Roch contradict the opinion when discovering the views and opinions of students can be very beneficial for the quality of teaching.[42] Other authors deal with the identification of factors influencing the choice of a university and therefore affecting its image and the perception of its quality. For example, Connie et al. in a sample of 90 respondents looked at relevant factors that could influence universities students in choosing a university and provide a higher education institution with a clear picture of the area it should focus on in its strategy. Their results

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[35] Farzana Anowar et al., "A Critical Review on World University Ranking in Terms of Top Four Ranking Systems," *Lecture Notes in Electrical Engineering*, August 2014, pp. 559-566, https://doi.org/10.1007/978-3-319-06764-3_72.

[36] Soh Kaycheng, "What the Overall Doesn't Tell about World University Rankings: Examples from ARWU, QSWUR, and THEWUR in 2013," *Journal of Higher Education Policy and Management* 37, no. 3 (May 5, 2015): pp. 295-307, https://doi.org/10.1080/1360080X.2015.1035523.

[37] Dyah Kusumastuti and Nirwan Idrus, "Nurturing Quality of Higher Education through National Ranking: A Potential Empowerment Model for Developing Countries," *Quality in Higher Education* 23, no. 3 (2017): pp. 230-248, https://doi.org/10.1080/13538322.2017.1407400.

[38] Brendan O'Malley, "'Global University Rankings Data Are Flawed' – HEPI," University World News, December 15, 2016, https://www.universityworldnews.com/post.php?story=20161215001420225.

[39] Bill Readings, *The University in Ruins* (Cambridge, Mass: Harvard University Press, 1999).

[40] Yining Chen and Leon B. Hoshower, "Student Evaluation of Teaching Effectiveness: An Assessment of Student Perception and Motivation," *Assessment & Evaluation in Higher Education* 28, no. 1 (2003): pp. 71-78, https://doi.org/10.1080/02602930301683.

[41] John T.E. Richardson, "Instruments for Obtaining Student Feedback: A Review of the Literature," *Assessment & Evaluation in Higher Education* 30, no. 4 (September 14, 2010): pp. 387-415, https://doi.org/10.1080/02602930500099193.

[42] Herbert W. Marsh and Lawrence A. Roche, "Effects of Grading Leniency and Low Workload on Students' Evaluations of Teaching: Popular Myth, Bias, Validity, or Innocent Bystanders?" *Journal of Educational Psychology* 92, no. 1 (2020): pp. 202-228, https://doi.org/10.1037/0022-0663.92.1.202.

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suggest that there is a positive relationship between a group of factors such as the program, the reputation of the university, job opportunities, tuition fees, safety, school equipment and the possibility of having fun, with the choice of university.[43] Sabando, et al. consider the factors with the greatest influence on the image of the university. The survey involving a total of 1,760 respondents selected from five stakeholder samples (society, future students, current students, graduates and companies), found that although some differences between stakeholders were observed, an affective image, perceptions of teaching resources and perceptions of graduate training significantly influence the formation of the overall image of the university from the point of view of society and that the structure of the image identified from this point of view is shared by companies.[44] The quality of higher education does not merely focus on teaching and learning processes and on the relationship between students and teachers but must also be ensured through services provided by university libraries, cafeterias, university refectories, social services, and central administrative services.[45] Similarly, the quality of services is a critical element of the perception of clients, including students.[46] In recent years, most universities in developed countries consider continuing to support the care of students with special educational needs as one of their priorities and seek to equalize study opportunities for applicants and students with various types of disabilities or disadvantages.

The dimensions of service quality were determined through pioneering research by Zeithaml and Binter, who created a conceptual framework explaining service quality in relation to five dimensions. These five dimensions are reliability, certainty, sensitivity, empathy, and tangibility.[47]

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[43] Connie Gan et al., "Exploring Key Factors Influencing University Choice: An Empirical Study on Malaysia Students," 1st International Digital Conference on Modern Business and Social Science, December 13, 2018, https://doi.org/10.13140/RG.2.2.16662.80962.

[44] Amaia Lafuente Ruiz de Sabando, Javier Forcada, and Pilar Zorrilla, "The University Image: A Model of Overall Image and Stakeholder Perspectives," *Management Letters Cuadernos De Gestión* 19, no. 1 (2019): pp. 63-86, https://doi.org/10.5295/cdg.160720al.

[45] Sandra Maria Correia Loureiro and Francisco Javier Miranda Gonzalez, "DUAQUAL: The Quality Perceived by Teachers and Students in University Management.," *Cuadernos De Gestión* 12, no. 1 (2012): pp. 107-122, https://doi.org/10.5295/cdg.100251sc.

[46] Janardhana Gundla Palli and Rajasekhar Mamilla, "Students' Opinions of Service Quality in the Field of Higher Education," *Creative Education* 3, no. 4 (August 10, 2012): pp. 430-438, https://doi.org/10.4236/ce.2012.34067.

[47] Valarie A. Zeithaml, Mary Jo Bitner, and Dwayne D. Gremler, "Services Marketing: Integrating Customer Focus Across the Firm - 7th Ed.," Thư viện số Văn Lang: Trang chủ (McGraw-Hill Education, January 1, 1970), http://thuvienso.vanlanguni.edu.vn/handle/Vanlang_TV/19151.

II.4. Czech universities in international rankings

Czech universities belong among the 1000 best universities in the world. According to the currently published QS World University Rankings 2021, the best position, as in previous years, was secured by Charles University, which finished in 260th place. In addition, for example, the Institute of Chemical Technology, the Czech Technical University, Masaryk University, Palacky University in Olomouc, and Mendel University in Brno are placed in the rankings. Mendel University was ranked in 701-750th place, like Brno University of Technology. Among agricultural Czech universities, MENDELU is rated the best.[48] "The evaluation in each set of rankings offers us an important comparison with other universities and increases the prestige of MENDELU in an international context. That is also the reason why we took part in this evaluation," said Nerudova, the Rector of Mendel University in Brno. She states that similar rankings give the university a feedback to find weaknesses, and what should be improved in the coming years.[49] This ranking evaluates 6 areas, with a total of 50% of evaluations being its reputation among academics and graduate employers, 20% the number of citations in the Scopus database, 20% the share of foreign academics and 5% the share of foreign students. The Academic Assessment of World Universities (ARWU) has been published since 2009 in the Czech Republic, with only Charles University appearing in it. Another of the three respected university rankings is The Times Higher Education World University Rankings 2020 (THE). Four Czech universities have maintained their places in the new THE rankings for 2020. The best of them - Charles University is in 401st -500th position, followed by Masaryk University and Palacky University (601st - 800th place) while CTU together with the University of South Bohemia, which has appeared in the rankings for the first time this year, came in at 801st -1000th position. Mendel University and the University of Hradec Kralove, which are ranked in 1000+ position, have also recently been added to the rankings (THE university ranking, 2020).[50] U-Multirank, which is formed by an independent consortium, can also be included in the traditional international ranking systems. Its aim is to provide a comparison of higher education institutions based on many individually

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[48] "QS World University Ranking 2021," Top Universities, accessed June 30, 2020, https://www.topuniversities.com/universities/country/czech-republic.

[49] Mendelu among the Best Schools in the World, [Mendelu mezi nejlepšími školami světa] Mendel University in Brno, accessed June 23, 2020. http://mendelu.cz/32873n-mendelu-mezi-nejlepsimi-skolami-sveta.

[50] "World University Rankings," *Times Higher Education (THE)* online, February 11, 2020, https://www.timeshighereducation.com/world-university-rankings/2020/world-ranking#!/page/0/length/25/sort_by/rank/sort_order/asc/cols/stats.

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selected parameters. In addition to the five basic categories (teaching, research, knowledge transfer, internationalization, and regional involvement) and their 36 subcategories, in which individual institutions obtain marks from A - E, it is possible to classify according to countries, disciplines and general characteristics, such as the size or age of the institution. This year's seventh edition includes 1,759 universities from 92 countries, including 15 Czech universities. The Czech institutions with the highest number of positions in the upper group (mark A) in U-Multirank 2020 include the University of Chemistry and Technology (Prague, mark 11 A), Tomas Bata University in Zlín (8), Mendel University in Brno (7) and the Institute of Technology and Business in České Budějovice (6).[51]

III. Research objective, methodology, and data

The aim of the work is to verify what factors are important regarding students' satisfaction and could be key to supporting the competitiveness of Czech universities and colleges. To assess satisfaction, a questionnaire survey was conducted in 2019, in which students were asked to identify three strengths and three weaknesses of the faculty. Due to the fact that students mentioned only 3 strengths and 3 weaknesses of the faculty, alternatively their gender and age, it is not necessary to insert a questionnaire in the appendix. The questionnaire did not contain any other questions. Therefore, there was no need to create a pilot study. All bachelor's students from both universities were made aware of the possibility participating in the survey on Facebook pages by researchers. Participation was voluntary. Students were also informed that they could terminate their participation in the research at any time and that the information they provided would not be used against them. The survey was carried out within the Faculty of Business and Economics of Mendel University in Brno (FBE MENDELU) and a selected private university in Brno. A total of 340 bachelor's students, aged 21-23, participated in the research at FBE MENDELU. Of these, 122 were men (35.9%) and 218 women (64.1%). No foreign students participated in the research. We accepted a margin error of 5 %, with the confidence level 95 % and with the response distribution 50 %. In 2019, 1,852 students studied at PEF MENDELU. Then the recommended sample size is 319. 340 respondents are therefore a sufficient number. A total of 255 bachelor's students, aged 21-23, were involved in the selected private school survey. Of

[51] "Multirank: Universities Compared. Your Way.," U, accessed October 23, 2020, https://www.umultirank.org/compare?trackType=compare&sightMode=undefined&section=compareSubject&mode=likewithlike&instutionalField=true&pref-4=3&country=42&count&name=null.

these 124 were men (48.6 %) and 131 women (51.4 %). No foreign students participated in the research. We also accepted a margin error of 5%, with the confidence level 95 % and with the response distribution 50 %. In 2019, 721 students studied at selected private school. Then the recommended sample size is 251. 255 respondents are therefore also a sufficient number. The students from both universities had the opportunity to put their answers in the prepared boxes. Simple questionnaires were placed next to the answer box. No answer could be attributed to a specific person. Students provided their opinions voluntarily. They had the opportunity to state gender and age on the questionnaire. (However, this information did not need to be provided). The subject of our research was not the collection of personal data, and the output of the research project was not the details of the individual. Students were informed that their answers are anonymous and will only be used for a scientific article. Because each of the universities has several thousand students, it was not possible to determine the specific affiliation of those who participated in the survey. The researchers considered the content of the questions to be so general that there was no risk of harm to the participants in answering them. Due to the fact that the questions did not contain absolutely any personal data of students, according to the GDPR, consent to their processing was not required.

Relative frequencies are used in data processing. Based on this characteristic, statistical hypotheses were tested. In addition to the basic classification according to one feature, a combination classification was also processed, and the independence was tested for different combinations of questions. The independence in the table was tested with the test. The test criterion is:

$$\chi^2 = \sum_{j=1}^{s} \sum_{i=1}^{r} \frac{\left(n_{ij} - n'_{ij}\right)^2}{n'_{ij}} \tag{1}$$

with degrees of freedom. If the calculated criterion is greater than the critical quantile, we reject the hypothesis of independence between the characters and therefore the existence of a relationship can be assumed. In addition to the test the article also uses single-sample and multi-sample testing of relative frequency. Test criterion

$$U = \frac{p - c}{\sqrt{\frac{c(1-c)}{n}}} \text{ and } U = \frac{p_1 - p_2}{\sqrt{\frac{\left(n_1 \cdot p_1 + n_2 \cdot p_2\right) \cdot \left(n - n_1 \cdot p_1 - n_2 \cdot p_2\right)}{n \cdot n_1 \cdot n_2}}} \tag{2}$$

in both cases it has an approximately normalized standard distribution. In the case of a one-sample test, we test the null hypothesis of concordance of relative frequency with some assumption, in the case of two-sample testing,

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we test the hypothesis of concordance of relative frequencies.[52] Gretl and Statistica software was used for primary data processing.

As part of the specification of the research, the authors defined 4 hypotheses:

$\mathbf{H_A}$: More than 50% of students identify quality teachers as a strength.

$\mathbf{H_B}$: The number of students who emphasize the interest of lectures and teaching methods is higher in private schools than in public schools.

$\mathbf{H_C}$: There is a statistically significant difference in the identified strengths of the school from a gender perspective (male, female).

$\mathbf{H_D}$: There is a statistically significant difference between the identified strengths of public and private university students.

IV. Results and discussion

IV.1. Selected elements of internal quality assessment at Mendel University in Brno

The implementation of the quality management system has been under way at Mendel University in Brno (MENDELU) since 2016. Its mission is to create conditions for fulfilling quality goals and ensure continuous improvement in all areas of the university's activities based on defined quality requirements. An annual internal quality assessment started at MENDELU in 2017. Since 2018, some elements of feedback have been newly added to the quality management system. These focus on four target groups, namely employees, students, graduates, and employers of graduates. Students and employees have the opportunity to evaluate satisfaction with the services of the faculty and rector's and university-wide workplaces in the form of anonymous questionnaires, as well as to express their expectations, comments, and experiences, thanks to which it is possible to identify suggestions for improvement and possible corrective measures. Regularly implemented feedbacks include anonymous evaluation of the level of teaching individual subjects from the students' point of view, as well as feedback from graduates through a questionnaire survey.[53] In 2019, in response to a question about memories of studying, positive memories emerged most often, such as establishing new friendships and fair and

[52] Richard Hindls et al., *Statistics for economists,* [Statistika pro ekonomy] (Průhonice, Czech Republic: Professional publishing, 2007).

[53] Quality and risk department, "Mendel University in Brno," Home page - Quality and Risk Department, accessed June 23, 2020, https://kvalita.mendelu.cz/.

accommodating teachers. Graduates also appreciated the prestige of the faculty, which has high demands, but also provides a very high level of education. Thus, the high demands were not perceived negatively by the respondents. Among the negative memories, the most common were stress and lack of practical training, hard work, little free time, and the pointlessness of some subjects.

IV.2. Results of the questionnaire survey at FBE MENDELU

Of the total number (1,020) of identified strengths, 57.7% of students mentioned quality teachers as a strength, 32.4% faculty image, 31.8% modern environment, 20.9% campus facilities, 17.7% Erasmus travel opportunities, 17.1% faculty location, 15.0% lectures by practitioners, 14.1% the university's tradition, 12.4% high employment of graduates and over 10% of students also mentioned as a strength the opportunity to study attractive fields (11.8%). When testing the concurrence of the relative frequency between male and female students, there was no statistically significant difference for any factor. Thus, it can be said that the individual factors are at approximately the same percentage level for both male and female students from the point of view of the opinion that this is a strong point. The 10 most frequently mentioned strengths by gender are documented in Figure 1.

Regarding the identified weaknesses, out of the total number (1,020), the difficulty of study was most often mentioned 42.4%, the weaker image of the university with the public 31.5%, not enough practical training 23.2%, poor quality food in the canteen 15.3%, location 13.8%, small capacity of classrooms and study rooms 13.5%, chaotic university information system (UIS) and problems with technology 13.5% and up to 10 % of students still stated low scholarships (11.5%). When testing the concurrence of the relative frequency between male and female students, there was no statistically significant difference for any factor. Thus, it can be said that the individual factors are at approximately the same percentage level for male and female students from the point of view of the opinion that this is a weakness. The 10 most frequently mentioned weaknesses by gender are documented in Figure 2.

If we consider as the most important strengths and weaknesses of the faculty the one mentioned by the students first, then the 3 most important strengths are quality teachers (22.9% students, 23.0% male and 19.8% female), modern environment (11.8% students, 6.6% male and 14.7% female) and the image of the faculty (9. 4% of students, 12.3% male and 7.8% female). The 3 most important weaknesses are not enough practical training (15.6% of students, 10.7% male and 18.4% female), difficulty of

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study (15.0% of students, 18.9% male and 12.8% female) and chaotic UIS (10.6% of students, 13.1% male and 9.2 % female). No other combination of strengths and weaknesses had a frequency above 10 students. Research shows that students' views on the most important strengths and weaknesses differ significantly. If we consider the common strengths and weaknesses regardless of the order, then 87 students had in their questionnaire a combination of quality teachers as a strength and difficulty of study as a

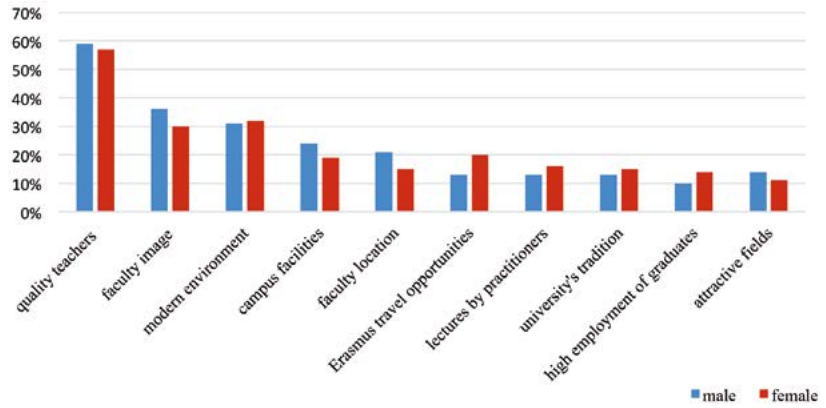

Figure 1

10 strengths by genders at FBE MENDELU

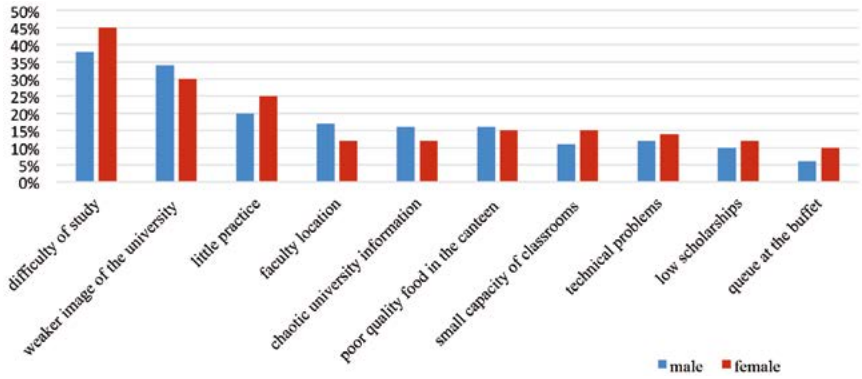

Figure 2

10 weaknesses by genders at FBE MENDELU

weakness. The second highest number was for a combination of quality teachers and a weaker image perceived by the public (59) and the third for quality teachers and not enough practical training (52 students). For 62 female students, it was a combination of quality teachers and the difficulty of studying, for 39 a combination of quality teachers and not enough practical training and for 34 quality teachers and too many students. For male students, the most common combination (25 male students) was quality teachers and difficulty of study, quality teachers and a weaker image perceived by the public (20 male students) and then a good image and difficulty of study and at the same time quality teachers and not enough practical training (18 male students).

IV.3. Results of a questionnaire survey for a private university

Students identified a total of 765 strengths. Almost half of the respondents stated that the school's strengths are quality pedagogical staff (47.8%). Among other significant strengths, students mentioned interesting lectures and teaching methods 40.8%, study materials for subjects 29.41%, offers of interesting subjects 25.10%, pleasant atmosphere 18.0%, attractive fields 14.9%, location 14.9%, possibility of consultations 11.8%, study department - willingness to help students 11.4%, a well-established schedule 11.0%, and an individual approach to students 10.2%. When testing the concurrence of the relative frequency between male and female students, a statistically

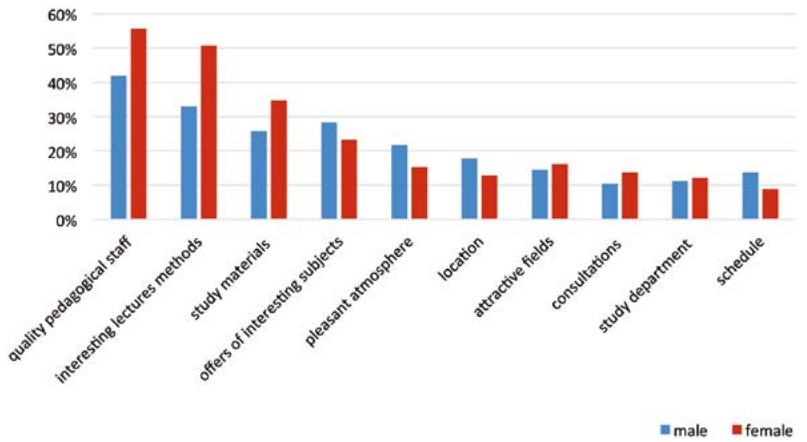

Figure 3

10 strengths by genders at selected private school

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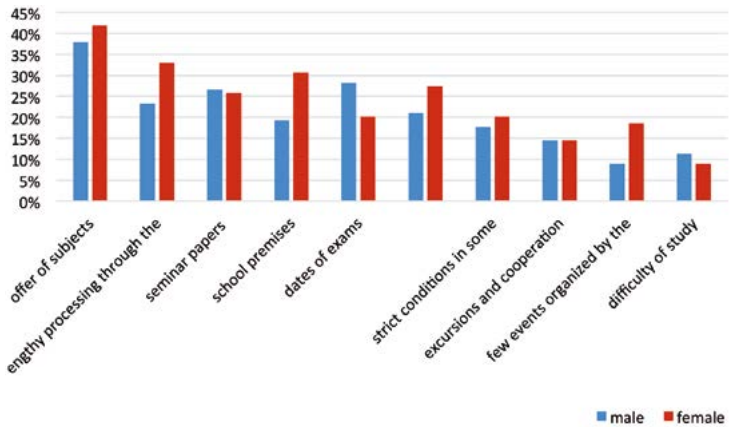

Figure 4
10 weaknesses by genders at selected private school

significant difference was found only in the interesting lecture and teaching method and quality teachers. For the test with the hypothesis that a higher percentage of female than male students consider it a strength, the p-value was 0.007. On the other hand, a larger percentage of male students see quality teachers as a strength (statistically significant difference, p-value 0.005). It can be stated that other factors are at approximately the same percentage level for male and female students from the point of view of the fact that it is a strength. The 10 most frequently mentioned strengths by gender are documented in Figure 3.

Among the weaknesses, students most often identified the offer of subjects (38.8%), lengthy processing through the study department 27.5%, a large number of seminar papers 25.5%, insufficient capacity of school premises 24.3%, problems with technology and wifi in classrooms 23.5%, unsatisfactory form and dates of exams 23.5%, strict conditions in some subjects 18.4%, narrow offer of excursions and cooperation 14.1%, few events organized by the school 13.3%. The 10 most frequently mentioned weaknesses by gender are documented in Figure 4.

In their questionnaire, 52 students had a combination of quality teachers as a strength and the range of subjects as a weakness. The second highest number was in the combination of interesting lectures and a weaker offer of subjects (26) and the third in the case of quality teachers and lengthy processing through the study department (22 students). For female students, the following combinations of strengths and weaknesses are most common:

quality teachers + offer of courses (23), interesting lectures + offer of courses (20), quality teachers + lengthy processing through the study department (13), interesting lectures + lengthy processing through the study department (13). In male students, the following combinations of strengths and weaknesses are most common: quality teachers + offer of subjects (29), interesting lectures + many seminar papers (10), no other combination showed a frequency greater than 10 among male students.

IV.4. Evaluation of hypotheses

H_A: The relative frequency test was used to test H_A (see Table 2). For the purposes of evaluating this research question, the answers of the respondents were divided into two groups according to their affiliation to the selected school (FBE MENDELU, private university). It was also tested at each of the schools as to how this issue was evaluated by female and male respondents.

As documented in Table 2, we then rejected the null hypothesis for students from FBE MENDELU (this also applies to individual genders). Based on the test, it can be said that more than 50% of FBE MENDELU students identified quality teachers as a strength. For students from the private university, the null hypothesis was not rejected, and therefore, based on testing, it was not proven that a quality teacher is identified as a strength by more than 50% of students.

Table 2

Relative frequency test results

Group of students	Test criterion	p-value
FBE MENDELU students	2.821	0.002
Female	2.032	0.021
Male	1.992	0.023
Private university students	-0.814	0.208
Female	-2.359	0.009
Male	1.257	0.104

H_0: $\pi \leq 0{,}5$; Level of significance $\alpha = 0.05$; H_1: $\pi > 0{,}5$.

H_B: The number of students who emphasize the interest of lectures and teaching methods is higher in private schools than in public schools.

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$$U = \frac{0{,}29 - 0{,}07}{\sqrt{\frac{(104+24)\cdot(595-104-24)}{595\cdot 255\cdot 340}}} = 6{,}463$$

Frequency concordance testing was used to test this research question, where U = 6.46. Based on the test results, we can state that the proportion of private school students who see a strong point in interesting lectures and teaching methods is higher than that of Mendel university students.

