Building an Entrepreneurial and Collaborative Community for Creating Impact at the Entrepreneurial and Engaged University

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ABSTRACT

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The entrepreneurial and engaged university concept calls for utilizing the university's knowledge to create economic and social impact. Its accomplishment, however, is challenging and thus requires an investigation. This research responds to this call first by exploring the ways that the concept can be realized at the graduate school of education and second by studying what kind of leadership is needed for successfully implementing it.

The empirical study was guided by a framework developed from the literature review. It employed the case study research strategy, and the selected case is the Harvard Graduate School of Education. Qualitative data from multiple reliable sources was analyzed using the method of theoretical thematic analysis.

The empirical study revealed four findings for the graduate school of education. First, adopting the broad-sense definition of the entrepreneurial and engaged university concept is more appropriate. Second, the impact extends to the country and the world, thus it is not limited to the region. Third, the observed ways to implement the concept are entrepreneurship by students, providing entrepreneurship training, consulting and training leaders in the industry, and conducting transformative research. Fourth, successfully implementing the entrepreneurial and engaged university concept demands both entrepreneurial and collaborative leadership. While entrepreneurial leadership promotes entrepreneurial agency and makes the university more entrepreneurial, collaborative leadership promotes collaborative agency and makes the university more engaged. This research unveils the ways to exercise these two types of leadership.

Keywords: entrepreneurial and engaged university, entrepreneurial leadership, collaborative leadership, entrepreneurial agency, collaborative agency

CONTENT

1 INTRODUCTION

1.1 Background

The entrepreneurial university concept emerged in the U.S. with land grant universities to serve the needs of local communities. This concept added a third mission for the university to contribute to regional development, in addition to its traditional missions of teaching and research (Clark, 1998; Etzkowitz, 1998). The "U.S. Patent and Trademark Law Amendment Act of l980", also known as the Bayh-Dole Act, formed the legislative basis for making it possible (Council on Governmental Relations, 1999).

The Bayh-Dole Act allowed universities to patent their academic innovations and license them to firms (Barratt, 2010). This possibility developed university-industry collaboration (Mowery & Sampat, 2004). The success of the concept in the U.S., exemplified by for example the Massachusetts Institute of Technology and Stanford University, led to the adoption of the Bay-Dole Act by other countries in the world (Mireles, 2007).

The entrepreneurial university contributes to a region's economic development and competitiveness, which are of high importance to policymakers (Saha et al., 2020). Recognizing innovations as the lifeblood of entrepreneurial activity, a growing amount of literature on regional development suggests that in today's knowledge-based economy, the university has taken a more active role as a source of innovations (Etzkowitz & Leydesdorff, 2000).

The engaged university concept emphasizes the university's outreach and civic services to the regional community (Betts & Santoro, 2019). This outreach or engagement aims to generate solutions to real-world problems and improve the community's well-being (Hikins & Cherwitz, 2010; Deller, 2015). Whereas the entrepreneurial university focuses on economic development, the engaged university emphasizes social and cultural development (Moussa et al., 2019). It is observed that the university's schools of business, engineering, and natural sciences

are more likely to act entrepreneurially, and the schools of social sciences and healthcare are more likely to behave in an engaged manner (Toma, 2011).

Research on the entrepreneurial university and the engaged university concepts have progressed separately, but the two concepts have similarities and complementarities, which offers a synergy potential for taking a holistic view of the entrepreneurial and engaged university (Moussa et al., 2019). In addition, a conceptualization of the university that studies only its economic contributions and fails to analyze its social contributions will fall short