H_C: A contingency table test was used for testing. The assumption of the values of theoretical frequencies was fulfilled and we obtained a p-value of 0.001 using the goodness-of-fit test. We can therefore state that the strengths identified by male and female students are statistically significant. If we look at the differences in percentages, the biggest difference is in the strengths of quality teachers (mentioned by more male students) and involvement in the Erasmus program (mentioned by more female students).

H_D: A contingency table test was used to verify this research question. Thanks to the goodness-of-fit test, it was proved that the strengths of students at the private school and FBE MENDELU differ significantly. A more detailed analysis of the data shows that students at the private university more often have interesting lectures and subjects, enough study materials, a pleasant atmosphere, and enough exam dates (all these indicators can be summarized in the field of **student care**). This type of strength was not identified with FBE MENDELU students. On the contrary, FBE MENDELU students present within the strengths of FBE MENDELU image, international cooperation, attractive fields, modern technologies, a pleasant atmosphere, and campus facilities. We could summarize these indicators in **amenities and connections with the environment.** Figure 5 documents the most frequently mentioned strengths of both types of universities.

FBE MENDELU	Private university
Quality pedagogical staff (196)	Quality pedagogical staff (121)
Image of faculty (110)	Interesting lectures and teaching (104)
Modern environment (108)	Study materials for subjects (75)
Campus facilities (71)	Offer of interesting subjects (64)
Erasmus travel opportunities (60)	Pleasant atmosphere (46)
Faculty location (58)	Attractive fields (38)
University's tradition (48)	University location (38)

Figure 5

Strengths by type of university

The obtained results can be compared with the survey, which was carried out in 2016. This survey was part of the pan-European survey EUROSTUDENT VI and in the Czech Republic 22,207 students participated with 16,653 completed questionnaires. Students in private schools are more satisfied than those in public schools with the quality of teaching (79.2% and 73.8%) and the approach of teachers (85.9% and 71.5%).[54]According to the results of a questionnaire survey conducted at a selected university, respondents focus on evaluating strengths primarily on student care (quality of teachers, interesting lectures, offer of interesting subjects (see Fig.1). In public universities the strengths of the modern environment and background were identified, as well as in the study of the pan-European EUROSTUDENT survey.

According to that, students were satisfied with the equipment of the school (77.8% in public universities and 69.3% in private ones) and with a wide range of subjects (52% in public universities and 48% in private ones).[55] Graduate surveys represent an important part of the range of information used to assess the quality of higher education. A quarter of the graduates stated that 80% of them met with very high-quality teachers. A total of 37 universities - 23 public and 14 private - took part in the survey, and the total set consisted of 21,166 completed questionnaires. The target group was university graduates from 2013–2017 (1 to 5 years after obtaining a diploma).[56] The results of the questionnaire survey conducted by the authors also coincide in their conclusions with this survey, where students of the private and public university evaluate quality teaching staff as a strength (FBE MENDELU 57.6%, private university 50.4%).

V. Implications and conclusion

The aim of the paper was to verify what factors are important regarding students' satisfaction and could be key for supporting the competitiveness of

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[54] Jakub Fišer et al., Basic Results of a Survey of Attitudes and Living Conditions of University Students in the Czech Republic. [Základní výsledky šetření postojů a životních podmínek studentů vysokých škol v České republice] (Ministry of Education, Youth and Sports (MEYS), 2016), https://www.msmt.cz/uploads/odbor_30/TF/Analyticke_materialy/Eurostudent/E_VI_zaverecna_zprava.pdf.

[55] Jakub Fišer et al., Basic Results of a Survey of Attitudes and Living Conditions of University Students in the Czech Republic, [Základní výsledky šetření postojů a životních podmínek studentů vysokých škol v České republice] (Ministry of Education, Youth and Sports (MEYS), 2016), https://www.msmt.cz/uploads/odbor_30/TF/Analyticke_materialy/Eurostudent/E_VI_zaverecna_zprava.pdf.

[56] Martin Zelenka et al., Summary Report of the Graduate, of the Survey 2018 [Souhrnná zpráva o šetření absolvent 2018] (Center for Educational Policy, Faculty of Education, Charles University and Center for Higher Education Studies, v.v.i., 2019), https://www.msmt.cz/file/51597_1_1/.

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Czech universities and colleges. Within the implemented questionnaire survey among students of FBE MENDELU and the private university, it was ascertained that each of the groups of students emphasized other factors in the evaluation of strengths. Among the strengths of private university students there are factors from the field of student care: interesting lectures and subjects, plenty of study materials, a pleasant atmosphere, and enough exam dates. On the other hand, FBE MENDELU'S strengths are mainly factors in school facilities and connections with the environment, such as the image of the faculty, international cooperation, attractive fields, modern technologies, a pleasant atmosphere, and campus facilities. At both universities, students were positively evaluated by teachers. They have also shown their qualities with a smooth transition to online teaching. They would certainly appreciate it if their efforts were rewarded, for example, by the Dean's award. At present, they are rewarded for scientific research rather than teaching.

In the area of weaknesses, and thus having further room for improvement and increasing competitiveness, according to the results of a questionnaire survey at FBE MENDELU, the most common weaknesses were identified as study difficulty (42.4%), the weaker image of the university (as it used to be referred to in the past by the public as "Manure College") (31.5%) and lack of practical training (23.2%). Regarding the weakness of the "difficulty of studying" at FBE MENDELU, in the opinion of the authors, this factor is influenced by the level of previous education of students (grammar school students complain about economics and students of economics-oriented schools about mathematics) and the fact that more and more of them have specific educational needs. Given that the interviewing took place with second and third grade students, the probability that these students will not complete their bachelor's studies is no longer very high. Even though the "weaker image of the university with the public" appeared as a weak point, the students, on the contrary, considered the image of the faculty as a strength. The most significant factor, which FBE MENDELU should improve, is combining teaching with practical training. Although the faculty uses expert practitioners in lectures and students have a mandatory internship in bachelor's and master's studies, this factor is still perceived as a weakness. In the case of the private university, the weak points are perceived mainly as the lengthy processing through the study department (27.5%), the large number of seminar papers (25.5%), and the insufficient capacity of the school premises (24.3%). The seminar work provides students with an opportunity to solve practical tasks and questions that suitably complement the theoretical knowledge. Nowadays, online

classes are also an opportunity to better verify students' knowledge. Deepening the identified strengths and the simultaneous elimination of weaknesses should enable both universities to increase their competitiveness. Student satisfaction is then reflected in positive references that improve school evaluation in national comparisons, and the authors believe that in the future, student evaluation will be reflected in international university evaluations too.

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University in an oil-dependent state economy: The future of Khuzestan higher education

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Morteza Afghah, and Yaghoob Andayesh*

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Abstract:

Purpose of the study: The understanding of the complex world and the ability to imagine the futures is the basis for planning and decision-making. Therefore, in this research, the possible future of university in an Iranian oil-dependent economy is studied, and, the best direction for higher education in Khuzestan province is explored.

Methodology: A formative scenario writing research method is used in the current study. The participants were recruited from among Iranian higher education experts purposefully; a series of in-depth interviews including personal and focus group interviews have also been conducted to reach saturation.

Main findings: The results of the present research showed that two main factors affect Khuzestan higher education: dependency on the state economy and increasingly growing social expectation from the university. Khuzestan universities have better select one of these orientations: Conservative University, Enabler University, Adaptive University, and Developmental University. According to the findings of the study, developmental orientation is the preferred scenario for Khuzestan higher education.

Applications of this study: It is argued that the developmental university is the preferred scenario for the future of higher education in Khuzestan Province and a proposal suggests its actualization.

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Novelty/originality of this study: The applied scenario-based innovative research attempts to reveal the socio-economic role of universities in societies having State-Economy such as Iran, shows all the possible main paths, and finally determines the preferred path for a specific period of time. The current probe can be directly used to lead higher education policymakers of the province and be indirectly employed to help individuals adopt general orientations in higher education, as well as students and researchers who are interested in higher education studies, especially in the field of Higher Education (HE) public policymaking. Finally identified and explained the developmental university that is compatible with Khuzestan higher education situations is another novelty of this research.

Keywords: Higher education; developmental university; entrepreneurship; value creation; state-economy; Khuzestan province.

I. Introduction

In all nations, higher education deals with a myriad of controversial issues. The students' employability,[1] knowledge-based economy and society-engaged university,[2] job abilities and needs in the fourth generation of the industry,[3] reducing the number of public funding colleges and universities and, change in social priorities,[4] are only examples of important issues in the current rapidly changing world. On top of that, the universities in developing countries face additional responsibilities, e.g., they have to link national and local communities to a global community and economy.[5] For living in this challenging world, modern universities should acknowledge their status and, develop a creative orientation or road map, accordingly.

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[1] Hamid Farhadi Rad, Sakineh Shahi, and Forogh Tahmasebi, "An investigation into the requirements and circumstances of decentralization in Ahvaz education: viewpoint, leadership, and human resource," *Journal of new approaches in educational administration*, 10 no 38 (2017): 57-76, http://jedu.miau.ac.ir/article_3631.html.

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[5] Shu-Hsiang Chen, Jaitip Nasongkhla, and Ana Donaldson, "University Social Responsibility (USR): Identifying an Ethical Foundation within Higher Education Institutions," *The Turkish Online Journal of Educational Technology* 14 no 4 (2015): 164-172, https://eric.ed.gov/?id=EJ1077652.

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Higher education as a social institution has a long history in Khuzestan province. Founded in 530 AD, Jundi-Shapur University in Khuzestan Province has been one of the oldest universities in the world, and many Iranian and Indian scholars have taught there. At that time, various sciences such as medicine, philosophy, theology, mathematics, music, governance, and agriculture were part of the curriculum of this university. After that remarkable period, the revival of the university began in 1955 AH with the establishment of the Faculty of Agriculture and the admission of 40 students in new courses. Then, in 1956, preparations were made for the establishment of a medical school.[6] Today, more than one hundred universities or university units are operating in Khuzestan province with different qualities and strategies.[7] Fundamental changes such as financial and political dependence on the central government, differing student population, the internationalization of universities, and the local community expectations from the university have highlighted the need to revise the university's guidelines in this province. Higher education in Iran has many sub-systems including State Universities, Islamic Azad University, nonprofit non-governmental university, and alike. Approximately 46% of students are educating in state universities that financially supported by government.[8] An inherent problem from an intra-system perspective is that in Iran, the universities have not been very successful in decreasing their financial dependence on the government. This is not surprising given that the financial dependence of the universities on the government is a major and, historical policy in Iran. In the other words, in Iran, the government is the main finance supplier of the university sector and, the prerequisite for granting credits to universities is depend on the number of students entering universities. In addition to fundamental changes such as new technologies and the diversity of university responsibilities aaccording to the reports of the Parliament Research Centre with the cooperation of Organization of Economic Affairs in Iran, the international sanctions during 2012 had serious effects on Iran higher education.[9] Therefore, universities in Iran have a great desire to get out of financial dependence on the government.

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[6] Shahid Chamran University of Ahvaz, Accessed 5 April, 2020, http://scu.ac.ir/.

[7] The Board of Supervision, Evaluation and, Quality Assurance of the Universities in Khuzestan, Accessed 5 April 2020. http://scu.ac.ir/web/nezaratostan

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[9] Amir Khadem Alizadeh, Hamideh Amadeh, and Mahboobeh Baghalian, "The impact of economic sanctions on employment in Iran," *Economic Strategic Research Institute* 11, no 3 (2014): 79-104 https://www.civilica.com/Paper-IECEUS02-IECEUS02_069.html.

In the 21st century, university is an integral part of the development process, and the sustainable development of countries revolves around a responsive and efficient education and research system. Therefore, investing in higher education is one of the highly valued areas of practice.[10] For instance, Khosravi et al. argued that the higher education in Iran has expanded beyond the masses and has entered the post-masse stage, but this increasing expansion has led to social demands without measuring its social, economic, and cultural impact. The issue of investing in higher education is so important that some scholars have considered it to be the most important type of investment which contributes greatly to the social and economic development of a society.[11] These arguments and their related theoretical underpinnings given, one might see that the development of higher education has been on the agenda of many governments, however, higher education in Iran, and consequently in Khuzestan province, faces two major issues:

The first is that Iranian universities generally rely on government funding; as a result, people and the public expect the government to allocate these resources and facilities properly, and higher education policymakers to adopt the best policies and strategies in order to achieve the desired goals of the society.[12] Although the development of higher education has many benefits, the unbalanced development, disregard for cultural, social, and economic impacts as well as downgrading the emerging and increasing social demands, can have serious consequences for the country and the region.[13] Graduate unemployment postpones some normal stages of young people's lives such as marriage and employment and enhanced social stress caused by unemployment.[14] Unbalanced development of universities led to declining

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[10] Mostafa Moein, *Higher Education Policy, and Development* (Tehran: Research Institute for Cultural and Social Studies, 2018).

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[14] Hamid Farhadi Rad, Sakineh Shahi, and Forogh Tahmasebi, "An investigation into the requirements and circumstances of decentralization in Ahvaz education: viewpoint, leadership, and human resource," *Journal of new approaches in educational administration* 10, no 38 (2017): 57-76, http://jedu.miau.ac.ir/article_3631.html.

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quality of educations and researches. Changes in the original foundations of the academic community and research disruptions,[15] graduate unemployment and migration and brain drain,[16] and waste of financial and human capital[17] are just some of these unfortunate consequences.

The second issue is the expectations of regional and local stakeholders of higher education. Normally, it is expected that universities consider regional potentials and talents and the policies proposed based on them.[18] The issue of simultaneous attention to the national and regional dimensions is rooted in a successful global approach to higher education that has emerged since 1990, making regional development one of the university's missions and responsibility.[19] This alternation of mission continued to the extent that some universities intended to defeat local crimes and/or, in some areas, they played a major role in providing jobs opportunities. For example, the University of Georgia was the second largest employer in 2008, and also, it was the Emory University in 2009, and Austin University in 2002 had important role in employability.[20]

The two main issues, namely responsibility and accountability for government funding and attention to regional needs, are interconnected in one crucial area. In other words, one of the best ways to portray modern and higher education is to consider it as a social organization that has many functions including the provision of higher education and learning areas, training graduates to undertake social careers, producing knowledge and culture through research, and increasing the emphasis on innovation, entrepreneurship and value creation.[21] Entrepreneurship is an emerging field,

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[20] Sayed Ghasem Hasani, "University and Regional Development: Mazandaran University," (Tehran: Institute for Cultural and Social Studies, 2017).

[21] Harold Perkin, *History of Universities. Vol. 18, in International Handbook of Higher Education* (Springer, 2007) doi:10.1007/978-1-4020-4012-2_10.

it has also been strongly emphasized in the upstream documents.[22] Accordingly, the university becomes part of the communication network and enacts to manage interdependencies on the environment and society to create a new valued proposition.[23] Therefore, higher education is one of the modern social institutions that is expected to participate in the social and economic development of the society. But to fulfil this mission, it faces many problems; to overcome the problems, it needs to develop a guideline. Therefore, it could be said that the main purpose of the present study is to find out how higher education of Khuzestan province can contribute to the socio-economic development of this region. To answer this question, one could argue that higher education has to formulate a guideline in the face of existing and emerging needs. The guideline aims to picture the future in a particular field formed by the careful analysis of that field, and to direct the movements in that field and ultimately empower stakeholders.[24] In sketching this guideline, two important issues can be addressed. Firstly, higher education policymakers have to determine the factors and drivers required to develop the guideline in a local and national community. Second, the guideline for optimal future scenarios means choosing the most desirable path from a diverse set of possible paths for an organization.[25] Therefore, the purpose of the current study is to create alternative scenarios and propose the preferred one for higher education in Khuzestan province.

II. Theoretical underpinnings

The creation and expansion of higher education can be explained based on the existing theoretical foundations, including the ideas of Human Capital Theory advocates such as Freeman, Denison, Psakharopolus, Hinchliffe, Williams, and Gordon. The theory of Human Capital (HCT) introduces education as the main factor of economic empowerment.[26] Proponents of this theory, such as Gary Becker, Theodore Schultz, and Adam Smith, believe that education has a significant impact on the social,

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[22] Fifth and Sixth Five-Year Development Plan of the Islamic Republic of Iran, 2011-2020

[23] K.B. Akhilesh, *Co-Creation and Learning Concepts and Cases*, (Springer: 2017).

[24] Robert Galvin, "Science Roadmaps" Science 280, September 25, 2020, https://www.science.org/ doi/10.1126/science.280.5365.803a.

[25] Jerry J Herman and Janice L Herman, *Making Change Happen: Practical Planning for School Leaders* (California: Corwin Press, 1993).

[26] Fatemeh Sharifi A. M., Abasalt Khorasani, Kourosh Fathi V., and Ebrahim Salehi O., "Employability skills of Academic Graduates: an Exploratory Mixed Approach," *Journal of Theory and Practice in Curriculum* 13 no 7(2019): 29-52.

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economic, and political development of the society.[27] Therefore, the HCT has provided an acceptable basis for the creation and expansion of universities. It could, therefore, be argued that, although higher education and the institutions of producing knowledge have existed throughout human history, the formation and growth of modern universities have begun several centuries ago in the West following the economic and social changes. Western societies have sought to address the challenges, problems, and needs of their leaders by using various sciences and establishing science centres. Thus, with the development of science, universities and higher education centres have gradually emerged as social institutions in the modern society.[28] Today, higher education represents a type of investment in human resources that contributes to the national development by enhancing the knowledge, skills, and attitudes required from the staff and by nurturing the future workforce.[29] To achieve these important goals, various academic models including Humboldt, Napoleon, and the Anglo-Saxon (British model) have been spread throughout the world during the 19th and 20th centuries and have had enormous impacts on many countries around the world (Sam and Sijde 2014). Subsequently, Americans adopted these three models, establishing a Native American model (market-based model) in the early 19th century for higher education.

In addition to being research-centric, market-based universities have considered three other features including; "useful knowledge" that is rooted in the spirit of American pragmatism, "a close relationship with the local community", and "linkage to the country's economy". These three attributes give an independent identity to such universities.[30] Carlsoon et al. believe that Humboldt's thinking has penetrated everywhere, especially the US, and affected most universities during the 19th century. American universities were rapidly moving towards decentralization, pluralism, and market-based

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[27] Mostafa Emadzadeh, *Economics of Education* (Esfahan: Jahad Daneshgahi, 2016).

[28] Ebrahim Salehi O, and Hosein Chaharbashlou, 2011, "Studying University-Industry Relations in Iran: A Comparative Study Based on Successful Countries' Experiences." Paper presented in The first International Conference on Management, Foresight, Entrepreneurship and Industry in Higher Education was held on May 17, 2011 by the University of Kurdistan in Sanandaj.

[29] Palmeyra Josvisin, Trans McLaughlin, David Bridge, Roberta Josvisius, and Julant Stankovisius, *Higher Education, and National Development: Universities and transitional societies* (Routledge, 2012), Translated by Reza Simbar (Tehran: Cultural and Social Studies Research Institute, 2014).

[30] Mohammad Ali Ghalandar, Entrepreneurship University indicators

competition. They altered their strategies to employing higher education.[31] Turner states that American universities had a unique structure that was created by combining British, German, and other European academic systems with local initiatives.[32] Consequently, in the early twentieth century, a new model of higher education with some unique features was introduced which rapidly affected the higher education system throughout the world. Clark has highlighted the impact of the market on universities and believed that today's universities help increase their independence by expanding relationships and engaging in social and economic activities.[33] He called these types of universities the Entrepreneurial University, and the only way for universities to survive the current state of affairs is to rely on university entrepreneurship products and the flexibility and adaptability of the organizational structure of universities. In this way, he encourages traditional university models to be transformed into entrepreneurial (market-based) universities.[34] The university was thus introduced as a major player in the national and local development system, and as such, social activities became a very important part of the university's existence.

As a result, given the political and environmental pressures, labour and capital market factors, responsiveness and accountability of universities, and the needs and demands of stakeholders, the academic community of universities was overwhelmed. It is not surprising, then, to consider the university as a "changing ecosystem", as stated by Locker. The root of these developments can be traced to fundamental changes in the conditions and needs of a society. Etzkowitz and Leydesdorff[35] believe that a structural change has taken place in European universities and that universities have gradually shifted from their traditional role of teaching and research to a third mission of commercialization and transfer of knowledge for economic development. Figure 1 illustrates the changing academic paradigm and the mission of the university shifting from

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[31] Chanphirun Sam, and Peter van der Sijde, "Understanding the concept of Entrepreneurial university from perspective of higher education models," *Higher Education* 68, no 6 (2014): 891-908, DOI 10.1007/S10734-014-9750-0.

[32] Chanphirun Sam and Peter van der Sijde, Understanding the concept of the entrepreneurial university from the perspective of higher education models

[33] Barton Clark, "The Entrepreneurial University: New Foundations for Collegiality, Autonomy, and Achievement." *Higher Education Management* 13 no 2 (2004): 23-36.

[34] Rubins, Ira. "Risks and Rewards of Academic Capitalism, and the Effects of Presidential Leadership in the Entrepreneurial University" https://www.semanticscholar.org, (2007): 1-5, Accessed April 28 (2019).

[35] Henry Etzkowitz, and Loet Leydesdorff, "The transformation of university-industry-government relations" *Electronic journal of Sociology* 5 no 4 (2001): 101-117, http://www.sociology.org/content/vol005.004/th.html.

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the simple to the complex environment and from the secure environment to the uncertain environment in a matrix structure.

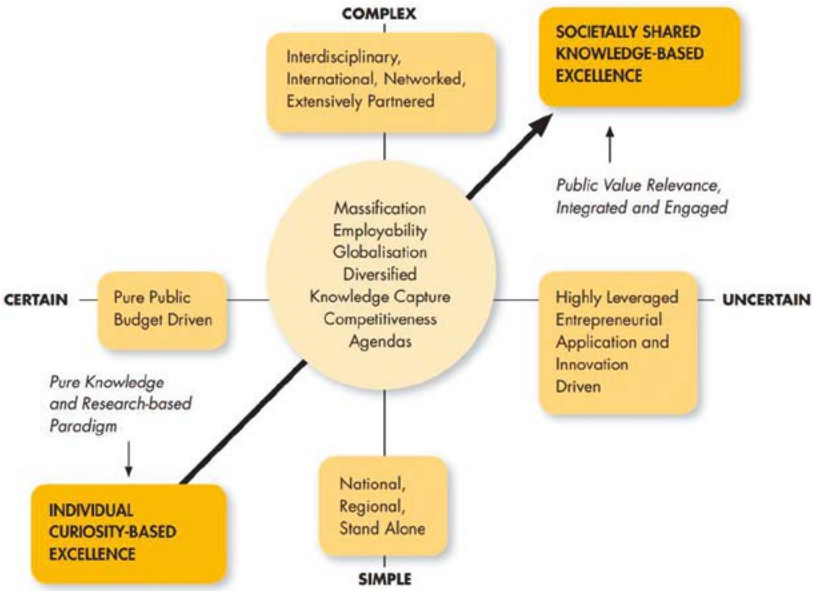

Figure 1

Changing the academic paradigm[36]

As a result of strengthening the theoretical foundations and the functioning of social factors such as, increasing pressure on the government, increasing number of graduates, changing expectations of higher education stakeholders, changing market needs, responsiveness and accountability to society, and quality revolution and productivity, the university partnerships were enhanced to resolve local and regional issues and appeared in the form of the entrepreneur university. At the same time, the new approach to the entrepreneurship has been associated with a value creation approach, so that if entrepreneurship is not based on community values, its consequences will

[36] Allan Gibb, Gay Haskins and Ian Robertson, *Leading the entrepreneurial university: Meeting the entrepreneurial development needs of higher education institutions* (New York: Springer, 2009).

not be worthwhile. From the underlying epistemological issues to economic issues, this new approach encompasses all fields of science and political culture.[37] The entrepreneurial and value-creating university seeks to intelligently identify, evaluate, and efficiently exploit opportunities based on economic, cultural, and sociological values.[38] Entrepreneurship, in its new sense and the credited identity with its wrathful repercussions on value creation, has received widespread acceptance from universities and academic communities and is expected to achieve the aspirations of university and university work (with the support of various sections of society).[39]

Iranian education has become efficient and organized to empower human beings, but the divergence of universities from the real needs of society and the disregard for the job market has left students without a sense of direction and a start-up, so that they merely seek job opportunities but do not create them.[40] Therefore, universities are expected to develop creative thinking, train positive and adventurous attitudes, avoid destructive thinking, encourage perseverance, acquire effective skills to overcome the barriers on the way of the students, and set up entrepreneurship training centres to end the current difficulties of the society. Perhaps the greatest community expectation from the university is the economic, cultural, and social values created by research.[41] Universities pave the way for collaboration and promote the link between industry and academia by creating entrepreneurial culture and orientation for faculty and students, setting up science and technology parks, growth centres, and start-ups. Entrepreneurship not only leads to the creation of economic and material values but also the value of entrepreneurship as an engine of social, political, and cultural development.

Entrepreneurs prioritize the social value creation. By following both commercial and social objectives, entrepreneurs seek to contribute to the natural and social resources.[42] In addition to theoretical foundations, many

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[37] Mohammad Taghi Amini, Mohammad mahdi Parhizgar, Mehran Rezvani, and Saeed Farjam, "Designing a Conceptual Model of Value Creating Entrepreneurship," *Modern Marketing Research* 5, no 1(2015): 19-30.

[38] Amini, Mohammad Taghi, Mohammad mahdi Parhizgar, Mehran Rezvani, and Saeed Farjam, Designing a Conceptual Model of Value Creating Entrepreneurship.

[39] Mohammad Ali Ghalandari, Entrepreneurship University indicators.

[40] Mohammad Azizi, "Analytical-Comparative Study of the Performance of Top Entrepreneurship Centers of American Universities and Entrepreneurship Centers of Selected Iranian Universities." *Journal of Innovation and Value Creation* 4 no 8 (2016): 21-32.

[41] Mostafa Moein, Higher Education Policy, and Development

[42] Steven Brieger, Anne Baro, Giuseppe Criaco, and Siri Terjesen, "Entrepreneurs' age, institutions, and social value creation goals: A multi-country study" *Small Business Economics*, no 57 (2021): 425–453, doi.org/10.1007/s11187-020-00317-z.

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studies including[43,44,45,46] show that universities can improve entrepreneurship and value creation in the society through education. Dealing with entrepreneurship and value creation requires the university's financial independence.[47] Approaches based on teaching and research in universities require a more comprehensive approach to organizations outside the university.[48] For universities to be innovative about their environment, to be creative with innovative ideas, to value the job market, to persuade industries to invest in higher education, entrepreneurial universities should have an operational vision in education that will help link conceptual knowledge to entrepreneurial and creative enactment.[49] They need to focus on the sensory, emotional, and affective aspects of the teaching and learning processes to build creativity and innovation in students.[50] The entrepreneurial university must foster an entrepreneurial spirit and innovation in students and faculty and integrate the university's inputs, processes and outputs so that both university executives and leaders, as well as the outside community and business environment, pledge themselves to the university's commitment to entrepreneurship and value creation. Today, entrepreneurial and value-creating universities have become an effective tool in solving the problems of educated societies, which increasingly emphasize the value of science.

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[43] Hao Jiao, "A conceptual model for social entrepreneurship directed toward social impact on society," *Social Enterprise Journal* 7 no 2 (2011): 130-149, doi.org/10.1108/17508611111156600.

[44] Saul Estrin, Tomasz Mickiewicz, and Stephan Ute "Human capital in social and commercial entrepreneurship" *Journal of Business Venturing*, no 31 (2016): 449-467, https://doi.org/10.1016/j.jbusvent.2016.05.003.

[45] May Portuguez Castro, Carlos Ross Scheede, and Marcela Georgina Gómez Zermeno, "The Impact of Higher Education on Entrepreneurship and the Innovation Ecosystem: A Case Study in Mexico." *Sustainability*, 11 no 20 (2019): 1-17. Doi: https://doi.org/10.3390/su11205597.

[46] Jantje Halberstadt, Jana-Michaela Timm, Sascha Kraus, and Katherine Gundolf, "Skills and knowledge management in higher education: how service learning can contribute to social entrepreneurial competence development," *Journal of Knowledge Management* 23, no 10 (2019): 1925-1948. Doi.org/10.1108/JKM-12-2018-0744.

[47] Leo Aldianto, Grisna Anggadwita, and Aang Noviyana Umbara, "Entrepreneurship education program as value creation: Empirical findings of universities in Bandung, Indonesia," *Journal of Science and Technology Policy Management*, 9 no 3 (2018): 296-309, doi:10.1108/JSTPM-03-2018-0024.

[48] Mohammad Ali Ghalandari, Entrepreneurship University indicators

[49] Leo Aldianto, Grisna Anggadwita, and Aang Noviyana Umbara, "Entrepreneurship education program as value creation: Empirical findings of universities in Bandung, Indonesia."

[50] Tatiana Chemi and Lone Krogh, *Co-creation in Higher Education: Students and Educators Preparing Creatively and Collaboratively to the Challenge of the Future*, Creative Education Series Vol. 6 (Aalborg: Aalborg University, 2017).

People in an Iranian society normally expect university graduates to be technically experts and socially responsible and innovative. According to the fourth industrial revolution, these skills such as negotiation skill, cognitive skill, service-orientation, teamwork, emotional intelligence, shared decision-making, critical thinking ability, and complex problem-solving abilities are necessary for 21st century.[51] In the other word the innovative skills such as teamwork ability, creating international communications, and the skills to use software platforms probably opens up new windows for the youths around the world.[52] The presence of individuals with high levels of expertise and social skills seems essential for enabling efficiency, entrepreneurship, and optimum enhancement of a context that is based on complicated technical and static systems. As such, quality instruction is required to prepare future human resources, and this is possible via the higher education system.[53] However, university graduates reflect a lack of coordination between the society and the workplace expectations.[54] There is no consistency between the topics of the courses and the jobs' requirements.[55] The training processes and materials are not consistent with the necessary skills and abilities in the workplace.[56] The instructions are not in line with the market and industry demands.[57] The graduates do not acquire adequate practical

[51] Amiron, Evarina, Azlan Abdul Latib, and Kamalularifin Subari, "Industry Revolution 4.0 Skills and Enablers in Technical and Vocational Education, and Training Curriculum" *International Journal of Recent Technology and Engineering (IJRTE)* 8 no 1(2019): 485-492.

[52] Punit Renjen and Sarah Brown, *Preparing tomorrow's workforce for the Fourth Industrial Revolution, For business: A framework for action*, (Deloitte Global and the Global Business Coalition, 2018).

[53] Mahmoud, Yaghoubi, and Hossein Motahharenejad, "The main requirements in developing Iranian engineering training strategies" *Iranian of engineering education*, 13 no 51(2011): 31-51.

[54] Mehdi Feyz, and Mehdi Bahadorinejad, "Identifying the desired professional qualifications of engineering graduates in Iran: Case Study Sharif University of technology graduates" Iranian Journal of engineering education 12 no 46 (2010): 37-68, http://ijee.ias.ac.ir/article_673.html

[55] Reza Maknoun, 2001. "Country higher education employment and development strategy", Proceedings of the Strategic Congress of Scientific Development of Iran, Tehran: Ministry of Science, Research and Technology, I ran science promotion headquarters 1400

[56] Ramin Rahmani, and Ali Nazari Tavakoli, 2003, "The challenges of the higher education system in relation to the employment of graduates," The first conference on employment and the countrys higher education system, Tehran: Tarbiat amodares university.

[57] Hosein Momeni Mahmoei, Ali Shariatmadari, and Ezatullah Naderi, "Competency-based curriculum in higher education," *Quarterly Educational of higher education curriculum*, 5 no 17 (2008):129-156.

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experience while studying.[58] The focus is on the knowledge enhancement rather than on the skill and attitude expansion relevant to the professional working,[59] and university training does not play any significant role in the students' employment skills.[60] In addition, Mousavi et, al. argued that the barriers to entrepreneur university ecosystem development in Iran are: financial, structural, research, administrative, communication, traditional education and organizational culture.[61] Also based on Mohammad Shafi et, al. The Iranian universities' curricula are not skill-based and job creating so need to be revised.[62] In general, higher education theoretical foundations show that universities must play a vital role in the economic and social developments of nations; but the result of researches shows deficiencies in the university system. Therefore, developing a realistic guideline for higher education during the 21st century will be an essential need to adjust the local society with a global economy and society.

III. Methodology

III.1. Research method

The present study is considered applied research in terms of purpose. The purpose of such research is to provide practical solutions to specific problems or to predict possible future scenarios to address a particular issue. Since the present study intends to draw a picture as realistic as possible for higher education in Khuzestan by analysing the environmental situations and studying the factors affecting the future social life of Khuzestan province, it

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[58] Abolghasem Barabadi, Malek Mohammadi, and Ali Asadi, "Educational, social and cultural barriers to employment of agricultural graduates." *Journal of Economics, labour, and society* No109 (2009): 92-100.

[59] Hosein Memarian, 2011, "Mechanism for evaluating engineering education programs: from ideal to reality," Fifth Conference Quality Assessment in the University System, Campus of Technical Colleges, Tehran: University of Tehran, https://uteq.ut.ac.ir/documents/30787/792815/8-Memarian.pdf.

[60] Hamzeh Nozari, and Alireza Karimi, "The role of formal and informal relations (social relations network) in the employment of students of Kharazmi University," *Journal of Social welfare* 17 no 64 (2017):159-194.

[61] Seyyed Hosein Mousavi, Ebrahim, Salehi Omran, Seyyed Mahsa Mousavi, and Maghsoud Ferasatkhah, "Identifying the Barriers to Entrepreneurial University Ecosystem Development," *Journal of Teaching in Marine Sciences* 6 no 4 (2019): 35-51. http://rmt.iranjournals.ir/article_38347.html?lang=en

[62] Mahboobeh Mohammad Shafi, Mohammad Reza Neyestany, Ebrahim Jafar, and Vida Taghvaei, "Evaluating the Quality of the Curriculum in Skills Training," *New Educational Approaches* 15 no 31 (2020): 70-102. https://nea.ui.ac.ir/article_25374.html?lang=fa.

is believed to be practical research. From the methodological point of view, the present study falls into the category of descriptive-analytical research that has used the scenario writing method to present the findings using a phenomenological analysis approach. According to Ogilvy and Schwartz, scenario writing predicts the future based on possible future events and is therefore, a useful tool welcomed by planners for planning purposes based on nonlinear approaches.[63] In the present study Fahey and Randall's pattern was adopted for the purpose of scenario development. Accordingly, scenario development takes place in six steps. The first is statement of the problem, which in the current research took the form of determining and planning the Higher Education road map in Khuzestan. The second step was to identify and categorize the key drivers. For this purpose, different means and techniques like, Cross Impact Analysis (CIA), and Causal Layered Analysis (CLA) are generally used. However, since in the present study multiple factors could be analysed as exerting influence on the future of Higher Education in Khuzestan at different layers, CLA was used and the key drivers were categorized into four classes of objective facts, institutional factors, factors related to the social discourse, and transnational factors.[64] The main reason for using CLA was to enable a better understanding of the future and its complexities.[65] The required data were collected using the written resources and conducting in-depth interviews with the experts. The third step was to formulize the drivers. At this stage, a focal group was formed and after several sessions of intensive debate and discussion between the Higher Education and Economic Development intellectuals, key environmental and institutional factors were formulized. Two major influential factors on the future of Higher Education, i.e., state economy dependent on the oil sales and University internal preferences were introduced as the main axes navigating the future of Higher Education in Khuzestan. The fourth and fifth steps were to determine the logic of the scenario and the possible futures. By the sixth step, the Developmental University scenario was presented and interpreted as the preferred scenario.

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[63] James Ogilvy, and Peter Schwartz, *Plotting Your Scenarios*, In L. Fahey and R. Randall (Eds.), Learning from the Future, Edited by L. Fahey and R. Randall, (California: John Wiley and Sons, 1998).

[64] Abdolmajid Keramat Zadeh, "The Role of Cognitive Metaphors in FS: An Analysis of Sohail Inayatallh's Viewpoints," *Journal of Iran Futures Studies* 1 no 1 (2016): 15-32. https://jfs.journals.ikiu.ac.ir/article_1155.html?lang=en.

[65] Mohammad Hoseini Moghadam, 2017. Iranian University in the international Environment: Internationalization of Iranian Higher education, and future of university in Iran, (Tehran: Research centre for Social-Cultural Studies, 2017).

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III.2. Participants

To answer the research questions purposefully and descriptively, scholars in the field of higher education and intellectuals in the field of economics were invited to participate in this study. They were selected purposefully based on their knowledge, expertise, familiarity, and theorizing in the Khuzestan social context, applying the snowball sampling technique. The participants are:

Table 1

Scheme of research participants

code	Specialty and field of activity
1	Ph.D. in higher education management and policy expertise in Iranian higher education
2	Ph.D. in educational management with a specialization in policy and strategic planning in higher education
3	Doctorate of economics in higher education with a specialization in research and planning in higher education
4	Doctorate of higher education with specialization in higher education planning and development
5	Doctorate of educational management and entrepreneurship specialist in higher education
6	Doctorate of management and specialty in entrepreneurship and future research
7	Doctorate of educational planning and strategic planning specialist in higher education
8	Senior expert, managing director, international consulting company, member of the board of directors of Iran-Germany chamber of commerce and industry
9	Doctorate of higher education management and higher education planning and development specialist
10	Doctorate of curriculum and specialist in educational content and future research

III.3. Interview protocol and data gathering process

The future of higher education in Khuzestan is affected by many variables and factors. In this research, semi-structured in-depth interviews with experts and intellectuals were the main instrument for the data collection

and identification of the probable factors. Interview protocol and data gathering process were as follows:

Before the interview: purposeful identification of the faculty members and other experts, obtaining faculty approval, respecting the conduction of all interviews and principles of research ethics, sending questions to faculty upon request, providing them with the appropriate time and place for conducting the interview process with the consent of the interviewee, giving the interviewees general information about the subject under study and the necessity of doing so in Khuzestan province universities, were the steps taken before conducting the interviews.

Interview stage: consists of 1. Providing a general explanation of the main dimensions of the research to clarify the general outlines of the research topics, recording and transcribing the statements of the interviewers with appropriate tools (audio recording software), providing questions on the first topic, and asking questions about the first topic of research, i.e. the future guideline of Khuzestan Higher education. The structured part of the interview questions are as follows:

> *1) What are the main factors affecting Khuzestan's Higher education to entrepreneurship and value creation?*
> *2) How could universities pay attention to these factors for a better future?*

The final stage: included the following: the recordings were transcribed from the recorded file, developed an expert report, and then studied several times; a satisfactory report was designed and abstracted to include all participants' points of view. And finally, a document was prepared for the professional analysis.

III.4. Gathering and analyzing the data

In this study data, gathering and analyzing steps were as follows:

- The interview framework defined and, provided to the participants;
- All interviews recorded;
- Personal interviews were conducted separately after the participant's agreement and declaration of readiness;
- Each interview was formed into a text file (word doc); for the data preparation;
- An appropriate and expert report was prepared for each interview (to reduction);
- The main statements identified and labeled as an open code and, established an item pool to identify the influential variables;

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- The validation of coding process, expertise reports returned to participants and discussed about them. In addition to, sample interviews separated coded by 3 coder and agreement percentage measured (see table 2);
- Four clusters of open codes were categorized: Objective facts, Organizational Factors, Main Discourse of Community, and International Factors based on the Delphi technique to identifying triggering elements;
- Focused group interviews conducted in three rounds;
- The two main axes of the factor matrix were extracted for writing possible scenarios based on focused group interviews;
- Scenarios were developed and written; and
- Scenarios were validated (Table, 8).

III.5. Validation

To validation of findings in addition to discussions about participant's opinions, return expertise reports to interviewees and the constant presence of researchers in the field, two Ph.D. student in educational administration was asked to participate as a research collaborator (coder) in the research and code interviews number4, 6, 8, and 9 randomly. The measure of stability was obtained based on the following formula.

$$\text{Percentage of Inter-subject Agreement} = 100 \times \frac{\text{Number of Agreements} \times 2}{\text{Total Number of Codes}}$$

The stability of the coders using the above formula was 83%. Given this formula, if the stability is greater than 60%, coding is confirmed and it can be claimed that the stability of the interview is acceptable.

Table 2

Percentage of agreement within the subject

Interview Title	Total	Agreements	Disagreements	Stability
4	41	35	6	85%
6	35	29	6	82%
8	32	28	4	87%
10	30	23	7	76%
Total	138	115	23	83%

III.6. Ethical considerations

- The aims of the study were explained to the participants.
- In order to record the interview sessions, the participants' permission was requested.
- In order to comply with the principles of confidentiality, the participants were assured that their statements would be published under a pseudonym or a code.
- In analyzing and reporting the data in the dissertation, pseudonyms will be used.

IV. Research findings

IV.1. Effective propellants of higher education in Khuzestan province

What are the main factors affecting Khuzestan's Higher education to entrepreneurship and value creation in this province? And how could universities pay attention to these factors for a better future? To answer these key questions, in-depth interviews were conducted with 10 experts as described in Table 1. The interviews continued until theoretical saturation and 503 open codes were extracted. Open codes categorized into 105 main categories. The proponents of higher education affecting entrepreneurship and value creation in Khuzestan province (extracted categories) were not at the same level in terms of objectivity, subjectivity, and time dimension, therefore they were categorized into four levels of objective realities, organizational causes, community discourse, and international actions. The proportions of the university's role in entrepreneurship and value creation at the level of objective reality are presented in Table 2. Facts like graduation employment, establishing accreditation centres, documenting, setting up entrepreneurship counselling centres, inclining to measurable scientific activities such as paper publishing and writing with any level of academic acceptance, **etc**. are presented below. These are some existing facts in the world of higher education in Iran and Khuzestan province, not abstract facts that require a high degree of understanding and recognition.

Table 3 presents the organizational factors and causes. Organizational factors are largely dependent on intra-university mechanisms, and if higher education policymakers are willing to address them, they need to identify and modify them according to the local needs. For example, to have a strategic plan based on research needs and business creation in the region, higher education has to diversify funding mechanisms,

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document, and model the experiences of prominent local and national entrepreneurs, and continuing education and training of managers and faculty. The university is largely independent of accepting and operating certain activities. The creativity, ingenuity, and managerial capabilities of the province's higher education executives are very influential in this regard.

Table 3

Objective facts

Propellants
University graduate employment, structural centralization of higher education, extracurricular accreditation centres, requiring different sections of society to obtain scientific approvals for research activities and projects, establishment of entrepreneurship counselling centres, expanding tendency to quantitative research activities and quantifiable research such as articles and books, governmental organizations, degrees, accreditation, university accreditation and academic activities, attracting private-sector intellectual and financial partnerships, widespread and comprehensive engagement with local and regional communities, attention to industry, business and traditional work, setting up science parks technology, incubators, knowledge-based companies, doing university projects tailored to the needs of the community, industries and local and regional companies, supporting entrepreneurial activities, conducting collaborative research with industry and corporate owners, staffing with diverse specialties, interested students. Postgraduate research, higher education area of Khuzestan Province, higher education research centres in the fields of oil, gas, steel, petrochemical, electricity, water, aquaculture, new business and other entrepreneurship and value creation sections of Khuzestan Province, timely provision of resources.

Table 4 shows the proportions of the university's role in entrepreneurship and the value creation at the level of the general community discourse. These factors exist beyond the boundaries of universities and are applied in other organizations. Structural focus, strong dependence on the oil-based economy, difficulties in transferring decision-making power to the private sector, management stability, the constant shadow of international threats and sanctions, mutual trust, state-owned specialized companies, etc., are not limited to the higher education community, they, in fact, to a large extent, affect all the agencies and institutions of the country. Resolving problems at this level requires bargaining and the power to negotiate with transdisciplinary policymakers to formulate detailed future research plans for the entire community.

Table 4

Organizational factors

Propellants
Quantitative expansion of universities and limited efforts to improve the quality of higher education, a centralized higher education program and a regional capability-based strategy, the need for higher education to attract funding in a variety of ways, the ability to respond rapidly to environmental change, modelling and documenting entrepreneurs' experiences and knowledge management, faculty members' ability to guide learning and conducting research, goal-oriented and program-oriented graduate student theses related to real community needs, building national and regional inter-university networking, fierce centralization in the education system of Iran, bureaucracy in governmental and non-governmental industries and organizations, stability of management in public and even private organizations, and attention to early-stage research affairs, the appropriateness of Khuzestan province's higher education academic model with native and local conditions, the optionality of research beyond university boundaries, creating an appropriate academic structure for technology creation and transferring it to the local and regional communities, establishing a communication network with university graduates, establishing a communication network with companies and government agencies to meet their needs, providing the platform for international dedicated revenue generation, mechanisms for receiving funds and educational services, ongoing university contact with institutes, industries and other sectors of society, designing courses tailored to the time and location of the private sector such as night and campus courses, recruiting technology faculty, student recruitment mechanisms, research fellowships, interdisciplinary research, the process of supporting innovative activities and new ideas, faculty members' desire for continuous communication with the environment and commercialization of knowledge, research and study culture, willingness to work in a team and team building, consumerist attitude toward higher education, mechanisms for restricting bureaucrats, an overly theoretical approach to the field academics, obstructive administrative rules, needless managers in higher education, abandoning or even shutting down projects and plans of former managers, restricting the intrinsic duties of the university to teaching and research, weak links between university departments and groups, managing university stability, introducing regional higher education opportunities to the community, applying and commercializing scientific findings, restrictive organizational structure, national, international and regional business market needs assessment, retraining system and increasing faculty members' skills, faculty motivation systems for doing entrepreneurial work.

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Table 5

Factors related to community discourse

Propellants
High university dependency on government funding - mainly public higher education, community-university discourse, difficulties in delegating decision-making power to individuals and organizations in the private sector, strong structural centralization, indigenous industry and university mutual trust, the constant shadow of threats and international economic and non-economic sanctions, internationalization of industries and holdings, lack of need for industry to conduct research, political and party affiliation with top university executives, industrial dependence outside the country, managers' backlog at the end of their management period, educating regional officials on the status and mission of universities, the influence of political institutions that are in conflict with academic independence, general higher education policy making, informal and decisive communication networks in university-community interactions, the community's short-term view of the university, community and university ethics, university credibility with local and national communities, community and university intertwining, community-university common language, community-university mutual expectations, unequal financial competition between the private and public sectors, banks and their relationship with other investors in higher education university projects, a politically and scientifically repressive atmosphere and the conservatism of university faculty members, the degree of industry confidence in the university, international interactions, the safe space of freedom of thought and expression.

The factors and reasons that influence the success of higher education in fulfilling its fundamental mission are not limited to national and regional issues. Some of these factors are rooted in the structure of the international power and global power relations. The cases summarized in Table 5 are transnational factors that influence entrepreneurship success and value creation in Khuzestan higher education system. The burgeoning international changes in technology, international job seekers, international research projects, the global economy, and the fierce competition between societies to gain competitive advantages are beyond the scope and authority of higher education in the province and country, and the only solution to this problem is to identify the main concerns and intelligently deal with such phenomena.

What is presented in Table 6 are the integrated codes. For example, all the factors that somehow referred to the lack of a proper structure for provincial higher education policymaking are summarized in one objective factor: "the lack of Inter-province higher education policymaker". Other factors are mentioned in the table below.

Table 6

Transnational factors

Propellants
The burgeoning international changes in technology and knowledge, the international move towards new technology-based businesses, transnational businesses, the needs across countries' geographical boundaries, fluctuations of the international economy, international applicants for higher education, opportunities to attract funds across geographical boundaries, suitability for transnational and transnational partnerships, international projects for higher education, the ability to use formal expertise in projects and even regional education, optimal use from international experiences, expanding the reach of digital technologies, membership in international unions and university meetings, engaging constructively with the international system.

Table 7

Summary of factors

Transnational factors	Community dialogue	Organizational factors	Objective facts
International productive interactions, changing the nature of business infrastructures, the formation of a networked society	State-owned and oil-based economics, weak mutual trust between the university and society, government decision-making power, private sector margin over the state, instrumental view of the university, high influence and influence on university politics, institutionalism and neo-institutionalism	Concentrated organizational structure, ambiguous university policies and strategies, national view of provincial universities, inefficiency of faculty recruitment indices, lack of competition among universities, instability of management, restrictive intra-university mechanisms, lack of inter-university communication networks, severe dependence on government resources, lack of delegation of responsibilities commensurate with responsibilities	Lack of trusted institution of higher education policy making in the province, lack of effective and productive communication between university, industry and society, lack of university funding

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IV.2. Scenario logic

Scenario-based research requires identifying key axes and loading other factors onto them. These axes outline the general direction of the problems at hand. The results of the analysis showed that two key factors affect the future of higher education in Khuzestan province in the 2022 horizon to entrepreneurship and value creation. The first one is the society's expectations of higher education and the second is, the oil-based state economy. According to these two key factors, alternative scenarios for higher education in Khuzestan province are hypothesized. Academic models emerging from the intersection of the two axes are strongly influenced by the wide range of the country's economic situation (government economy based on oil exports and sale of other raw materials to a competitive market-based economy) and, the range of community expectations (university as an independent entity, which is responsible for responding to the demands and preferences of the community, rather than the university as a government-affiliated organization indulged in intra-university preferences. Accordingly, four alternatives for the future of Khuzestan higher education in horizon 2022 are proposed in Figure 2.

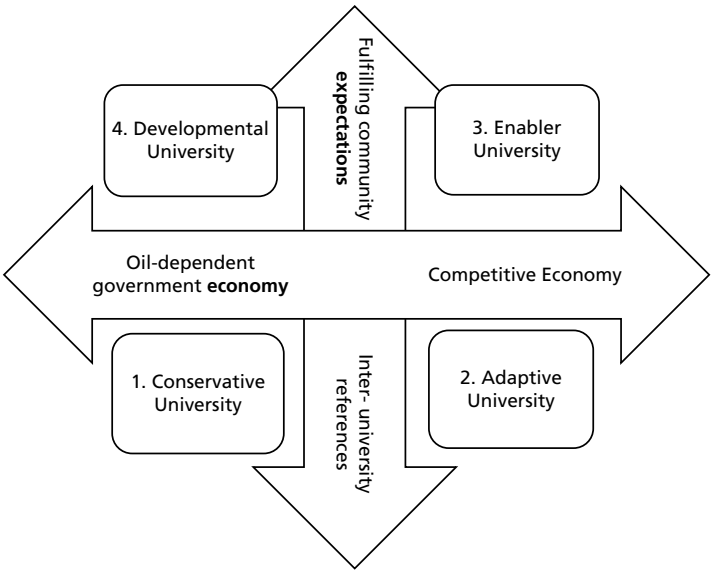

Figure 2

Four alternative scenarios for higher education in Khuzestan province

1) Conservative university: The conservative university represents a model in which the university and the intra-university complex are heavily dependent on state and oil economics. Communication networks between the community and the university are very weak and the academic system prefers to be confined to its basic research cocoon. In many cases, the fear of losing a job convinces managers and faculty members to show approval to government. On the other hand, by interfering with all intra-university processes, the government limits the relative independence of the university and asks the university to do what it desires to. The conservative university has an intra-organizational approach and behaves in a way that might be difficult for others, especially for the main funder. The social responsibility of this academic model is limited to the accountability of individuals and organizations to the superiors, and the local community has a minor role in its management and policymaking. The university does not feel responsible for graduates and concepts like freedom of thought and expression, university independence, merit-based management, meeting local community expectations, liberating from structural and administrative constraints, and attracting high-end people become luxurious election slogans. The conservative university is not willing to participate in collaborative research projects outside the university, especially in situations where it is likely to endanger its prestige. Such a university, of course, is capable of maintaining its position and can continue to leverage public funding every day. The university relates the failure to meet the expectations of the society to the difference between theoretical foundations and social realities and, therefore, removes the guilt of failure to meet the expectations, from its record. Because of being dependent on the government in many respects and competing for resources and facilities, the university does not pay due attention to the regional and even international needs, and its interdependence to the external environment is clearly obvious. Consequently, university presidents are not the ultimate decision-makers in the face of the external environment. The concern for survival and persistence among the managers of these universities is in the management positions and does not threaten their financial risk.

2) Adaptive university: The comparative university consists of the intersection of a competitive economy and attention to intra-university preferences. In this scenario, the external environment

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of the university includes the social environment and the organizational environment. The university is part of an organizational environment before it is part of a larger and wider social environment. Therefore, the preferences of the university are focused on the intra-university environment. The social environment is complex, unpredictable, and chaotic, and undergoes alterations such as changes in technology, economics, ecology, and social changes such as globalization. Universities cannot be indifferent to the changes in the social environment, especially economic changes; they cannot be a mere subsidiary of these comprehensive changes. Thus, they prefer to find new tools to adapt to these developments. These tools include revenue diversification, emphasis on entrepreneurship and value creation, corporate governance, and joint ventures with a competitive market. The organizational environment of this academic model is a function of their social environment. This university model proposes that, to meet the demands of the external environment, enhance the quality of education, streamline university programs, increase access to higher education and lower the costs of higher education, changes have to be made in the quality of services provided by the higher education system. In this model, compatibility means reducing the imbalance between the external environment and the university. The university adaptation to the external environment is created through two categories of structural and process factors. Structural factors include entrepreneurial culture, diverse capabilities, and a defined mission statement for the university. Process factors include professional management, corporate governance, and committed leadership. Managers need to re-consider their missions, change structures and processes, and encouraging strategies must be employed, department leaders should be more involved and more prepared in the faculty, and they have to think outside the box using entrepreneurial planning.

3) Enabler university: The enabling university is an ideal university that is unlikely to reach the horizon of 2022 in Khuzestan higher education. Continuing to address community expectations and intra-university preferences, this model of higher education oversees a modern university with diverse funding sources. It has no financial or managerial affiliation with any individual or organization and is interconnected with the local community and business network far and wide. Based on its intra-system capabilities,

it has been able to persist and operate in a competitive national and international environment. It can, therefore, benefit from the efforts and stakeholders' engagement to create a competitive advantage, while building productive and targeted interactions with the national and international systems, empowering local capacities internationally. Professional independence and academic freedom are available at the university. Since they are looking for their future talents at such a university, the university does not attempt to attract input; in other words, the best students and professors are seeking to work in such an environment. Biomedical, collaborative mobility, trust in the administrative and structural processes at such a university are evident, and the organizational structure of the university has the potential to be highly resilient to change. The needs of local, national, and international communities take precedence over intra-university desires and preferences. Planning to achieve this academic model based on the components of higher education in Khuzestan province over a defined timeframe seems to be largely hypothetical. This is because moving away from dependence on state funding and directly shifting towards addressing the needs of the community is time-consuming and requires long-term planning.

4) Developmental university: The developmental university formed from the cross-section of the realization of society's expectations and the state economy. In this scenario, it is considered impossible independence on the oil economy in the short and medium-term. The orientation of this university model will be towards fulfilling society's expectations by using state funding in a limited timeframe. In this case, the development infrastructures are identified and a set of mechanisms are used to guide government financial flow in support of local community expectations. Intra-university competencies, granted by government funding, serve to meet the expectations of the community, in which negotiation plays a crucial role. Nowadays, the bargaining chip of universities is not merely to conduct research and produce knowledge, but to convert these findings into products and transfer the knowledge and technologies in accordance with the expectations and needs of the society. In this scenario, then, intra-university preferences might be overlooked, so the university would work to meet the needs and expectations of the local community via the production of knowledge and its transfer into products.

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IV.3. Scenario validation

The validity of the scenarios was evaluated and presented in table 7 based on four main criteria: Feasibility, Utility, Internal Consistency, and Differentiation. The scenario feasibility indicates the feasibility of its implementation within a defined timeframe. Utility refers to the usefulness of the scenario for the accomplishment of a series of set goals. Internal consistency refers to the content consistency of the scenarios and the differentiation examines the acceptable variations between alternative scenarios.

Table 8

Experts' validation of scenarios

Developmental University	Enabler University	Adaptive University	Conservative University	Scenarios / Criteria
4	**1.8**	**2.6**	**4**	**Possibility**
4	**4**	**3.2**	**1.2**	**Usefulness**
3.6	**3.4**	**3.6**	**3.6**	**Internal Adaptive**
3.6	**3.6**	**3.2**	**3.2**	**Differentiation**
15.2	**12.8**	**12.6**	**12**	**Sum**

The table above shows the average score of each scenario based on the experts' opinions. The feasibility scores for the compatible university and the enabling university up to 2022 were estimated to be 1.8 and 2.6, respectively, for Khuzestan province. These values indicate that the creation of these academic models in a short time-span is out of reach, and planning to achieve and establish such universities, especially the empowering university, is out of the question. In contrast, both the conservative university and the developmental university models have achieved the highest possible score (4) and are accessible. The common grounds of the empowering and the developmental universities is their usefulness, for which both models gained a score of 4. However, according to the experts, the conservative university with a score of 1.2 is not ready enough to play an active role in entrepreneurship and value creation in Khuzestan province. An average score higher than 3.5 indicates that the experts believe all the four alternative scenarios have acceptable internal consistency and that their underlying logic is reasonable. In terms of differentiation, a mean score of 3.4 indicates that all the four scenarios are

significantly different. Overall, according to the intellectuals and experts, the preferred scenario of the present research is the development-oriented university, as its total score, 15.2, is higher than the other models. Executive recommendations will be given accordingly.[66]

IV.4. Preferred scenario: developmental university

Current universities, considered as conservative universities by the participants of the study, attempt to avoid comparisons with other universities and similar organizations at national and international levels because of the significant grants they receive from the sale of oil and other raw materials. To withdraw from the competition, such universities prefer to rely on factors that are not much decisive in a performance-based world, but which facilitate and ensure their survival. For instance, the number of students, professors, and staff which, in the functionalism approach are very important, have been replaced by more significant factors such as scientific outputs, global credibility, and the extent to which regional and national needs are met. Despite having national financial resources, current conservative universities are reluctant to respond to local and regional demands that do not comply with intra-university preferences.

The preferred scenario of the research for the higher education of Khuzestan province on the horizon of 2022 is the developmental university. Regarding the developmental university, it is believed that the role of universities in the age of globalization has changed and they are responsible for the society, its socio-economic development, and the educational market. The fundamental developments of our era occur in universities.[67] In higher education for the 21st-century, UNESCO describes the university as "A place where entrepreneurial skills of graduates to create a job will be enhanced".[68] According to this definition, in addition to the functions of education and research, the university has another important duty; "training people and

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[66] Golam Ali Montazer, and Negar Falahati, "Scenario writing for the future of Iranian higher education and the application of information technology in it," *Journal of Science and Technology Policy (JSTP)* 7 no 1 (2015): 47-68. http://jstp.nrisp.ac.ir/article_12911_en.html.

[67] Seyyed Ali Naghavi, and Hamed Falah, 2012, "Investigating the Relationship between University and Industry through an Entrepreneurial Approach, Paper presented at the, Babolsar: Taro," National Conference on Entrepreneurship and Knowledge-Based Business Management, Babolsar: North Tarod Research Institute

[68] Mohammad Azizi, and Ehsan Shafizadeh, 2013, *Entrepreneurial University: Necessity, Features, and Requirements*, (Tehran: Islamic Parliament Research Centre Of IRAN, 2013), https://rc.majlis.ir/fa/mrc_report/show/863422

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institutes that they are a job creator". We must redefine the university graduates; an entrepreneur university graduate is a legal or natural person who encourages innovation in his or her environment and uses the knowledge alongside the experimental research to create innovation. We must re-define a university graduate; an entrepreneur university graduate is a legal or natural person who innovates in his or her environment and uses knowledge alongside applied research to create innovation.[69] According to UNESCO, the essential capabilities for sustainable development are (1) Learning how to learn, (2) Learning to live with others, (3) Learning to practice, (4) Learning to live. Three main components of learning how to practice are: acquiring relevant job skills, learning social skills, and leading the way in implementing changes. These basics and their components are the required qualities to be considered an entrepreneur, therefore, they should be taught in higher education institutions.[70] In a humanistic approach to education, it is claimed that the purpose of learning is "sustaining and enhancing the dignity, capacity and welfare of the human person in relation to others, and to nature, should be the fundamental purpose of education in the twenty-first century. The humanistic values that should be the foundations and purpose of education include respect for life and human dignity, equal rights and social justice, cultural and social diversity, and a sense of human solidarity and shared responsibility for our common future".[71] A newer construct for explaining the learning process and goal is lifelong learning. In UN definition, Lifelong learning is the "ongoing, voluntary, and self-motivated pursuit of knowledge for either personal or professional reasons. Therefore, it not only enhances social inclusion, active citizenship, and personal development, but also self-sustainability, as well as competitiveness and employability".[72]

The developmental university is not too dreamy in diversifying university funding. This academic model encompasses the facts, and does not lay expectations on the university to grant itself financially based on free-market

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[69] Seyyed Hosein Mousavi, Ebrahim Salehi Omran, Maghsoud Ferasatkhah, and Jafar Towfiqi, "Presenting the development model of Entrepreneur University in Iran," *Quarterly Journal of Engineering Education in Iran* 19 no 76 (2017): 1-28. Doi:10.22047/ IJEE.2018. 98838.1481.

[70] UNESCO, 2004, *Higher education in Europe: Thematic reflections on higher education*, Vol, 29.

[71] UNESCO, 2015, *Rethinking Education towards a global common good*, United Nations Educational, Scientific, and Cultural Organization, http://www.unesco.org/new/fileadmin/MULTIMEDIA/FIELD/Cairo/RethinkingEducation.pdf.

[72] Bruno Tindemans, and Vickie Dekocker, "The Learning Society," Accessed 18 September (2020), https://www.oecd.org/publications/oecd-skills-strategy-flanders-9789264309791-en.htm

mechanisms. Therefore, in this model, a gradual change from state financing to self-financing based on a free and competitive economy is expected. But it's a long-term, far-reaching goal that one can imagine on a farther horizon. The developmental university does not want to succumb to the greatest and most dangerous structural weakness of the society[73] because it understands that relying on the state budget makes them vulnerable and overshadows their independence, academic freedom, and the role of enlightenment. However, in the short term, the developmental university agrees that the solution to this problem is to use government funds though not as a permanent solution for all times.

On the other hand, the development-oriented university serves the realization of the society's expectations. The community's trust in universities to play a role in the realization of the development emphasizes the mission of community service and their responsibility to embrace the needs of the society which is consistent with the philosophy of public education in the higher education system. According to this philosophy, knowledge is a resource and tool that aims to nurture humanity as a whole, and higher education emphasizes the cultivation of the self, in addition to the cultivation of reason and wisdom, to nurture conscious citizenship in all conditions. Interdisciplinary courses emphasize public education because one is placed in a network of social, ethical, historical, sociological values, and must be equipped with special abilities and aspects to solve their problems and pay attention to different phenomena. Public education emphasizes communication skills, critical thinking, problem-solving skills, aesthetic understanding, the ability to make ethical decisions, and an interest in lifelong learning for university graduates. Hence, the emphasis on education for sustainable development is, in fact, to re-capture universities' attention to the provision of public education and their importance in realizing development.

At the developmental university, reviewing perspectives, policies, structures, educational processes, teaching methods, educational contents are essential to change the way of thinking and lifestyles, nurture capabilities of future generations, and satisfy the needs of the society. Paying attention to formal, informal and tacit instructions, closely linking university educational, research and social services programs, community-based disciplinary studies, and developing the incentive systems necessary for university faculty to engage in sustainable development, preservation and revitalizing the environment, revising the educational content of various academic

[73] Maghsoud Ferasatkhah, *University History in Iran* (Tehran: Institute for Cultural and Social Affairs, 2017)

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disciplines, using effective teaching methods, and revising learning assessment practices will play critical roles in building the required development capabilities.[74] The followings are practical suggestions help achieving a developmental university in Khuzestan province:

1) Establishment of provincial policy institution for higher education in Khuzestan Province
2) The use of higher education intellectuals and local managers in policymaking
3) Creating and establishing a new business school/college and university
4) Policymaking for university-wide engagement with industry and society
5) Establishment of joint growth centers
6) Creating interdisciplinary disciplines at active universities
7) Establishment of a local/regional labor market university network
8) Establishment of a regional university network to intelligently coordinate students
9) Policymaking for minor reforms in the field of academic education and research in the province
10) Policymaking to support the academic system of the province

V. Conclusion

According to Estrin, et al, human capital, ability, and skill are the essential elements needed to acquire entrepreneurship and value creation for the society.[75] There are research findings which assert these claims, for instance Castro et al, showed that the higher education has an important role in creating synergies between actors of the innovative ecosystem who strengthen the ties of social and economic growth,[76] and Jiao discusses that social and institutional environmental factors promote social entrepreneurship activities which stimulate social improvement.[77] Therefore, the development of higher education is considered an almost unconditional strategy to tackle

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[74] Hamid Reza Arasteh, and Elham Amiri, "The Role of Universities in Sustainable Development Education." *Journal of Transplanting Science,* 2 no 2 (2012): 29-36.

[75] Saul Estrin, Tomasz Mickiewicz, and Stephan Ute, "Human capital in social and commercial entrepreneurship," *Journal of Business Venturing* no 31 (2016): 449-467. Doi. org/10.1016/j.jbusvent.2016.05.003.

[76] May Portuguez Castro, Carlos Ross Scheede, and Marcela Georgina Gómez Zermeno, "The Impact of Higher Education on Entrepreneurship, and the Innovation Ecosystem,"

[77] Hao Jiao, "A conceptual model for social entrepreneurship directed toward social impact on society. "

different types of social, political, economic, and geographical inequalities in low-income and less-developed countries.[78] According to the scholars, the university could participate in local and global growth, through providing educational services to the community. This goal is fulfilled via proper management and proportional accountability to the community demands. In short, the social responsibility of the university is to achieve a sustainable development of the society and the effort to redirect the higher education goals to meet the social goals, insights, and global values.[79]

The concept of entrepreneurship development, focusing on universities and aimed at spreading academic knowledge and transferring knowledge to companies and organizations, leads to the social and economic development of societies. The first wave of this approach focused on prestigious universities in the United States such as Stanford and MIT. The second wave of this approach occurred in Western Europe. With the emergence of universities that have become entrepreneurial institutions, they aimed to support academic entrepreneurs in the emerging economies. The third wave, or the current ongoing process, relates to the policies and structures that government officials have embedded in their strategic plans to develop and promote entrepreneurship. But it is not clear which policies and structures can help develop entrepreneurship more effectively.[80] Nevertheless, what most scholars agree upon is the role of universities and higher education institutions in promoting entrepreneurship and value creation. In this process, the following issues can be considered, particularly for Khuzestan province:

Higher education to influence the economy of the region must inevitably move to the third wave of the effective inter-provincial policymaking. As such, one can look at the infrastructure of the region's indigenous culture and its potential for entrepreneurship and value creation, as well as for economic and social development. According to Wilson scholarly research in urban and regional economic development has been heading unwittingly toward a postmodern embrace of locality.[81] The second issue is the type of governance

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[78] Simon Datzberger, "Peacebuilding through non-formal education programs: a case study from Karamoja, Uganda." *International Peacekeeping* 24 no 2(2017): 326-349. doi:10.1080/13533312.2016.1214073.

[79] Jose L V Burguete, Carlota Lopez, and Ana Lanero, " Are students aware of university social responsibility? Some insights from a survey in a Spanish university," *International Review on Public and Non-profit* Marketing no 11 (2014): 195-208. doi:10.1007/s12208-014-0114-3.

[80] Gustavo Dalmarco, Willem Hulsink, and Guilherme Blois, "Creating entrepreneurial universities in an emerging economy: Evidence from Brazil." Technological Forecasting and Social Change, Elsevier no 135 (2018): 99-111. doi:10.1016/j.techfore.2018.04.015.

[81] Patricia Wilson, "Embracing Locality in Local Economic Development," *Urban Studies*, 32 no 4-5 (1995): 645-658. Doi.org/10.1080/00420989550012816.

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in higher education in the country, a serious challenge that is the transfer of decision-making power to inter-provincial agents. Having a developmental university requires a clear vision, enable and enabler leaders and educated work force.[82] Did local universities have these requirements? To what extent are administrators and centralized systems in the relevant departments willing to delegate part or all of their decision-making power to inter-provincial actors? For a decentralized higher education, decentralization must be accepted and inter-provincial capacities must be believed. The rulers of higher education and even higher levels of government should admit that the era of decentralization of higher education has arrived much earlier in modern countries. In this case, another challenging issue of future higher education is "Revenue will go way down, and costs way up"[83] in addition, those who fund higher education try to contribute to its government. The third issue that is less addressed and is relatively overlooked is the discussion of the environmental impacts and environmental ecosystem planning for higher education activities. There is a wide gap between the traditional and industrial sectors of employment in the province. Is the university going to take the entrepreneurial approach off the traditional market and modernize it by providing economic and social development? Why has not the transfer of knowledge from different academic centers helped much in the industry, business, and economics Peters, et al.,[84] and how can it be tailored to the regional benefits of a good prospect for creating and developing entrepreneurship and value? Creating an approach that addresses traditional and modern competencies simultaneously is a crucial issue for future higher education. The last issue is, financing entrepreneurship programs and value creation. In other words, the most important policy is the financial orientation that can lead to the success or failure of a program. Even the best policies, if not funded, would not contribute to economic and social development and will remain attractive on the board of directors. Futurism is inherently difficult. Uncertain futures, unknown factors, and sudden changes can make the results of future studies unreliable. Also, the university presidents and

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[82] Hamid Farhadi Rad, Sakineh Shahi, and Forogh Tahmasebi, "An investigation into the requirements, and circumstances of decentralization in Ahvaz education: viewpoint, leadership and human resource

[83] Johan Kroger, Leadership in Higher education, Accessed may 26. https://www.insidehighered.com/blogs/leadership-higher-education/10-predictions-higher-education%E2%80%99s-future.

[84] Peters, Guy, Giliberto Capano, Michael Howlett, Ishani Mukherjee, Meng-Hsuan Chou, and Pauline Ravinet, Designing for Policy Effectiveness: Defining and Understanding a Concept, (Cambridge University Press, 2018), Doi:10.1017/9781108555081.

higher education experts do not have the same viewpoints about the future of higher education, so maybe comparative studies are necessary in this regard. As a matter of fact, the variety of social sections and university majors adds to the complexity of this line of research and can be considered as the limitations of the present study. Finally, it is recommended that future researchers focus on one specific area of investigation, e.g., engineering student's entrepreneurship.

In general, it should be mentioned that, in order to have an entrepreneur and valuable university in Khuzestan, it is necessary to attend to the fundamental developments of Higher Education and young generations in universities. According to the related literature, universities today are different from the more traditional ones whose emphases were on creating and extending knowledge (Engwall 2020). In late 20th century, while accepting the traditional role of universities and referring to the world economy as knowledge-based economy, Sir Ron Dearing introduced universities as the key elements in socioeconomic development, ensuring competitive advantage through human resource development; he acknowledged the crucial role of market forces and the facilitative role of government in achieving to the abovementioned goals.[85] Under such a vista, values such as participation in economic modernization, public welfare, workforce preparation, and technological values find significance alongside academic values. In fact, according to the present mindset, university is at the service of knowledge-based economy. The fourth generation universities, which are somehow under the effects of the fourth industrial revolution too, are not satisfied with the triple participation of government, university, and industry,[86] and go beyond the discourse of knowledge-based economy. In other words, a fourth generation university that is a society engaged organization values knowledge-based economy when it is at the service of the human being and the society (Nabipour 2020). According to the model proposed by Carayannis and Campbell,[87] socioeconomic development is not possible if it is not sensitive to environmental contexts, even if it is at the service of human and society.

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[85] Bell Les, Mike Neary, and Howard Stevenson, "The Future of higher education: policy, pedagogy, and student experiences".

[86] Henry Etzkowitz, and Loet Leydesdorff, "The transformation of university-industry-government relations," *Electronic journal of Sociology* 5 no 4 (2001): 101-117.

[87] Elias G Carayannis, and David F.J Campbell, "Triple Helix, Quadruple Helix And Quintuple Helix And How Do Knowledge, Innovation And The Environment Relate To Each Other?: A Proposed Framework For A Trans-Disciplinary Analysis Of Sustainable Development And Social Ecology," *International Journal of Social Ecology and Sustainable Development* 1 no 1 (2010): 41-69, doi:10.4018/jsesd.2010010105.

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Therefore, the fifth-generation university requires the government, university, industry, and society to be in positive and constructive cooperation with the natural environment. These theoretical studies show that the higher education road map in Khuzestan should be developed based on the principles of fourth and fifth universities with the human, society, and environment at the heart. It should, however, be mentioned that, although having a university which can serve knowledge-based economy purposes is presently an ideal type of university in the province, it seems that, for long-term Higher Education planning in Khuzestan, values of fifth generation universities should be simultaneously taken into consideration.

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Special Section

COVID-19 experiences, impact, and implications for higher education

Special Section Editorial

Shaping proactive higher education: Pandemic research and its value for future-proofing

Anca Greere
COVID-19 Section Editor

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Abstract: This editorial to the Special Section on COVID-19 emphasises the importance of researching pandemic realities and the value that the findings can bring to the way we shape decisions in the future, for the 'new normal'. The pandemic, with its rapidly changing timeline, required swift action in untrialled circumstances and its consequences have been experienced differently by diverse institutions and across national contexts. Depending on the roles and responsibilities we may have taken on during this time, our capabilities to document our experiences and emerging trends have varied.

Key words: COVID-19 research; higher education; pandemic experiences; 'new normal'; strategic decision-making.

The pandemic, with its rapidly changing timeline, required swift action in untrialled circumstances and its consequences have been experienced differently by diverse institutions and across national contexts. Depending on the roles and responsibilities we may have taken on during this time, our capabilities to document our experiences and emerging trends have varied. As a community it is important that we continue to share and compare our experiences for a deeper understanding of the rationale underpinning similarities or differences.

When the Tuning Journal for Higher Education (TJHE) extended an invitation to contributors to focus on pandemic experiences, the impact these were having on higher education, and their implications for the future, we had just past the one year anniversary of the first COVID-19 lockdowns across the world. At the time it was difficult to predict how long the world would still be confronted with this crisis (it still is, of course, difficult to predict!). The words 'uncertainty' or 'unprecedented' had become a constant

feature of any form of communication, formal and informal alike, international mobility was still very limited, and governments were changing protocols with little, if any, notice. However, vaccines were already being rolled out, indeed more modestly in some contexts than others, wearing masks no longer seemed such an imposition, and frequent testing coupled with quarantine or self-isolation measures were being followed responsibly by the great majority of people.

The pandemic had created challenges, across all continents, at all levels of society, and without exception. For many months, the world had grasped at any form of normality it could still preserve as the 'new normal' rapidly took shape. The TJHE call for papers recognised that, in spite of (or truly because of) these challenges, higher education was exposed to valuable lessons and could take them forward, strategically, into the future. The proposal was clearly geared at encouraging a platform for academic debate and scientific research to support the higher education community in disseminating innovative responses, focussed approaches, impactful analyses and significant findings derived from the COVID-19 pandemic experiences.

During the timeline of the pandemic, higher education has been strongly impacted, initially with an imposed shift to online modes of delivery and, subsequently, with a prolonged transition which is continuing to question the temporary nature of this shift. The emergency remote response benefitted from the effort, time, and goodwill of both staff and students, as new roles and responsibilities had to be accommodated in situations that strongly resembled crisis management. A level of leniency and tolerance was exhibited by all stakeholders as higher education institutions were finding ways to come to terms with stringent restrictions while aiming to safeguard the educational experience, overall, and teaching, learning and assessment standards, more specifically. However, the start of the second academic year affected by the pandemic (i.e. 2020-2021) dispelled many of the hopes that there could be a full return to academic life as we had witnessed it before the pandemic. It was becoming increasingly evident that pandemic experiences were already reshaping our outlook on what would be a sustainable academic environment, effective student-staff interactions and innovative enhancements for the future. The pandemic was expediting items on the global agenda for higher education, like widening participation in support of inclusivity and diversity, increasing digitalisation in support of pedagogical advances and infrastructural efficiencies, or intensifying international collaborations in support of unique research engagements and expanded academic exchanges. The higher education sector was grappling for solutions, taking higher risks (but not where safety was concerned), increasing the pace of decision-making,

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and rolling out actions to deal with the crisis. With some challenges arguably universal and others highly context specific, the options available to institutions and their modes of implementation have demonstrated considerable variety.

It is against this backdrop that we proposed a wide ranging list of topics to be covered in the Special Section on COVID-19 of the TJHE to allow us to take stock of such experiences, derive lessons learned, identify impacts, and model post-pandemic expectations. Interestingly, we have received submissions from across all continents, some with a strong statistical focus offering an authoritative view derived from national-level studies with thousands of respondents and others prioritising qualitative findings from small-scale investigations into niche areas and challenges; some concentrating their attention on documenting pandemic realities and others taking a forecasting approach and striving to anticipate viable directions; some preoccupied with day-to-day grassroots experiences and others translating operational solutions into strategic, mission-critical strides. Irrespective of approach, we have welcomed the large number of submissions and celebrated their variety. Reviewers have been working tirelessly to provide constructive feedback and authors have been extremely understanding of, and responsive to, the publication process. Two contributions are ready for publication in this issue, and many more are being attended to in the background as we prepare the May and November 2022 issues.

Most certainly, the topics proposed retain their relevance into 2022. Considerations of temporary versus permanent solutions and their anticipated implications for future directions are even more topical now and span many areas of higher education, including: strategic decision-making and leadership; changing institutional/organisational roles and responsibilities; repurposing internationalisation and mobility aims; broadening of quality standards and quality assurance approaches; adjustments to programme design and curriculum delivery; staff and student performance within the virtual environment; definitions of academic integrity and ethical behaviour in online or hybrid interactions; upgrading infrastructure; recalibrating support services; reaffirming research and development priorities; and, not least, rethinking engagement with industry and society. For a comprehensive, overarching view of the pandemic print on higher education, we continue to draw on focussed analyses of these topics, whether they are qualitative or quantitative, exploratory or descriptive, supplemented by recommendations for future action and/or applicability between contexts.

The Special Section on Covid-19 will continue to foster international academic reflection, detailed analysis, and on-going dialogue by bringing

together diverse opinions, multiple voices, and varied perspectives. We invite higher education institutions (senior management, staff, and students), quality assurance agencies, ministerial bodies, industry representatives, and other stakeholders to continue to engage with the TJHE and propose contributions in the form of research articles, case studies, or policy papers on topics related to the pandemic and higher education.

The TJHE commitment to offer a platform for the exchange of experiences within higher education is as strong as ever. Given the positive reactions and the manifold submissions we have received, we are encouraged that our initiative to support solutions for the 'new normal' is already demonstrating impact. Notwithstanding that pandemic realities have been most challenging, we have to recognise that options which would have rarely been considered viable in pre-pandemic higher education are becoming increasingly appealing to a variety of stakeholders. The world of higher education is now even more preoccupied with the major questions of what each institution, each national sector, and each regional structure will take forward as they craft their post-pandemic profiles.

Nevertheless, any attempt to look into the future and try to make sense of what may come to be, involves a recognisable gamble and hence the risk of misjudgement. However, a realistic assessment of past lessons corroborated with a comprehensive understanding of future potential may mitigate this somewhat. It would, thus, seem obvious that the more detail we gain and the more insights we share, the better we will be placed, as a sector, to identify opportunities for innovation and growth.

One of the most recurrent questions concerns the future modes of delivery and the options that have become available to the higher education sector as a result of pandemic lockdowns and the forced move to online. With the experience of the past 18 months, it seems inconceivable that these modes, namely online, blended, hybrid, and in-person, would not all play a role in the future. Additionally, it seems reasonable that we would envisage online options as becoming more prevalent than in pre-pandemic times. Indeed, in professional conversation, many colleagues in institutions where there was no prior online/distance-learning experience, describe a sense of achievement in relation to the use of online modes and newly gained confidence in relation to digitalisation and technology-infused pedagogies. While previously they would have been reluctant and would never have embraced a move to online if given the option, they may now find themselves enthusiastically promoting it and some are quite distraught at the thought that there could be a full revert-back to traditional delivery. Colleagues recognise the steep learning curve involved, both individual and institutional, but see this as something

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that has allowed the higher education sector to demonstrate great levels of adaptability, resilience, and innovation, and has highlighted the potential to drive a paradigm shift. Some colleagues express the desire not to lose the momentum and build on the lessons learned, embed the skills developed, and grasp these new opportunities for growth. Importantly, however, this is accompanied by the understanding that any decision to retain online delivery, in whatever combination, needs to benefit from proper strategic and operational planning so as to meet quality expectations by all stakeholders, including students, teaching staff, professional staff, senior management, employers, the general public, quality assurance bodies, and governmental structures.

Clearly, each institution, each national sector, and each regional structure will need to assess context specific elements and culturally relevant features to validate changes made in response to a post-pandemic future. Some of these changes may seem more like minor adjustments with the potential to better streamline operational areas, while others may be underpinned by strategic redesign and offer institutions and sectors opportunities to reposition themselves regionally or globally.

In support of planning, the following questions may contribute to eliciting the appropriate nature and relevant degree of future change and help to determine how valuable changes may prove to be for any given institution, organisation or government.

(1) What is permanently desirable? What will the institution/organisation/government wish to retain? What will the institution/organisation/government struggle to retain? And, crucially, why? What purpose is the change serving? What are the implications of its implementation?

(2) What is temporarily desirable? What will the institution/organisation/government seek to discard? What will the institution/organisation/government struggle to discard? And, crucially, why? What purpose is the change serving? What are the implications of its implementation?

As the world of higher education is still navigating towards an uncertain future, it is important that we continue to take a reflective approach, and one that allows multiple factors to be brought into the discussion. Coming out of the pandemic, whenever that might be, will also pose a variety of challenges and the higher education sector needs to demonstrate awareness and take appropriate action. Close scrutiny of the recent past will continue to yield insights into potential options for the future, as the predicted 'new normal' is yet to fully materialise.

It seems common sense to affirm that, at the current moment, anyone invested in higher education who is still postponing to make strategic

decisions in anticipation of post-pandemic times is choosing to ignore the obvious signs of opportunity and the predictive prompts for change.

Personally, I share in the belief that the momentum for development and growth should not be lost. It is my view that while 2020 and much of 2021 was, unavoidably, spent in a reactive mode, as we enter 2022, a shift towards more proactive tactics will be an advantage. Unquestionably, firm decision-making, and its explicit communication, will be of benefit in the 'new normal' that arises as we emerge from the crisis.

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A mixed methods contribution analysis of UK students' unions' internal communications response to addressing staff motivation during the Covid-19 pandemic

Matthew Kitching*

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Abstract: This macro-level, mixed methods contribution analysis evaluates the influence of students' unions internal communication response to the Covid-19 pandemic on staff motivation. Recognising the role individual interpretation and perception play in the receipt of such messages, this paper seeks to understand which motivating factors union managers sought to address through their communications, whether these efforts were recognised by staff and whether there is evidence they may have helped to alleviate employee concerns. The evaluation findings will be of interest to student union managers and professionals looking to enhance communications and improve employee motivation.

Keywords: Students' Unions; Covid-19 pandemic; mixed methods; Contribution Analysis; internal communications; motivation.

I. Introduction

Since its emergence in early 2020, Covid-19 has wreaked havoc with higher education in the United Kingdom (UK). The second half of the 2019/20 academic year was thrown into disarray with classes suspended, campuses closed and the cessation of extra-curricular activities. The ensuing rush to enable online delivery was addressed with mixed success across the

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sector, as a report produced by the Quality Assurance Agency (QAA) highlighted. Where this transition worked well it largely reflected providers' starting positions. In instances where institutions were already delivering online programmes and/or had high levels of digital literacy among their communities, it proved easier.[1] Consequently, the summer brought a welcome reprieve for staff and students alike.

Yet, that holiday season provided little respite for a Government beset with scandals over secondary and A-level examinations.[2] It is perhaps little wonder therefore that they failed, in the eyes of many higher education institutions and commentators, to provide satisfactory guidance for re-opening campuses in the autumn. This against a backdrop of concern from stakeholders, including the independent SAGE group.[3] University College Union (UCU) and the National Union of Students (NUS) about the risks posed by re-opening campuses from August 2020.[4,5]

Those concerns proved legitimate, as no sooner had universities and colleges welcomed students back onto site and into halls of residence than a picture emerged of alarming transmission rates in large university cities and institutions including Glasgow, Manchester, Newcastle, Nottingham and Liverpool. Media coverage of these issues at the time was prominent, as well as that which focused on a growing level of concern surrounding students' mental health as they were confined to their halls and homes and struggled to make virtual connections with their peers and lecturers.[6]

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[1] QAA, "*How UK Higher Education Providers Managed the Shift to Digital Delivery During the Covid-19 Pandemic,"* (2020), https://www.qaa.ac.uk/docs/qaa/guidance/how-uk-higher-education-providers-managed-the-shift-to-digital-delivery-during-the-covid-19-pandemic.pdf.

[2] Tola Onanuga, *"The Government's Disastrous a-Level Scandal Reveals Its Contempt for the Working Class," Prospect Magazine, (2020),* https://www.prospectmagazine.co.uk/politics/government-a-levels-grades-uk-explained-downgraded-gavin-williamson.

[3] The Independent Scientific Advisory Group for Emergencies formed in the early stage of the pandemic as an alternative scientific voice to the Government's Scientific Advisory Group for Emergencies (SAGE). https://www.independentsage.org/

[4] David King, *"Independent Sage Response to Sage "Principles for Managing Sars-Cov-2 Transmission Associated with Higher Education," Independent SAGE,* (2020), https://www.independentsage.org/wp-content/uploads/2020/09/iSAGE-response-to-SAGE-HE-FINAL-09-09-2020.pdf.

[5] UCU, *"Universities Must Not Become the Care Homes of a Covid Second Wave," @ucu,* (2020), https://www.ucu.org.uk/article/10964/Universities-must-not-become-the-care-homes-of-a-Covid-second-wave.

[6] Tom Gillespie, *"Coronavirus: Students Say Starting University During the Pandemic Is Impacting Their Mental Health", Sky News,* (2020), https://news.sky.com/story/coronavirus-students-say-starting-university-during-the-pandemic-is-impacting-their-mental-health-12081273.

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There are over 600 students' unions in the UK and the overwhelming majority were as exposed to the turmoil brought about by the pandemic as their institutions. While the form, size and services offered by these unions varies widely, many organise a combination of social, cultural, representative and campaigning functions, which they attempted to adapt in order to transition them wholly or partly online. In addition to shifting the mode of delivery for this activity into a virtual space they had to oversee the move to home working for their multi-disciplinary units. This forced migration arguably exacerbated existing challenges associated with building effective teams, and working collaboratively, in organisations where responsibilities range from student sport to advice and from representation to the operation of licensed premises. The demand for some of these services (advice and representation) heightened during the pandemic whereas others (sport and bars) have, at points, come to a complete halt. Add to this the same challenges faced by other organisations when it comes to social interaction, the provision of adequate technology and resources for home-working, as well as staff concerns over finance, housing and mental health and it becomes clear that students' union staff and their management teams have had much to contend with in the past year and a half.

The object of this evaluation comprises the full gamut of communications received by union employees during the initial stages of what, at the time of writing, is an ongoing pandemic, from all-staff, departmental and individual emails to social media communications and online and face-to-face meetings. Specifically, the focus of the evaluation is on understanding the link between those communications and staff motivation. The fieldwork for this evaluation took place between September and November 2020, a point in time when a significant number of unions were operating under various forms of local lockdown and the spectre of further national restrictions was growing. This was followed by a 'third lockdown' and while the impact of the vaccination programme appears to have blunted (though not entirely removed) the prospect of further lockdowns in academic year 2021/22, the findings of this research remain important for academics and practitioners. Students' unions may yet find that they are required to pivot back to online activity if the National Health Service becomes overwhelmed; consequently, there remains a critical imperative for students' unions to do all they can to improve their communications. Additionally, organisations are reporting their intent to retain the few positives brought about by the pandemic, including hybrid working.[7]

[7] Mark Johanson, *"Hybrid Work: What the Office Could Look Like Now," BBC,* (2021), https://www.bbc.com/worklife/article/20210713-hybrid-work-what-the-office-could-look-like-now.

In order to place themselves in the best possible position, both in case of a future lockdown and to maximise the benefits of hybrid working, unions need to understand how effective their strategies have been to date and how their staff have been affected. This evaluation serves to address that need and help unions to adapt and improve their response, and associated communications, during the next phase of the crisis. To assist with that, unions who participated in the evaluation and secured ten or more respondents were offered optional data reports to support their internal reflection and strategic planning for possible further lockdowns and extended home working.

In terms of the paper's structure, it will first discuss the operative evaluative approach, Contribution Analysis, including the epistemological basis for its selection, as well as its practical utility. Following this, comes a brief overview of Maslow's Hierarchy of Needs, which provides the foundation for the postulated theory of change; a required element for Contribution Analysis. A methods section will then explain how these theoretical and evaluative constructs were integrated, as well as addressing survey design and piloting, access and recruitment and ethical considerations. The sections of the paper that follow will provide an exposition of the evaluation's findings and their apparent implications for practice, as well as some reflections on the limitations of my work and future directions for further research and evaluation.

II. Methodology

II.1. An interpretivist approach to contribution analysis

Mayne's Contribution Analysis follows a six step process in order to *"explore attribution through assessing the contribution a programme is making to observed results"*.[8] In line with the evaluation object and focus outlined in the Introduction, unions' internal communications represent the *programme* being assessed and staff motivation forms the *observed results*. In this instance, the contribution that the programme makes was assessed through a survey of students' union staff, which combined quantitative and qualitative data on their motivation and experience before and during the Covid-19 pandemic. Specifically, the following questions are addressed:

1. What motivational factors had staff been concerned about between the start of the pandemic in the UK and the fieldwork period?

[8] John Mayne, *"Contribution Analysis: Coming of Age?," Evaluation* 18, no. 3 (2012), https://journals.sagepub.com/doi/abs/10.1177/1356389012451663.

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2. To what extent did union managers seek to address these concerns through their communications, and how?
3. Were these efforts recognised by staff and is there evidence to draw on that communications may have helped to alleviate employee concerns?

Contribution Analysis is best suited to this evaluation for four primary reasons:

1) *It is conducive with an interpretivist approach:* for every member of staff who received a communication during the pandemic its influence on their motivation is likely to have varied, depending on a range of factors including their pre-existing motivation and their personal circumstances; for example, in relation to their finances, health and/or ambition. Therefore, in order to understand the influence that communications have on staff we must seek to understand more about them as individuals. Contribution Analysis enables such an approach, which on this occasion has been achieved, in part, by including questions in the survey device on pre-pandemic opinions across a range of factors and on the pandemic's financial impact on individuals.

2) *It takes account of complexity:* Mayne acknowledges the existence of complex 'causal packages', whereby interventions do not act alone. Instead, a combination of causal factors is likely to be needed in order to bring about the desired outcomes.[9] Despite this, Contribution Analysis allows you to foreground certain factors and still make contribution claims, providing you acknowledge the existence and potential influence of the remaining factors. Here, the interpretivist model adopted in this evaluation is aligned with my theory of change, outlined in full in the next section, and the decision to foreground staff perception at the expense of gathering data which might have provided evidence about a particular intervention, but which would not have allowed me to make inferences about how it was perceived by staff. This formed the basis of inclusion and exclusion criteria for the evaluation. Excluded was any primary analysis of individual programme interventions or communications. Conversely, inclusion criteria centred on data which enabled me to understand staff perceptions of those interventions and the communications in which they were outlined.

3) *It is not prescriptive about the need to determine definitive causal attribution:* Mayne would describe an attempt to understand how a

[9] Ibid.

particular decision or individual communication influenced staff motivation as a *"traditional causality"* sort of question. Like Mayne, I recognise the existence of causal packages and that without taking the full range of factors that may have influenced staff motivation into account it is not possible to robustly answer a question of this type. However, Mayne also identifies what he calls *"managerial questions"* which include whether *"it is reasonable to conclude that the programme has made a difference to the problem"*. By identifying the strategic intention of managers in developing their communication strategies, gathering data on how these communications have been perceived by staff and observing differences in motivation across range of factors before and during the pandemic, it becomes reasonable to conclude whether manager's intentions have been realised; or whether communications have had a negative influence on staff motivation.

4) *It permits subjective determinations about the required level of proof:* Mayne is clear that the level of proof required is a decision for the evaluator, based on what they intend to do with the findings.[10] In this case, where I have agreed to provide participating unions with data reports, they will be triangulating my findings against other data sources and their own understanding of their local context. This has also informed the decisions that I have taken about sample size.

Added to these reasons, Contribution Analysis is designed to be an iterative approach. This means initial data gathering and analysis can be carried out in a relatively short timeframe, especially important given the ongoing nature of the pandemic and the need for union managers, who are seeking improvement rather than perfection, to apply any learning quickly. Alternative approaches to evaluation were considered, in particular Realist Evaluation, however a determination was made that the human and financial resources required to conduct such an evaluation were not available, but that a similar study using Contribution Analysis could be carried out, at scale, that would be equally robust, credible and have comparable utility for practitioners in the field. The next section of this paper outlines the theory of change used in the evaluation which, as has already been stated, is something that Mayne considers an integral part of Contribution Analysis.

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[10] John Mayne, *"Contribution Analysis: An Approach to Exploring Cause and Effect,"* (2008), https://www.betterevaluation.org/sites/default/files/ILAC_Brief16_Contribution_Analysis.pdf.

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II.2. Theory of change

My theory of change (see Figure. 2) is predicated on the basis that managers identify concerns that are likely to effect staff motivation, that they then identify existing and/or new interventions to address these concerns and communicate them to their employees, who process that information and, where this is done effectively, it has a positive impact on motivation. The theory was also constructed based on a hypothesis, having viewed emerging communications from several students' unions, that Maslow's hierarchy of needs was implicitly forming the basis of unions' communications strategies.[11] Consequently, the survey device was built to align sections against Maslow's tiers, which also allowed his theory to be used as an analytical tool when interrogating the data.

Maslow's theoretical framework for individual personality development and motivation operates from an interpretivist position, which recognises the centrality of individual wants and needs in relation to motivation. The basic premise being that what someone wants depends on what they already have.[12] Maslow argues that, broadly speaking, needs at the base of his hierarchy (see Figure. 1) have to be satisfied before individuals become concerned with the next tier. In the context of this evaluation we look to understand how internal communication contributes to this progression.

It should be noted that there are challenges to using Maslow's theory in the workplace. Firstly, as noted by Mullins[13], it was not originally developed for such settings, and factors in an employee's personal life also contribute to their overall motivation. This paper's findings describe results which demonstrate a linear picture of escalating concerns through the hierarchy, but caution must be exercised here. Maslow himself recognised that this is not always the case and individuals' personal context determines their position in relation to the various tiers and that for some the order of need will be different. Notwithstanding the caution that needs to be exercised, the theory provides a credible and effective prism through which to analyse staff experience and offers explanatory power in relation to my data findings.

However, understanding the different factors that influence motivation is insufficient. This might enable an organisation to plan an intervention; but, unless they can communicate that effectively to their staff, who in turn attribute the same significance to it, it is unlikely to be successful. For

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[11] A. H. Maslow, *"A Theory of Human Motivation," Psychological Review* 50, no. 4 (1943).

[12] Laurie J. Mullins, *Management and Organisational Behaviour* (Welwyn Garden City, UNITED KINGDOM: Pearson Education UK, 2013).

[13] Ibid.

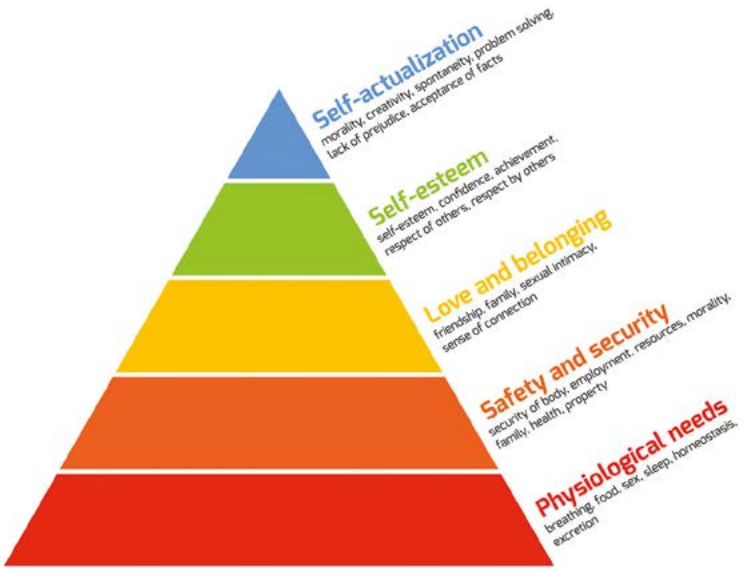

Figure 1
Maslow's hierarchy of needs

example, it isn't enough to develop an excellent reward scheme for staff, they have to be told it exists, why and how it will benefit them and what they need to do in order to benefit. This also has to be done in ways that they can understand, and managers need mechanisms in place to receive feedback that allow them to assess that understanding has occurred.

In her work, Lyn Smith brings together the three essential strands of this evaluation in a compelling fashion: namely, Maslow's Hierarchy of Needs, the role of the individual and internal communication.[14] Smith, quoting a senior communications consultant, addresses the utility of Maslow's theory for the important task of focusing on the individual and not purely on systems; because, as she puts it: *"people are unpredictable, rational and emotional'*. Smith's argument that *"taking the time to understand the motivations of individuals rather than treating them as an amorphous group should pay dividends for the internal communicator"*. These observations point to the complexity required for successful communications. Managers need to

[14] Lyn Smith, "*Part 1: Setting the Scene - Chapter 04: Theories into Practice*," 2nd ed. (London: Kogan Page Ltd, 2008).

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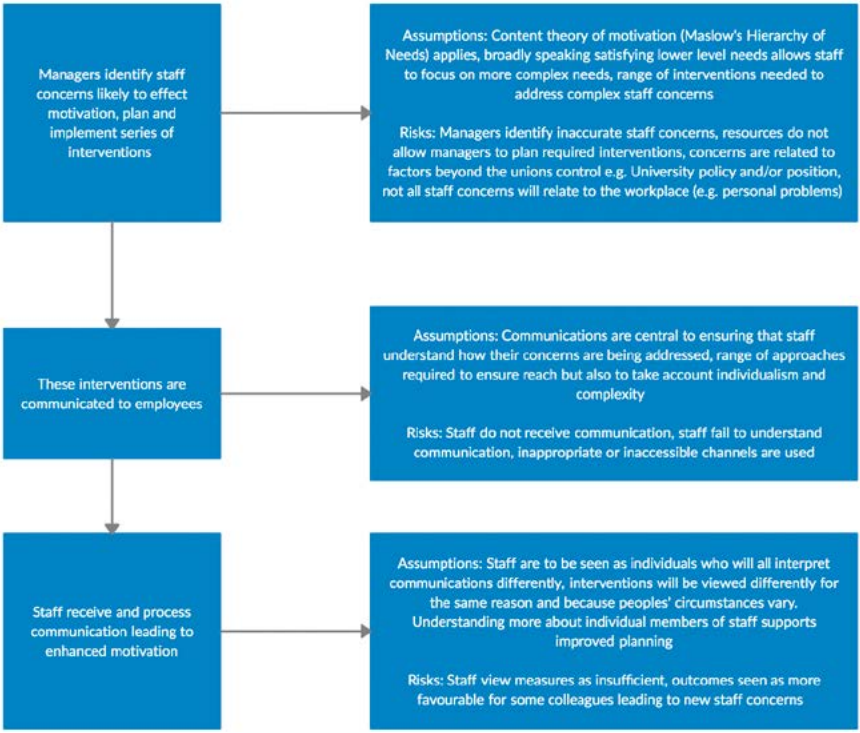

Figure 2

Theory of change for enhancing staff motivation in students' Unions

understand the motivations of individual staff members, which requires not just tailored communications but, ideally, interventions. This is fraught with risk; managers may identify inaccurate concerns, insufficient resources may exist to provide the full range of interventions that are required, messages may be communicated ineffectively, inappropriately or inaccessibly to certain groups or individuals. Figure 2 shows these, and other risks integrated into the theory of change, together with its fundamental assumptions.

II.3. Survey design

In order to operationalise the theory of change within the evaluation, survey questions were positioned against the five levels of human need that Maslow identifies in his research: physiological, safety, belongingness,

esteem and self-actualisation. These needs were mapped to the operating context under which students' union staff were working. For instance, belongingness was mapped to reduced opportunities for socialisation and collaborative working, esteem to reward and recognition arrangements and self-actualisation to career progression and the provision of professional development opportunities. Physiological and safety needs were largely combined and mapped to granular financial concerns, including debt and difficulty paying mortgage and rent.

Having mapped Maslow's hierarchy to issues facing students' union staff during the pandemic, some of the motivational factors I used during the evaluation required me to develop a working definition for participants. Capability was taken to mean the broad range of factors which collectively enable staff to achieve in their role. This includes the provision of appropriate technology and working spaces. It also includes appropriate induction arrangements, suitable supervision and support from colleagues, as well as the provision of clear instructions, duties and expectations. Just as I produced a broad working definition for capability, I informed participants that belongingness was assigned a similarly broad definition in this evaluation. It was taken to mean the extent to which staff feel part of a team and have a pride and attachment in working for the Union. It also concerns their connectedness with colleagues through opportunities for socialisation and collaboration.

The survey questions were piloted with two former colleagues, who are experienced practitioners in the field, and feedback led to minor adjustments. Changes included an opportunity to provide any further comments at the end of the survey and the inclusion of additional communication mechanisms that unions may have used. None of the feedback from the pilot data was included in the final analysis.

II.4. Sampling, access, and recruitment

As highlighted in the Introduction, there are over 600 students' unions in the UK. Yet, little scholarly attention has been paid to students' unions thus far; consequently, research looking into the scale and experiences of the students' union workforce across the UK is patchy and inconsistent and there is little comprehensive data about the number of staff working in the field.[15]

[15] Mike Day and Jim Dickinson, *"David Versus Goliath: The Past, Present and Future of Students' Unions in the UK," Higher Education Policy Institute*, (2018), https://www.hepi.ac.uk/2018/09/06/david-versus-goliath-past-present-future-students-unions-uk-2/.

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For instance, the annual SU Survey carried out between NUS and senior sector staff does not include an overall headcount. Similar research, such as the National Employee Engagement Survey, suffers from consistently low response rates. The absence of comprehensive descriptive research and data presented a problem for sampling. In order to approximate the overall population, the significant variation in staff headcount across different unions was considered. The construct of the majority of students' unions operating across Further Education and within private providers is markedly different to equivalent unions operating in, historically publicly funded, Higher Education institutions. Professional staff support structures in the former often do not exist or they are less developed. This evaluation does not seek to draw findings that can be generalised to the former group. For that reason, I use, as a baseline, the 121 higher education institutions listed in the Guardian universities league table. The sampling strategy assumes a conservative estimated average of 30 staff per organisation across these unions, producing a total population of 3630.

The significant qualitative data generated by the survey provides some latitude for a small overall sample, in that thematic analysis of this rich seam of data enables me to affirm, contest or offer alternative hypotheses to those developed from the quantitative data alone. A further mitigation against the need for a higher sample is the relative homogeneity of the population, all staff, working as they do, in one profession, student unionism. On this basis, the following equation was used to determine the sample size necessary for 95% confidence, .5 standard deviation and a margin of error of +/- 8%:

$$\frac{\left((1.96)^2 \times .5(.5)\right)}{(.8)^2} = 145$$

Having determined the necessary sample size a random sampling strategy was employed with an open call to participants advertised across established staff networks on Facebook Workplace and LinkedIn. I also attended a senior staff network meeting, organised by NUS, to promote the research. To act as an incentive and assist with recruitment, as indicated above, a further feature of the evaluation is that unions securing ten or more respondents were offered optional data reports to support their internal reflection and strategic planning for possible further lockdowns and extended home working. This overall approach resulted in a total of 151 staff from 35 different students' unions participating in the evaluation, with 5 of those organisations electing to request data reports. Figure 3 shows the breakdown by role of staff who participated in the survey.

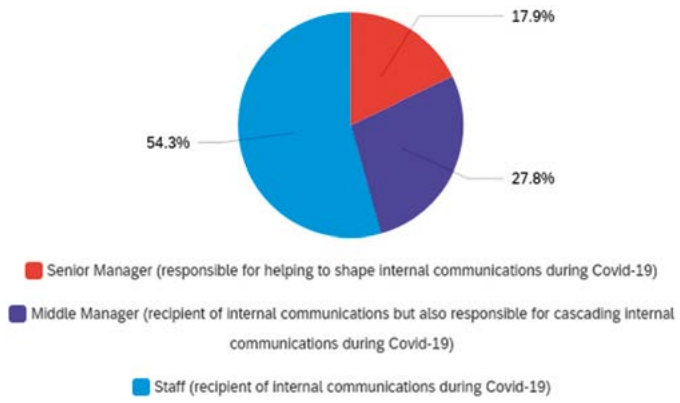

Figure 3
Role of students' union staff

II.5. Data analysis and confidence levels

This is a mixed-methods study and equal weight was given during the analysis to qualitative and quantitative analysis. The analytical approach employed in this evaluation used univariate and bivariate analysis, including Z-tests, to present quantitative data and examine relationships between variables. This data analysis has been used to drive qualitative thematic analysis of the substantial open text responses throughout the survey. For instance, data demonstrating a reduced sense of belongingness among furloughed staff has informed analysis of qualitative data concerned with action unions can take to address this deficiency. This, in turn, has instructed my deployment of quotes within my findings; whereby, I employ an illustrative presentational methodology, with those selected reflective of a larger number of similar qualitative responses from the data set.

Mayne discusses the need to determine the level of confidence required that the programme, in this instance unions' internal communications, has made a difference to the problem.[16] This can vary depending on a range of factors including 1) what will be done with the results and 2) what decisions will be taken based on the findings. A determination has been made in this evaluation that a relatively low burden of proof is acceptable. Given one output from the evaluation has been a series of reports constructed for

[16] John Mayne, *"Contribution Analysis: Coming of Age?," Evaluation* 18, no. 3, (2012), https://journals.sagepub.com/doi/abs/10.1177/1356389012451663.

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individual unions who participated. These organisations are able to contextualise the data and findings they were supplied with, based on the action and specific interventions that they know themselves to have implemented in their unions, together with other data and intelligence available to these organisations. The establishment of a survey device also allows the evaluation to be replicated in future studies to affirm or contest the findings presented in this paper.

II.6. Ethical considerations

From an ethical perspective, evaluating employees' experiences during the pandemic and their perception of internal communications could lead to highly sensitive discussions about individuals' finances, including debt, volatility in their housing situation, domestic violence and experiences of grief and distress due to family bereavement, illness and separation. In relation to unions, it is equally conceivable that dialogue could include confidential and sensitive information about an organisations' finances and viability, including the likelihood of redundancies. These considerations combined with my position as a senior staff member within the student movement, where I am known to a relatively wide range of staff and unions, influenced my selection of methods. I determined that interviews carried out within this context posed potential problems, such as a reluctance among participants to discuss personal finances, organisational viability and other sensitive information. Electing to use a survey, with a substantial qualitative element meant that participants could retain anonymity while still providing detailed, rich data about their experience and circumstances. Ethical approval was sought and received from the Department for Educational Research at Lancaster University.

III. Findings

III.1. Staff concerns and the senior management response

Table 1 illustrates a linear escalation through Maslow's hierarchy, with staff most concerned about those issues at the base of the hierarchy. The de-stabilising effect of the pandemic on organisations means the ensuing alarm about personal job security, which maps to the physiological and safety tiers, is the second most pronounced concern among respondents (65.25%). Concerns about reduced opportunities for socialization (69.50%), which map to Maslow's concept of belongingness, were more acute than those of job security. Interestingly however, preliminary results from this study, analysed

at an earlier stage in the pandemic found job security was the most significant concern among staff. This serves to reinforce progress through Maslow's hierarchy, in that as initial fears of job security reduce slightly, the longer the crisis extends, the more staff become concerned about issues of belongingness.

These concerns were followed by those centred on arrangements for reward and recognition (39.01%) and how staff members' value to the team is perceived (35.46%), both of which correspond with the tier related to esteem needs. Finally, respondents were least exercised by career and development issues (34.04%) which, again, supports Maslow's theory that you are more likely to become motivated by those factors at the upper tiers of the hierarchy once those underneath start to become satisfied.

The number of staff citing capability issues as a concern (51.06%) could be viewed as an anomaly if you view access to appropriate equipment and support as being essential components to 'achieve one's potential' and thereby linked to Maslow's highest tier. However, the data here reflects the essential role that equipment, suitable home-working space and the provision of accessible support and supervision play at all stages of the hierarchy; they are fundamental enablers. Without these things in place the person is potentially unable to connect with colleagues, their work is inhibited and their contribution less likely to be acknowledged, in turn this makes them more susceptible to redundancy, as poor impressions about their contribution begin to form. Data on staff concerns alone appears to show that Maslow's Hierarchy of Needs has promise as a model understanding the motivation of students' union staff throughout the pandemic.

Table 1

Which of the following have you been personally concerned with during the Covid-19 Pandemic?

Field		Choice Count
Reduced opportunities for socialisation and human interaction with team members	69.50%	98
Job security	65.25%	92
Organisational sustainability/viability	60.99%	86
Capability concerns (including the provision of appropriate equipment, suitable home-working space and the provision of accessible support and supervision from colleagues)	51.06%	72
Recognition and reward for good performance	39.01%	55
Your value to the team	35.46%	50
Career and professional development concerns	34.04%	48
Other, please detail any that apply	9.22%	13
		141

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Table 2

Which of the following potential staff concerns did senior managers seek to address when constructing internal communications?

Field		Choice Count
Reduced opportunities for socialisation and human interaction between team members	92.31%	24
Their value to the team	84.62%	22
Capability concerns (including the provision of appropriate equipment, suitable home-working spaces and provision of accessible support and supervision from colleagues)	84.62%	22
Organisational sustainability/viability	76.92%	20
Job security	69.23%	18
Recognition and reward for good performance	46.15%	12
Personal financial concerns	42.31%	11
Career and professional development concerns	42.31%	11
Other, please detail any that apply	23.08%	6
		26

Showing rows 1 - 10 of 10

Having established a more detailed understanding of staff concerns it is important to consider these in the context of senior managers' strategies when composing internal communications. Several significant observations are evident from Table 2; firstly, the emphasis senior managers placed on the different staff concerns does not entirely align with those of their staff. Despite job security being the biggest preoccupation of their staff, only 69.23% of senior managers believed their union sought to alleviate concerns in this area. Due to uncertainty this may have been harder to accomplish; however, only one senior manager referenced any discussion or consideration about redundancies having taken place. It therefore appears to be a reasonable assumption that unions could have offered assurances, at least for the short-term. A greater number of senior managers believed that communications included positive statements about organisational sustainability and viability (76.92%). That managers considered themselves more able to provide reassurance on an organisational rather than individual level is conceivably due to the more certain short-term positions and the fact that as their ongoing viability is intrinsically linked to the fortunes of their 'parent' universities, without direct reassurances from those institutions, managers arguably viewed themselves as constrained and less able to offer even short-term reassurance to their employees about their individual positions.

Another interesting observation from this data is that under half the managers taking part in the survey (46.15%) consider that their communications

included content designed to focus on reward and recognition. Although this was only a concern for 39.01% of staff, it provides one possible explanation for the volume of staff comments, discussed later, indicating they would have liked their efforts during a difficult phase of the pandemic to be acknowledged.

III.2. Financial concerns, furlough, and job security

Only 29.58% of respondents reported having experienced financial difficulties or concerns during the pandemic. While unions would want to avoid any of their staff encountering problems in this area, the fact this has been restricted to less than a third of the workforce is perhaps better than could have been expected. In fact, a closer inspection of these concerns (see Table 3) demonstrates that while 90% of those concerned about their finances reported suffering from anxiety, far fewer experienced actual problems with paying bills and/or debt. This is likely testament to the slightly protected short-term position of higher education, while the medium term forecast might well look grim, in-year losses were more modest, certainly in comparison to other sectors, and furlough prevented any large-scale redundancies.[17,18]

Table 3

Which of the following financial difficulties have you encountered?

Field		Choice Count
Anxiety about potential financial problems	90.00%	36
Difficulty paying household and other bills (excluding mortgage/rent)	25.00%	10
Difficulty paying rent or mortgage including arrears	20.00%	8
Credit card debts	12.50%	5
Loan debts	12.50%	5
Other, please detail any that apply	10.00%	4
		40

Showing rows 1 - 7 of 7

[17] The term 'furlough' refers to staff who were placed on the Government's Coronavirus Job Retention Scheme and had their salary or wage supported by the State. Staff placed on furlough were not allowed to carry out work for their employer, paid or otherwise, while registered on the scheme

[18] Richard Adams, *"Coronavirus UK: Universities Face £2.5bn Tuition Fee Loss Next Year," The Guardian*, (2020), http://www.theguardian.com/education/2020/apr/23/coronavirus-uk-universities-face-25bn-tuition-fee-loss-next-year.

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Table 4

How effective were the Union's internal communications in addressing your financial concerns?

Field		Choice Count
Extremely effective	5.26%	2
Very effective	10.53%	4
Moderately effective	15.79%	6
Slightly effective	18.42%	7
Not effective at all	28.95%	11
Not sure	21.05%	8
		38

Showing rows 1 - 7 of 7

However, where staff did report finance as an issue Table 4 shows that only 15.79% of participants viewed the unions' internal communications as extremely or very effective in addressing their concerns. Praise for unions largely focused on the issue of pay during furlough:

> *We were reassured continuously we would continue to receive 100% pay, even when on furlough.*
>
> *We received the full 100% pay during furlough! This was amazing and the Union were great at supporting us with any financial concerns or queries as they told us who to contact if we needed help!*

In total, 63.16 % viewed their unions' internal communications as moderately effective or worse in addressing their concerns. Above, it was observed that only 69.23% of senior managers reported trying to alleviate worries about job security. Whether this was an oversight, or my hypothesis is accurate and managers considered themselves unable to give that reassurance, evidence suggests its absence is feeding into staff anxiety:

> *Our student union like others are partially dependant on our block grant from the university. If the university lose money… then that is likely to affect their monies coming in. Redundancy packages have been offered to staff in the university… This, at some stage, is likely to affect the block grant of the SU.*

Even in cases where unions tried to provide reassurances there were occasions where the message failed to get through:

> *There is reassurance on job security but no evidence behind this, especially as departmental budgets were cut by up to 50%.*

These were issues acknowledged by one senior manager:

> *The University financial position has shifted quite a bit in recent years though and I think without providing detailed information (evidence if you will) then some staff are probably still not reassured.*

The need for unions to address this problem becomes even starker when results are viewed in the context of role and age. Financial problems were far more pronounced for more junior staff. Of the staff who reported anxiety 58.33% were rank and file employees, 80% of those having difficulty paying household bills fell into this category as did 50% of those who struggled to pay their rent or mortgage. A similar picture presents itself in relation to age, 53.33% of those with anxiety were aged between 25-34 years old and a further 20% were aged 18-24. When asked how this made them feel, staff made numerous references to stress and anxiety: *"stressed me out a lot and kept me up at night"; "caused increased stress, caused upset and anxiety"; "I have had sleepless nights and anxiety attacks"*. These feelings were perhaps best summarised by one respondent who described the affect as, *"emotional only and likely impacted on personal effectiveness and resilience"*. This encapsulates the human costs and cost to business where staff are operating under these pressures.

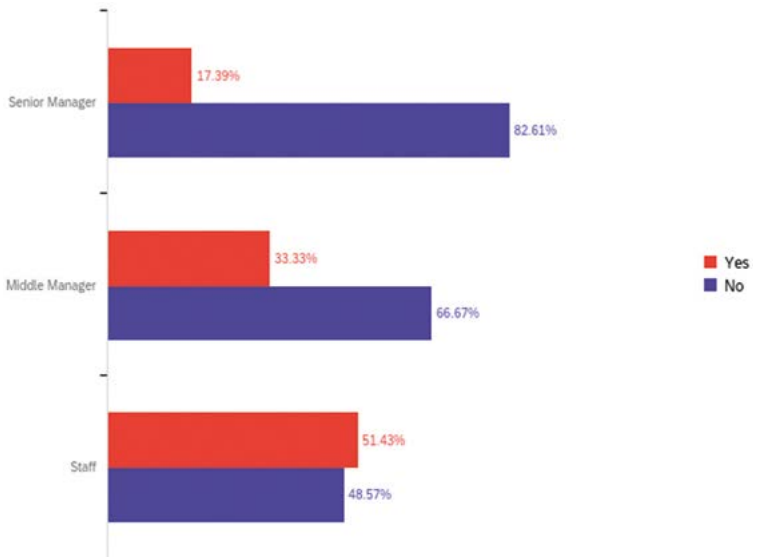

Figure 4

Were you placed on furlough during the pandemic?

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While only 29.58% of respondents declared financial concerns 65.25% of respondents said they had feared for their jobs. Given that we are still experiencing the pandemic and appear likely to be for some time yet, this warrants slightly more discussion; because, the longer Covid-19 challenges higher education the greater the likelihood that more union staff will fear for their job and/or experience some form of financial distress. So, what can we learn from furlough?

Figure 4 provides a breakdown of furloughed staff by role designation, showing a predictable distribution based on organisational hierarchies. Table 5 provides an overview of staff who reported that they were worried about their job security during the pandemic. It clearly demonstrates there is a divide between managerial staff and their more junior counterparts.

Table 5

To what extent have you worried about your personal job security during the pandemic?

#	Field	Senior Manager		Middle Manager		Staff	
1	To a great extent	0.00%	0	20.00%	4	32.69%	17
2	To a reasonable extent	87.50%	7	30.00%	6	44.23%	23
3	To a limited extent	12.50%	1	50.00%	10	23.08%	12
6	Not sure	0.00%	0	0.00%	0	0.00%	0
			8		20		52

Showing rows 1 - 5 of 5

The Z-test when considering these concerns in the context of furlough found that 76.5% of furloughed staff had this concern, compared to just 54.7% of employees who went un-furloughed. Though interestingly, the Z-test also highlighted that those staff who remained in the workplace were more likely to be concerned about the organisation's viability (64%) than their furloughed colleagues (54.9%) perhaps indicating that while the sense of an immediate personal risk was present for those being furloughed, which took precedence over any wider risk to the organisation, other staff saw this as a sign of what might be to come for them.

While the immediate uncertainty created by being furloughed can be viewed as natural, unions may benefit from reflecting on these findings in terms of how they communicate the need to engage in any similar, future schemes. They should also consider the possibility that as they reintegrate furloughed workers, who may now view themselves as more vulnerable

during the ensuing financial turmoil, created by Covid-19, than those whose attendance went unbroken.

III.3. Capability

Table 6 shows a troubling picture of the number of staff who feel less capable in their work than before the pandemic, particularly among those who previously considered themselves the most capable. As can be seen by Table 7, well over a quarter of staff (29.10%) also felt their union could have done more to address capability. When asked to provide more details, staff said: *"ensured that everyone had the basic capability to do their job through technology and working environment at home"; "communication to check on concerns with technology"; "it took a while for equipment requests to be processed"; "providing access to technology requested a bit sooner"; "provision of equipment earlier than 6 months into the 'working from home' approach"; "phone call to discuss our setup, what equipment we require".*

Table 6

Comparison between prior and current sense of capability

#	Field	I feel more capable		My capability remains the same		I feel less capable		Total
50	To a great extent	11.11%	2	77.78%	14	11.11%	2	18
51	To a reasonable extent	5.88%	3	56.86%	29	37.25%	19	51
52	To a limited extent	15.63%	5	50.00%	16	34.38%	11	32
53	To no extent at all	15.79%	3	31.58%	6	52.63%	10	19
55	Not sure	7.14%	1	71.43%	10	21.43%	3	14

Showing rows 1 - 5 of 5

Table 7

Do you think your Union could have done more to address capability during the pandemic?

#	Field	Choice Count	
1	Yes	29.10%	39
2	Maybe	34.33%	46
3	No	36.57%	49
			134

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Further evidence of unions' slow response to addressing technology issues can be seen in the Z-tests. Statistical significance can be found between the capability concerns expressed by those staff who were not subject to furlough and those who were. When asked whether their union could have done more to address capability during the pandemic 67.6% of those who went un-furloughed answered affirmatively, compared to 32.4% of those who were placed on leave. One possible explanation for this is that by the time furloughed staff were returning to the workplace the majority of these problems had been addressed. Nevertheless, feedback illustrates that in some places this remains a concern *"the infrastructure and equipment needed was not addressed until much later and I am still waiting on equipment I have requested."; "…my access to technology has not been great so my workload is harder to deal with"*. As these responses clearly demonstrate, unions were slow to respond to the technology needs of their staff and this bred frustrations which it would appear are yet to be fully resolved. A lack of central foresight and oversight appears to have contributed to these problems. Often, departments were left to audit their own technology needs and the competency of individual managers in addressing this was somewhat of a vagary. Numerous staff also commented that they would have found further information on home-working, including on tax relief and health and safety beneficial.

III.4. Belongingness

III.4.1. Furlough Isolation v. Blitz Spirit

Bivariate analysis examining the relationship between furlough and the extent to which staff feel a greater, lesser or equal sense of belongingness produces, perhaps unsurprisingly, statistically significant results in relation to the Z and chi-squared tests. The latter produced a result of < 0.1, while the former found that staff members who went un-furloughed were more likely to feel a greater sense of belongingness (18.7%) than those who were placed on leave (5.9%). This may point to a 'blitz spirit' among those left to run services and activities.[19] It could also be as a result of staff having to cover colleagues' departments in their absence and consequently learning more about the union than they had previously known. Yet, this was in stark contrast to the experience of many furloughed workers whose responses

[19] Blitz spirit refers stoicism and determination in a difficult or dangerous situation. The term derives from the response of Londoners to the Luftwaffe's bombing campaign on the capital between 1940 and 1941

indicated significant levels of dissatisfaction with the support provided and the impact this had on their sense of belongingness:

> *Furloughed staff at my Union were effectively stuck in a cupboard and forgotten about… my manager contacted me by email less than once a month for the next five months. Running a few quizzes and inviting people to Teams meetings to find out how well everyone else is coping without them isn't good enough. I felt completely abandoned. No one bothered to check on me, no one asked about my mental health or well-being.*
>
> *On furlough I felt so lonely and isolated, was never checked in on 1-2-1 by another member of staff. It was highly disappointing.*

These issues were recognised by one senior manager who discussed furlough, explaining that it *"…made you not want to disturb them too much. In hindsight I think that was a mistake. It led to staff feeling more detached than they needed to"*.

Furlough may have come to an end, with these staff back in the ranks; however, unions would be well advised to reflect on this data and the experience of their staff, not just in the event that those circumstances change, but also as they reintegrate the 37.3% of staff who reported a lesser sense of belongingness having been furloughed and where the pandemic may have created a lasting legacy in respect of belongingness.

III.4.2. The clamour for personal contact

Yet, as Table 8 demonstrates, the concerns were not restricted to those on furlough with 40.7% of staff believing the Union could have done more to address belongingness. Other, comments from survey respondents illuminate a visceral desire for contact between colleagues, and in particular between line reports and their managers, that is focussed on mental health and general wellbeing. These types of interventions have been perceived as somewhat lacking, as opposed to strictly work-related interactions which participants recognised as being in place. When asked to provide reasoning for their answer, staff said: *"more calls for support"*; *"reaching-out on a personal level"; "setup some non-work related group staff meetings"; "more demand on managers to check-up on staff"; "checking in from senior management at a personal level would have been good"; "daily check-ins to make sure everyone is ok"*.

A minority of unions appear to have taken explicit action in this area with one manager explaining *"we also set up wellbeing checks for each line manager to check with their staff how they are doing"*, another explained that

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Table 8

Do you believe the Union could have done more to address belongingness during the pandemic?

#	Field	Choice Count
4	Yes	40.7% 59
5	Maybe	32.4% 47
6	No	26.9% 39
		145

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a central part of their communications strategy had been *"running two wellbeing surveys to compare answers and also compare to the staff survey pre-pandemic"*. However, these sorts of initiatives were not commonplace across unions, and some senior managers identified this weakness, with one admitting *"I also think I should have been in touch with more staff individually"*.

III.5. Reward and recognition

Staff exhibiting the lowest levels of pre-pandemic satisfaction with reward and recognition arrangements were the most likely to view there as being less available since the onset of Covid-19 (44.44.%). Similarly, 40.77% of respondents considered their union had the potential to do more in this area and, as Table 9 demonstrates, only 8.46% of staff felt their union's communications dealt with reward and recognition to a great extent during the pandemic whereas over 15.38% felt had not been covered at all.

Table 9

To what extent do you think the Union's internal communications have addressed reward and recognition?

#	Field	Choice Count
1	To great extent	8.46% 11
2	To a reasonable extent	33.08% 43
3	To a limited extent	36.92% 48
4	To no extent at all	15.38% 20
6	Not sure	6.15% 8
		130

Showing rows 1 - 6 of 6

When staff were asked to explain what more could have been, done distinct themes relating to reward and recognition emerged. In terms of reward some staff felt small gestures would have been welcomed: *"thank you cards in the post or small, inexpensive care packages might have had a really big impact, particularly for colleagues who lived alone"; "appreciation/ thank you cards would have been a nice gesture"*.

However, recognition seemed to be the bigger concern for staff. Evidence suggests that the move to forced home-working has exacerbated a feeling among staff that 'silos' are in operation across unions. A major consequence of this includes obscured lines of sight to colleagues' good work. As one staff member put it:

> *I think communication between teams has been the major downfall at our Union and it feels like it has become more siloed again, something that we had been successful at changing over the last few years prior to COVID.*

Other staff made similar comments: *"cross-department communication has suffered quite a lot"; "they* [the union] *could have made greater attempts to keep us connected to other departments"; "more collaboration between departments for virtual activities would have made us feel more like a single organisation"*. A palpable sense can be seen emerging that this is restricting recognition: *"if someone achieved something… then it should have been made known to all departments"; "much of our recognition assumes staff will be in the building… we didn't come up with a plan to separate that"*.

These views are reinforced by Figure 5 which shows the limited number of staff who felt internal communications tackled reward and recognition to a great extent. Especially interesting are the Z-test results for the number of middle managers (20%) who felt that internal communications addressed reward and recognition to no extent at all. The fact that middle managers are significantly more likely than their colleagues to view reward and recognition as being absent from communications might say something about how this group feel they have been treated. A possible explanation for this is that middle managers were furloughed later than their line reports, particularly as part-time furlough became available, and feel that their efforts to 'hold down' departments with limited staff resource have not been fully, or at least explicitly, appreciated by senior staff.

Unions may benefit from reflecting on whether they have suitable reward and recognition arrangements in place for hybrid provision and whether more can be done to encourage collaboration across the union and in

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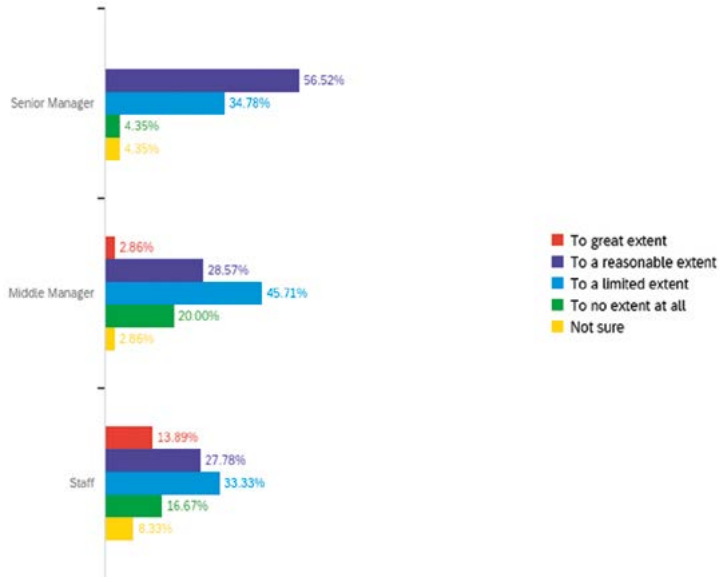

Figure 5

To what extent have the Union's internal communications addressed reward and recognition?

particular recognise the contribution middle managers are making to managing their departments through turbulent times. As one middle manager put it, *"Very little mention of good work or recognition from senior management. No rewards at all"*.

III.6. Career support and professional development opportunities

Overall, respondents had much less to say about career support and professional development opportunities, in comparison to the other factors covered under the survey. This may well reflect the fact that they view their major concerns in this area pre-date Covid-19 and have not been greatly affected by it. Table 10 shows that, when asked whether the union provided sufficient career support and CPD opportunities, over 30% of staff felt this was done to a limited extent or to no extent all. In total, 42.06% staff feel that there is less support in place since the start of the pandemic and 52.8% of staff though it might have been possible for their union to have done more.

Table 10

To what extent do you think the Union provided sufficient career support and professional development opportunities prior to Covid-19?

Field	Choice Count
To a great extent	19.05% 24
To a reasonable extent	41.27% 52
To a limited extent	26.98% 34
To no extent at all	7.94% 10
Not sure	4.76% 6
	126

Showing rows 1 - 6 of 6

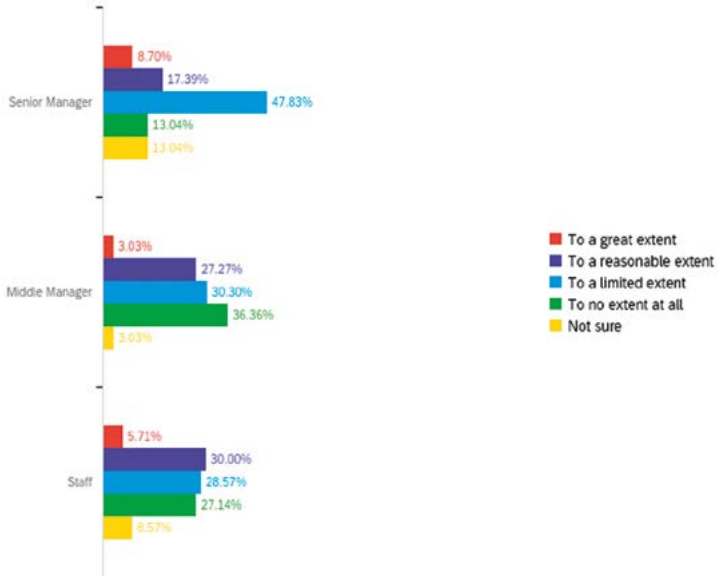

Figure 6

To what extent have the Union's internal communications addressed career support and development opportunities?

Instinctively, and especially given the data and prominent media coverage concerning the disproportionate impact of pandemic is having on the employment and career prospects of young people, it could be predicted that

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the youngest staff are most likely to be concerned about career support and development opportunities. While 39.1% of those aged 18-35 reported concern it was actually those aged 25-34 who were most troubled (53.8%). When you consider this in the context of Figure 6, one possible explanation is that it is actually young middle managers who are most concerned, those who were unhappy with the existing provision and are now becoming increasingly concerned about what they see as evaporating opportunities for advancement. Certainly, these comments from middle managers would support that theory:

> *There hasn't been any communication about whether personal development opportunities will still be available in the coming academic year…. but it would be good to have a firm central stance especially for managers.*
>
> *The Union needs to do more regardless of Covid. It is happy to accept that we are a 'flat organisation' and therefore development opportunities are limited. This is a short-sighted approach.*

IV. Conclusion

This evaluation sought to answer what Mayne terms 'managerial' questions, about whether it was reasonable to conclude that the programme (internal communications) had made a difference to the problem (staff motivation). In addressing this, I was seeking to contribute to the students' union sector's learning and understanding; in particular; surrounding what more can be done to enhance staff motivation during subsequent phases of the pandemic.

So, what kind of contribution claim can be made based on the evaluation? I would argue that my work represents a contribution analysis of direct influence.[20] The quantitative data presented outlines the trajectory of staff motivation, in the areas set out through the theory of change, before and during the pandemic. The influence that internal communications has had in affecting that trajectory, positively or negatively, is substantiated not just by the quantitative data alone but also by the rich qualitative feedback solicited from participants. For example, some staff reporting reduced belongingness are unhappy at what they perceive as the lack of personalised contact, in

[20] John Mayne, *"Contribution Analysis: An Approach to Exploring Cause and Effect,"* (2008), https://www.betterevaluation.org/sites/default/files/ILAC_Brief16_Contribution_Analysis.pdf.

particular from line managers. Consider this in the context of the theory of change, and the risks it incorporated, and you realise that inappropriate communications were used, and this has had a negative impact on motivation. Conversely, communications have been effective where staff were anxious about financial concerns due to job security and pay and the Union has alleviated these by providing clear information on furlough and the union's financial position. However, this could have been enhanced for some staff by providing additional information (in this case that could have included financial accounts) where they felt that communications lacked sufficient evidence. Further examples of this direct influence are present throughout my findings.

In terms of the evaluation's contribution to knowledge and potential lessons for unions, it demonstrates there has been insufficient granularity in unions' communications strategies during the pandemic and, while there is no 'silver bullet' when it comes to developing strategies for addressing staff motivation, unions could and should take greater account of individuals' preferences, including when it comes to communications. My findings provide new knowledge in this area (for instance around the experience of furloughed workers) and offer one potential resource for unions to help them achieve a deeper understanding of the experience of their staff.

V. Limitations and future directions

On reflection I would have introduced an additional survey area based on Maslow's 'safety' tier. This would have focussed on staff concerns surrounding their health and the health of their families. Despite this, respondents had the opportunity to reference other personal concerns during the pandemic and only one individual cited such concerns. This perhaps indicates that it was not a preeminent concern for students' union staff (possibly because of the relatively young age profile), and/or that they did not feel their union was able to address their concerns in this area.

Demographic data did not focus on gender, instead concentrating on income, age and ethnicity. Given the disproportionate impact the pandemic is known to have had on Black, Asian and Minority Ethic (BAME), lower income and older individuals these were and remain appropriate variables for analysis. However, following the fieldwork period, reports variously suggested that women aged twenty to forty were being disproportionately hospitalised during the early part of the 'second wave', that pregnant women have heightened risks and that the economic consequences of the pandemic will be felt most acutely by women. Consequently, greater emphasis would be given

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to the effects on female respondents in any repeat study. Additionally, 89% of respondents were white, making it hard to draw any significant conclusions about the experience of BAME staff. Again, the paucity of national data is a problem here but recent work from the NUS suggests only 14% of union staff are from a minority.[21] Therefore, interviews or focus groups may provide a more effective route to producing robust findings for this group of staff.

Based on the data collected during this evaluation I would also adjust my theory of change. At the communication stage I think the risks need to be expanded to include 'incomplete communications'. Currently, the risks do not take into account the fact that managers could devise suitable interventions but then not communicate them in their entirety to staff.

As referenced earlier, five unions requested detailed data reports to support organisational planning. This introduces a strong practical utility in relation to the evaluation's findings. However, it also raises the prospect of a further study, exploring unions' use of the evaluation outcomes, this could include additional qualitative elements with senior staff, middle managers and staff to understand how the evaluation led to the adaptation of practices and whether these changes have also influenced motivation.

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COVID-19 and interdisciplinary research: What are the needs of researchers on aging?

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Abstract: COVID-19 has had an extreme effect on older people. Now more than ever we need collaborative approaches to address complex issues within research on aging. However, the pandemic has dramatically changed the way we conduct, interact, and organize research within interdisciplinary groups. This paper describes a case study of how an interdisciplinary institute for research on aging has managed the process of change during COVID-19 restrictions. A design lead, researcher centered approach was used to understand the needs of researchers as they adapted across 6 months. Firstly, an online survey (n=51) was conducted to understand the scope of change and needs. The survey found broad themes ranging from assistance with finding additional funding to adjusting current research proposals. Following the survey, two Co-Design Sessions were conducted. The first session (n=53) diverged thinking to scope ideas from the survey and actionable themes were created. The second session (n=36) was conducted to converge thinking and focus on solutions based on one of these themes. The results revealed a diversity of ideas addressing the needs of interdisciplinary researchers in aging. These ideas spanned from exploring the capacity to do research remotely and creating virtual collaboration spaces to rethinking stakeholder engagement.

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Keywords: Aging; interdisciplinary research; co-design; COVID-19; pandemic; research; older people; older adults.

I. Introduction

The unexpected arrival of COVID-19 in early 2020 has had an all-encompassing effect, with restrictions challenging both our working and personal lives. It has dramatically changed the way we conduct day-to-day work, not least in many cases that working from home has resulted in difficulty separating work and life. The academic world needed to react, change and adapt rapidly. With necessity being the mother of invention, homes changed into makeshift classrooms and researchers from a diversity of fields pivoted and adapted to align with restrictions. Digital technology has assisted during this time, however, in many cases, the demands of physical work have been more difficult to overcome. COVID-19 has had an immense effect on how we conduct research. Within days, researchers were required to change procedures, methods, environments, work schedules, and engagements with participants, to name but a few. Not only has it changed the way we work as individual researchers, but it has also changed the way we conduct, interact, and organize research within interdisciplinary groups.

Interdisciplinary research can be highly rewarding. It allows research teams to cross disciplinary boundaries, to connect and collaborate on complex issues; and to share and combine expertise that might not be achievable within individual disciplines. However, interdisciplinary research can be challenging, as collaborating and removing disciplinary silos requires sustained work and good communication. COVID-19 has added to this challenge. As researchers come to terms with rapid change, it can make time for collaboration more difficult. To ensure research collaborations progress successfully, understanding how interdisciplinary groups are pivoting and adapting during the pandemic is important.

Research on aging requires interdisciplinary perspectives to understand and address the complex issues we face as a society; however, the pandemic has added layers of complexity to this. Across the world, COVID-19 has had an extreme effect on older cohorts of people. In many countries, it has resulted in older people having advanced restrictions applied, most notably in restricted movement by shielding or 'cocooning' at home. Restrictions have also dramatically changed how we conduct research on aging, with the safety of participants and researchers of paramount importance. Physical and social distancing creates issues with conducting research in lab situations

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and face to face participant engagements have been severely restricted. Reacting to this Richardson et al. suggest that "profound changes are required in the way that we design and deliver research for older people".[1]

Now more than ever we need collaborative and interdisciplinary approaches to address complex issues within research on aging. Illustrating the importance of this, Meisner et al. states:

> No single discipline will be able to discern why, how, and how much older adults are and will be impacted by COVID-19. As such, we strongly encourage the adoption of interdisciplinary approaches in the response to COVID-19 because of the value added when connections between and across disciplines are made[2].

The long term effects of COVID-19 on how we conduct research may not be currently fully understood, however, it is safe to say that there will be short to medium term implications and uncertainty. As a result of this uncertainty, learning to deal with change as it unfolds and having an agile approach would be a positive and constructive course of action. Furthermore, as we continue to learn about the effects of COVID-19 on interdisciplinary research, it is important to support researchers in pivoting and adapting to change.

II. The case study

This paper describes a case study of how an interdisciplinary institute for research on aging is managing the process of change during COVID-19 restrictions. Seeking to understand the needs of researchers as they adapt across a six-month period, a Design lead, researcher centred approach is used to report on stages of engagement with researchers. It offers an account of the methodology, results, and future plans of engagement with older people.

The McMaster Institute for Research on Aging (MIRA) is McMaster University's cross-Faculty research institute for advancing the science of aging.[3]

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[1] Richardson, Sarah J., Camille B. Carroll, Jacqueline Close, Adam L. Gordon, John O'Brien, Terence J. Quinn, Lynn Rochester, *et al*. "Research with Older People in a World with Covid-19: Identification of Current and Future Priorities, Challenges and Opportunities." *Age and Ageing* 49, no. 6 (2020): 901-06. https://doi.org/10.1093/ageing/afaa149.

[2] Brad A. Meisner et al., "Interdisciplinary and Collaborative Approaches Needed to Determine Impact of COVID-19 on Older Adults and Aging: CAG/ACG and CJA/RCV Joint Statement," *Canadian journal on aging = La revue canadienne du vieillissement* 39, no. 3 (2020), https://doi.org/10.1017/S0714980820000203

[3] McMaster Institute for Research on Aging, "MIRA Homepage" MIRA. accessed 6th July 2020, https://mira.mcmaster.ca/.

MIRA involves over 140 researchers from across 6 Faculties and disciplines that are committed to transforming the experience of aging by transforming the science of aging. The objective is to optimise the health and longevity of the aging population through leading-edge research, education, and stakeholder collaborations. Since MIRA launched it has been focused on driving interdisciplinary research through user centred engagement.[4] To facilitate interdisciplinary connections between researchers across all six Faculties, they have hosted multiple Design lead, in-person events and exercises.

In keeping with public health and government directives, McMaster University applied restrictions due to COVID-19. With few exceptions, students were advised not to be on campus and faculty and staff were encouraged to find alternate, online means to deliver programs.[5] March 24th 2020 marked the University's first restriction of research. At this point, only research that was COVID-19 specific, intervention or clinical trial studies that involved patient monitoring, or research that needed to continue for safety, health or clinical reasons, was permitted. A two-phased return to increased research occurred in May and August, however, remote working remained the preference and a return to campus have remained voluntary for researchers.[6]

In reaction to these restrictions, in April 2020, MIRA sought to create an environment where researchers could be included directly in strategies to adapt and pivot research practices. MIRA created a programme of consultation and enquiry to understand needs first-hand, seeking to connect researchers in the most beneficial way, given restrictions.

Seeking to understand the needs of researchers as they prepared to adapt to restricted research conditions for an indefinite period, the research question for this study was: How have research restrictions impacted, and what are the needs of interdisciplinary researchers in Aging during COVID-19? With this question in mind the objectives of the study were:

- to determine how the new research directives and physical distancing measures affected research and productivity during the pandemic;
- to determine how researchers were adapting; what resources they were relying on; what was enabling and/or holding researchers back and what is the role of the older end-user during the COVID-19 period;

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[4] McMaster Institute for Research on Aging, "MIRA Homepage" MIRA, accessed 6th July 2020, https://mira.mcmaster.ca/.

[5] McMaster University, "McMaster's Phased Return to Increased Research Activity" accessed 8th November, 2020, https://research.mcmaster.ca/phased-return-to-research-activity/.

[6] McMaster University, "Winter Term Will Be Online: Provost's Letter." accessed 8th November, 2020, https://covid19.mcmaster.ca/winter-term-will-be-online-provosts-letter/.

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- to continue serving MIRA researchers in a capacity that allowed them to connect with other researchers in aging from different Faculties than their own; and
- to crowdsource opinions from researchers on how to design a program for the next six months and beyond given present-day and potential future challenges.

III. Methodology

III.1. Overview of study design

A Design lead, researcher-centred approach was used to discover and then define the needs of interdisciplinary researchers in aging. A design thinking and Co-Design approach was adopted as they are collaborative, agile, and user-centred, allowing for differing interpretations across disciplines when working in interdisciplinary teams.[7] In looking at strategies for researchers in aging to overcome challenging times during the pandemic, Cohen et al. conclude that researchers need to think creatively'.[8] Design methods and approaches allow for creative problem solving through exploration and discovery leading to problem definition[9] and this approach has been specifically encouraged in research in aging.[10,11,12]

The Double Diamond is a framework that is commonly used in Design lead research to guide methods and processes. The framework has four

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[7] P. J. White and Colin Deevy, "Designing an Interdisciplinary Research Culture in Higher Education: A Case Study" *Interchange* 51, no. 4 (2020/04/27 2020): 499-515. https://doi.org/10.1007/s10780-020-09406-0.

[8] Andrew B. Cohen et al., "Succeeding in Aging Research During the Pandemic: Strategies for Fellows and Junior Faculty," https://doi.org/10.1111/jgs.16868, *Journal of the American Geriatrics Society* 69, no. 1 (2021/01/01 2021), https://doi.org/https://doi.org/10.1111/jgs.16868, https://doi.org/10.1111/jgs.16868.

[9] Design Council UK, "What Is the Framework for Innovation? Design Council's Evolved Double Diamond." accessed 12th November, 2020, https://www.designcouncil.org.uk/news-opinion/what-framework-innovation-design-councils-evolved-double-diamond.

[10] Brenda Vrkljan, Amanda Whalen, Tara Kajaks, Shaarujaa Nadarajah, P. J. White, Laura Harrington, and Parminder Raina. "Creating an Intergenerational University Hub: Engaging Older and Younger Users in the Shaping of Space and Place." *Gerontology & Geriatrics Education* (2019): 1-17. https://doi.org/10.1080/02701960.2019.1572010.

[11] P. J. White, H. R. Marston, L. Shore, and R. Turner "Learning from Covid-19: Design, Age-Friendly Technology, Hacking and Mental Models." *Emerald Open Research* 2, no. 22 (2020). https://doi.org/https://doi.org/10.35241/emeraldopenres.13599.1.

[12] Hannah R. Marston, Linda Shore, and P. J. White. "How Does a (Smart) Age-Friendly Ecosystem Look in a Post-Pandemic Society?". *International Journal of Environmental Research and Public Health* 17, no. 21 (2020). https://doi.org/10.3390/ijerph17218276.

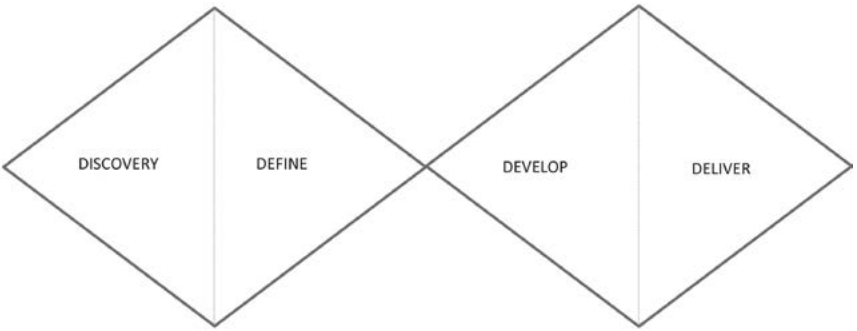

Figure 1

Double diamond framework with stages
(Design Council, 2019)

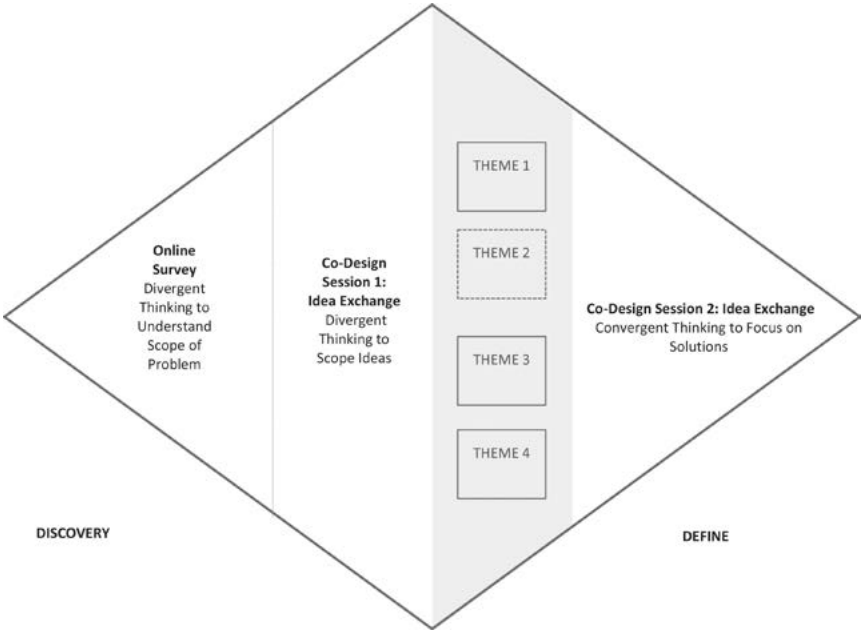

Figure 2

Outline of research stage in the study
in Discovery and Define stages

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stages: the stages of discovery and defining the problem (in the first diamond) and stages of developing and delivery of a solution[13] (in the second diamond). In this research, the first discovery/ define 'diamond' was used to focus on the needs of researchers. The discovery stage is an act of divergence, opening up questions to explore and understand the scope of the problem. Once the scope of the problem is understood, these are then organized into themes or categories. The next stage is an act of convergence to define the need within the problem.

In the 'discovery' stage an online survey was conducted to diverge and understand the scope of the problem. Furthermore, at this stage, a Co-Design Session was conducted with researchers in the form of an 'Idea Exchange' to diverge thinking further and to scope out the ideas from the survey. Actionable themes were created from this Co-Design session. In the 'define' stage a second Co-Design Session was conducted to convergent thinking and focus on ideas based on one of these themes.

III.1.1. Online survey design and overview and analysis

Faculty and trainee members were invited to engage in the online survey via email. Each MIRA member and trainee received an invitation to complete the survey, which was in the form of a Google Forms document. A total of 31 Faculty (30 of which were –MIRA members) and 20 MIRA trainees (3 MA/MSc students, 9 PhD students and 8 Postdoctoral fellows) completed the survey. The following is a summary of these questions:

- How have the new research directives and physical distancing measures affected your research and productivity during the pandemic?
- What actions did you take following research restrictions?
- Regarding budget and staff considerations:
  1. Has the pandemic negatively impacted your research budgets?
  2. Have you had to let staff/trainees go due to the pandemic?
  3. Have you had to rethink how you work with trainees due to the pandemic?
- Since research restrictions have been put in place, how much time have you spent on the following: 1. Collaborating; 2. Networking; 3.Writing grant applications; 4. Planning future research; and 5. Other?

[13] "What is the framework for innovation? Design Council's evolved Double Diamond." Design Council UK, 2019, accessed 12th November, 2020, https://www.designcouncil.org.uk/news-opinion/what-framework-innovation-design-councils-evolved-double-diamond.

- Have there been any opportunities and positive outcomes that have resulted from COVID-19 research restrictions?
- How can MIRA help you make the most of your current research situation?
- Other activities that MIRA could facilitate to assist researchers during the pandemic?

III.1.2. Results of online survey

Of the 52% (8) members conducting wet lab or animal research, 75% (6) noted that new restrictions required the lab to shut down completely, with at least one researcher noting that data from in progress experiments was lost. Current students were shifted to working on reading and writing activities, and prospective students were unable to begin their studies. Even when restrictions were reduced, labs could not operate at full capacity due to physical distancing guidelines.

Of the 84.3% (43) of researchers conducting human research, 58% (25) were able to adjust or alter interactions with participants to continue with data collection despite physical distancing measures, employing a combination of telephone, virtual, or web-based data collection methods. At the same time, 42% (18) of researchers placed their studies on hold.

Faculty members also noted challenges in working with trainees, including trying to alter current studies for trainees to continue to collect data, developing ideas for review papers or modelling/analysis work, or accessing available datasets for secondary data analyses to assist trainees in meeting degree requirements. The inability to meet in person meant that trainees could not be instructed in laboratory techniques or procedures, hampering progress on some fronts. Alternately, at least one faculty member felt that moving to virtual meetings fostered more independence in students and increased their willingness and ability to troubleshoot independently. Faculty members were also cognizant of the importance of more frequent online meetings or interactions to replace the interactions and opportunities that would organically occur in the lab, to maximize research training benefits for trainees. Notably, since undergraduate students do not need laboratory or research experience to meet degree requirements, their presence on campus was not deemed essential. This lack of access to undergraduate students reduced the research capacity for many labs, as well as interfering with potential research and networking opportunities for undergraduate students.

Of the faculty members surveyed, 55% (17) reported that the COVID-19 pandemic had negatively affected their research budget, 39% (12) had had to let staff/trainees go due to the pandemic and 74% (23) had to rethink how

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they interact with their trainees. In response to the question, "Since research restrictions have been put into place (March 17th 2020), how much time have you spent:

Table 1

Results of Survey question "how much time have you spent on research activities"

Research activity	More time	Same amount of time	Less time	Not applicable
Collaborating	31% (16)	35% (18)	31% (16)	2% (1)
Networking	14% (7)	10% (5)	74% (38)	2% (1)
Planning future research	41% (21)	24% (12)	33% (17)	2% (1)
Writing grant applications	29% (15)	41% (21)	16% (8)	14% (7)
Writing papers/books/book chapter	39% (20)	29% (15)	28% (14)	4% (2)
Engaging in peer review	21% (11)	45% (23)	21% (11)	12% (6)
Collecting pilot data	6% (3)	8% (4)	30% (15)	57% (29)
Analyzing recently collected data	25% (13)	43% (22)	14% (7)	18% (9)
Analyzing partial data (from studies interrupted by pandemic)	14% (7)	21% (11)	16% (8)	49% (25)
Analyzing old data	31% (16)	24% (12)	10% (5)	35% (18)
Conducting secondary analyses	30% (15)	30% (15)	8% (4)	33% (17)
Analyzing publicly available datasets	18% (9)	30% (15)	8% (4)	45% (23)
Searching for/reading scientific literature	37% (19)	47% (24)	12% (6)	4% (2)
Looking for new career opportunities	18% (9)	28% (14)	8% (4)	47% (24)
Learning a new scientific skill	28% (14)	20% (10)	20% (10)	33% (17)
Attending a course	28% (14)	16% (8)	18% (9)	39% (20)
Attending conferences	2% (1)	16% (8)	69% (35)	14% (7)
Teaching	24% (12)	35% (18)	8% (4)	33% (17)
Converting old course content for online teaching	55% (28)	6% (3)	2% (1)	37% (19)
Creating new course content	35% (18)	18% (9)	6% (3)	41% (21)

III.2. Co-design sessions

Identified from the surveys was the need for a platform whereby the voice and ideas of the researchers could be expressed further. Processes of Co-Designing could fulfil this need, as they allow a wide range of people to make a creative contribution to the formulation of solutions. Co-Designing is advantageous when working with teams as it has been proven to lead to more long-term success, more support and enthusiasm for change, and can generate solutions that improve day to day experiences.[14,15] According to Moll et al., when Co-Designing one should "tap into tacit knowledge, creativity and shared meaning of diverse perspectives to co-create a shared vision for improvement".[16] Therefore, the Co-Design sessions were conducted with researchers in the form of an 'Idea Exchange'. The main purposes of these sessions were to ensure the voice of the researcher was being heard and to iteratively scope out ideas from the online survey.

III.2.1. Co-design session 1: Idea exchange session Design and Format

The first Co-Design Idea Exchange occurred in July 2020. The format was designed to allow participants to explore concerns and challenges researchers faced (and had overcome) in the context of the COVID-19 pandemic. In doing this, contributing to a group discussion by building on dialogue and experiences of others. This allowed participants to express the best ways MIRA could support researchers. The research questions at the start of the Co-Design session were broad to facilitate open discussion and to allow stakeholders to direct the agenda. These were:

- What are the needs of an Interdisciplinary Researcher in Aging during COVID- 19?
- How can we pivot due to the restrictions of COVID-19?

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[14] M. Steen, M. Manschot, and N De Koning, "Benefits of co-design in service design projects," *International Journal of Design, 5(2), 53-60*. (2011), http://www.ijdesign.org/index.php/IJDesign/article/view/890/346.

[15] Linda Shore, Louise Kiernan, Adam DeEyto, Deirbhile Nic A Bhaird, Anne Connolly, P. J. White, Tracy Fahey, and Siobhan Moane. "Older Adult Insights for Age Friendly Environments, Products and Service Systems." *Design and Technology Education: an International Journal; Vol 23 No 2 (2018): Design and Technology Education: An International Journal* (07/03 2018). https://ojs.lboro.ac.uk/DATE/article/view/2327.

[16] Sandra Moll et al., "Are you really doing 'codesign'? Critical reflections when working with vulnerable populations," *BMJ Open* 10, no. 11 (2020), https://doi.org/10.1136/bmjopen-2020-038339, http://bmjopen.bmj.com/content/10/11/e038339.abstract.

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- How can MIRA provide support to individual and interdisciplinary researchers?

Participants were recruited from across all 6 Faculties by email. Participants (n=53) attended the session and represented researchers from across various disciplines and career stages. The Co-Design session occurred online via the Zoom platform to allow participants to access remotely. The format (table 1) was designed to commence and conclude within 1 hour to facilitate optimum engagement and allow the session to fit easily into a working day. Three moderators controlled the flow of conversation both from verbal and typed input from participants.

Table 2

Format and times for Co-Design Idea exchange session

Duration	Stage and description
5 minutes	Opening of Co-Design Session. The waiting room disabled and participants allowed enter directly into the meeting. Participants muted on entry.
5 minutes	• Introduction to Co-Design 'Idea Exchange 'session and housekeeping • Thanking participants for taking the time to join and for completing the COVID-19 survey. • Discussed that this is an interactive session with the purpose to hear researcher concerns and ideas for how MIRA can provide support and assistance to you. • Note to participants that the meeting is recorded.
10 minutes	• The facilitator provides an introduction to 'Idea Exchange'. • Facilitator shares the screen and shows some of the results from the online survey.
30 minutes	Facilitator moderates the discussion and starts with some broad facilitating questions based on themes that emerged from the survey: Introduces questions: • What are the needs of an Interdisciplinary Researcher in Aging during COVID-19? • How can we pivot due to restrictions of COVID-19? • How can MIRA provide support to researchers?
5 minutes	Summarizes the broad themes that have emerged from the discussion.
5 minutes	Facilitator thanks the participants. Explains vision for future ideas exchange seminars and summarizes next steps. How they will feedback based on themes that have emerged.

III.2.2. Analysis co-design sessions

The Co-Design sessions were recorded and transcribed into word format using the transcribe function in Zoom. This document was then screened, edited and cleaned before analysis. The analysis was firstly achieved through a manual open coding process of reading and re-reading the data to assign broad themes. Axial coding followed this to understand detail within the themes.[17] This was achieved by creating color codes by highlighting text to visually understand reoccurring patterns.[18,19]

III.2.3. Co-design session 1 idea exchange results

Four themes emerged from the Co-Design Idea Exchange. Themes 1 and 2 are closely linked, with Theme 4 transcending the other themes. From these themes, several ideas/ formats to assist researchers emerged (Table 2).

Table 3

Themes from Co-Design session Idea Exchange

Theme 1:	Opportunities in acknowledging the 'new normal'
Theme 2:	Exploring the capacity to do research remotely
Theme 3:	Advocacy and support for non COVID-19 research
Theme 4:	The voice of the older person

III.2.3.1. Theme 1: Opportunities in acknowledging the new normal

> COVID-19 can bring together thought leaders to advance the discourse on the future of our healthcare system… (Participant quote)

There was a very strong view that the COVID-19 period, albeit difficult for researchers and participants, held many opportunities. It was acknowledged that the current conditions may last some time and that further challenges

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may be encountered. The need to adapt was a reoccurring thread, and the opportunity to look at introducing new ways of doing research using technology was encouraged. An example of this from a participant stating:

> Some clinicians were more open to using software applications/virtual interventions than they had been before the COVID-19 research restrictions. This may provide an opportunity to develop different virtual methods for interventions that are not COVID-19 related.

Participants mentioned that this was an opportunity for researchers to "identify the big questions in aging". It was seen that there was a real opportunity to consider new methods or analysis to connect disparate parts of a research study. Furthermore, participants identified opportunities to define the direction going into future phases, developing themes post COVID-19 and developing good protocols for research.

III.2.3.2. Theme 2: Exploring the capacity to do research remotely

Closely linked to theme 1 was the opportunity to explore the capacity to do research remotely. In addition to this, a subtheme emerged regarding concerns about connectivity to participants. There was an interest in understanding what remote research meant in the near future, and understanding new mechanisms for non-face to face engagement. There were questions about remotely collecting data, and looking at new ways of working flexibly with funders. Furthermore, a need to understand virtual care and how it is being delivered/received, understanding the capacity for remote monitoring, and developing simple forms of handoff procedures.

Researchers who successfully adapted procedures during COVID-19 mentioned that there was an opportunity to share experiences and develop good protocols over time. For example, (in testing prototypes) creating 'a hand off' or 'drop off' procedure for older people and creating a follow-up demonstration through video conferencing.

Sub-Theme: Internet concerns and connectivity

A sub-theme emerged, discussing the barriers that may be encountered with virtual and remote engagement. Comments included:

> We could in principle do work virtually but our population has a very low internet connectivity - are there any resources for providing internet connectivity to subjects? (Participant quote)

Ideas in this theme:

- Is it possible to develop a toolkit for researchers to get older adult participants remote research ready? Aiming for enjoyable interactions and equity among potential participants?" (Closely linked to THEME 4 The Voice of the Older Person)
- There's a cost to it, but how about shipping by courier a mobile internet USB dongle to target participants?
- Would it be possible to group people who do virtual research/ exchange experiences?

III.2.3.3. Theme 3: Advocacy and support for non-COVID-19 research

Non-COVID-19 related research for older people remains of critical importance and must not be neglected in the rush to study the pandemic. Throughout the Idea Exchange, there was a strong acknowledgement of working with COVID-19 restrictions for the foreseeable future. The participants expressed the importance of support and advocacy of non-COVID-19 related research, ensuring that other research with older adults continues. Understanding that older participants are most vulnerable to COVID-19, ideas around pivoting research were considered to be useful. It was noted that the lack of face-to-face communications was "killing" community-based research. It was mentioned that there was a need to consider non-invasive interactions in the next stages. Questions that came up in this theme:

- How internally can we pivot creatively during COVID-19, especially for researchers who don't want to completely pivot?
- How do we foresee advocacy for ongoing research?
- How can we safely get research up and running again?
- How can we reach objectives if we can't recruit?
- How can we have a stronger voice? If we are not allowed to use certain procedures how can we collect data?

III.2.3.4. Theme 4: The voice of the older person

Including the voice of the older person and the need to gauge how older people felt about being included in research was a transcending theme. The question of consent and safety of the older person was also seen as paramount, and the perceived risk of data collection. As a positive, it was mentioned that older adults expressed interest in participating in studies at rates higher than normally seen. Statements and ideas from this theme included:

- It might be helpful as an Institute to do some work with older adult stakeholders to understand what their concerns would be in engaging

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in clinical research as either a partner or participant...What would make them feel safe, what are the barriers...etc. Perhaps this could inform a set of recommendations for conducting research on aging.

- I think we have to have researchers and older adults together - that is important that we hear directly from them. We need to hear their experiences first-hand.

III.2.4. Co-design session 2 exploring the capacity for remote research

The second Co-Design session occurred in October 2020. In this, a similar Co-Design approach was used however with a more focused theme. As opposed to the first idea exchange, this session used convergent thinking to focus on potential solutions. Theme 2 was chosen to further explore options and opportunities around remote research. This session was guided by one main question: Which tools or resources would help you to execute your non-pandemic-related research in the next 12 months (during and in the post-pandemic era)? To commence dialogue and idea exchange, expert speakers were invited to discuss how they have pivoted research to online and potential tools that were available to researchers. Participants were recruited from across all 6 Faculties by email and Twitter. Participants (n=36).

Table 4

Format and times for Co-Design 2 session

Duration	Stage and description
10 minutes	Opening of Co-Design Session. Introduction of format and speakers
10 minutes	Presenter 1: Presentation on potential online and cloud tools for researchers
10 minutes	Presenter 2: Experiences of leading a research lab during COVID-19
10 minutes	Presenter 3: Health research methods during COVID-19
10 minutes	The facilitator introduces 'Idea Exchange'. • The facilitator shares screen and shows themes from session 1 • Discusses that this is an interactive session with the purpose of hearing researchers' ideas for how MIRA can provide support and assistance. • Note to participants that the meeting will be recorded.

Duration	Stage and description
30 minutes	Share screen with question slide: Which tools or resources would help you to execute your non-pandemic-related research in the next 12 months (during and in the post-pandemic era)? Moderators facilitate discussion/Co-Design session
10 minutes	Moderators summarizes and thanks the participants.

III.2.5. Co-design session 2 results

Three main themes emerged from the Co-Design session 2. The themes were wide-ranging from improving the day-to-day experience of researchers and creating virtual collaboration and knowledge spaces, to rethinking stakeholder engagement. From these themes, several ideas for future consideration emerged (Fig 3).

III.2.5.1. Theme 1. Day-to-day research

Overcoming challenges in recruitment, training, and safety

Participants noted a challenge in pivoting was that "there's a lot of work to be done, and there's not a lot of people who are trained to do it". Citing that some of the biggest challenges were in training, retraining, recruitment in specific skillsets and the time it took to bring new people in. Maintaining the safety of researchers was also challenging, as was getting samples transported safely from place to place and receiving samples during the pandemic. Essential cleaning protocols were also cited as time-consuming, slowing down the research process.

More physical space

> It would be amazing if my whole team could all work at the same time, but we can't because we have to stay two meters apart, so we have to be at about 25 to 30% capacity. (Participant quote)

Physically having more lab space was mentioned as being beneficial ensuring researchers could all work safely at the same time. Heads of lab spaces have had to make a lot of adaptations to accommodate physical distancing, relying particularly on shift work to work flexibly. More physical space would also enable the ability to safely work with research participants.

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Figure 3
Themes from co-design session 2 (image created in MIRO)

Maintaining mental health

> It's been tremendously stressful, everyone's trying to take on these dual roles and to keep the original research running, writing grants etc... it's been a huge challenge. (Participant quote)

The mental health of researchers was flagged as a challenge that needed to be addressed, ensuring social connections were maintained as work conditions changed. There was sympathy for people who had just joined labs and were new to research. Also acknowledged was the fact that personal lives could have changed radically within the COVID-19 period.

> Coming to work is not as much fun as it used to be, because we can't actually spend any time together (Participant quote)

Being willing to adapt quickly and innovate

Researchers expressed the need to innovate and adjust day-to-day, adjusting existing processes, "continually tweaking along the way" and being rapid and responsive to urgent challenges. A factor in this was having a contingency plan, to strategize, and mitigate challenges if a team member got sick, or if there was an outbreak. Ensuring that there were opportunities for exchanging ideas was an important aspect of this.

III.2.5.2. Theme 2. Rethinking stakeholder engagement

Understanding participant online experience and fostering diversity

> We're going to lose some richness (from not doing face to face). It's just not going to be the same as having people in the room. (Participant quote)

Participants mentioned how they needed to rethink whether or how they used stakeholder engagement. It was felt that this was a process best achieved in person and that spending a full day on a video call with a group of people would not be ideal. It was felt that it was more difficult to read an individual's body language and to know when and how to engage with quieter participants. Generally, the feeling was that people are more likely to be less willing to share in an online format, particularly when dealing with topics that might be more personal or sensitive. Achieving diversity in online groups was also seen as a difficulty, for example engaging participants from rural areas (due to poor internet access) or those who may not be as accustomed to using online meeting platforms. In learning how to better understand participant online experience it was mentioned that exit interviews would be done to gather thoughts with a small number of people after engagements.

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Sending technology to participants and collecting data from patients

The opportunity of sending technology to participants at home was discussed as a means to overcome restrictions:

> ...Ideally, a situation where it allows a two-way conversation: we can send the package to people for 2-3 days where they have a technology which is easy to use and you can have communication back and forth to collect data. (Participant quote)

This opportunity was extended to research new ways to collect data and compare these to traditional methods. As a positive, it was observed that older people were learning more about technology during the pandemic and that the use of technology among older people had increased. The difficulty however was with older groups of people who might not normally have access to technology or have the resources to access technology. In this case, it was noted that whatever technology they used was going to need to be very simple. An idea for assistance in this regard was an online database for remote research resources. One of the main challenges is being able to collect data from patients, both from a research perspective, but also from a clinical perspective.

> We can go down the route of giving everybody a device and train them. If a patient is doing it every week at home and telling you what the numbers are. Then the likelihood is that they'll get better at doing it. (Participant quote)

One of the positives found was that because patients were not physically coming into hospital, the whole process was shortened, in some cases appointments were just an hour or two. Identified was that some patients preferred shorter but more frequent conversations on the telephone. Therefore, what was lost in the face to face, was gained in the frequency or efficiency.

III.2.5.3. Theme 3: Virtual collaboration and knowledge spaces

Creating a virtual co-design space or a 'Discussion Board'

> I think that we are in the middle of the experience, of understanding what our researchers needs are. I think the idea of a platform in which people can share over time might be useful …Is there a possibility for this ideas exchange, creating a discussion board where people show their ideas and kind of have a real-life dialogue? (Participant quote)

The researchers reflected on the Co-Design sessions and mentioned the positives around sharing and collaborating however they welcomed a space

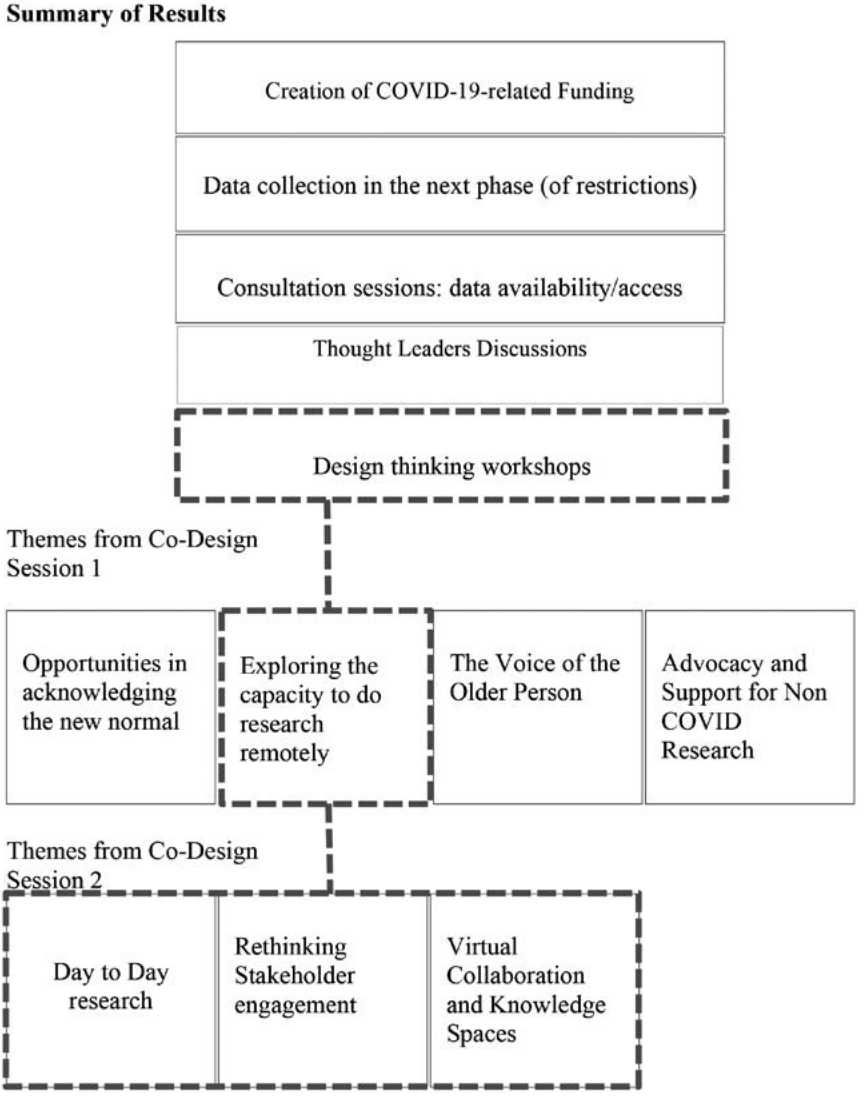

Figure 4

Outline of needs of interdisciplinary researchers in Aging during COVID-19

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where they could Co-Design over a longer period, a place to think and reflect about ideas, rather than having to 'think aloud' in the moment. Expanding on this, it was suggested that it could be a place where researchers could go to put ideas or questions and iteratively develop them.

Collaboration, coordination, and inventories of knowledge

It was reinforced by researchers that collaboration and coordination were essential, and it was forecasted that post-COVID-19 research would require more collaborations, along with bringing in international expertise. In situations where researchers didn't have much time, quick access to the highest quality, most relevant evidence and policy was required. The creation of a knowledge ecosystem or inventory to advance evidence synthesis would be welcomed. The majority of the researchers said that they would like some live interaction or resource page started.

IV. Summary of results

IV.1. Limitations

There were some limitations and constraints when designing this study. Due to COVID-19 restrictions, all researcher engagement was required to be online. Another limitation was time constraints, ensuring appropriate time for as many researchers as possible to attend sessions, and collecting data regularly within the first six months of COVID restrictions. The involvement of older people (the voice of research participants) in the process was considered, however it was decided that this would be more appropriate at a later stage when specific needs were discovered.

IV.2. Future research

The Double Diamond was used to guide methods in this study. The first 'diamond' discovery/ define was used to focus on the needs of researchers through discovery (Co-design session 1) and Define (Co-design session 2). Future research will focus on the second diamond 'develop' and 'deliver' stages with older people focusing on their specific needs.

V. Conclusions

COVID-19 has added layers of complexity to the way in which we execute research in aging. In the aftermath, we will increasingly need

interdisciplinary approaches to understand the evolving needs of older people. This paper identified needs of interdisciplinary researchers during the pandemic. These needs were varied, they help shape how we progress, and help us understand how to assist researchers in times of uncertainly and change.

The initial survey showed the different ways in which researchers needed to pivot due to restrictions. The Co-Design sessions explored and refined these needs into actionable themes for progression. In the first session, themes included: ensuring the voice of the older person was heard, continued support for non-COVID-19 research, opportunities in acknowledging the 'new normal' and exploring the capacity to do research remotely. The second Co-Design session focused on the capacity to do research remotely and found ideas to facilitate this. These included support in day-to-day research, the creation of virtual collaboration and knowledge spaces, and ways in rethinking stakeholder engagement. Of importance for future research will be to conduct similar Co-Design sessions with older adult participants. In addition, as the Co-Design format was welcomed by participants, online collaboration tools will be developed to assist progression.

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Editors' Acknowledgments

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TJHE
Ethical Guidelines for Publication

TJHE Ethical Guidelines for Publication

FINAL VERSION (MARCH 2015)

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c) Authors and co-authors should review and ensure the accuracy and validity of results prior to submission; co-authors should have opportunity to review manuscript before submission.

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Date: 16 March 2015

Approved by the TJHE Editorial Board and signed on behalf of the Tuning Academy by:

Pablo Beneitone
Director, Tuning Academy (Deusto)

Robert Wagenaar
Director, Tuning Academy (Groningen)

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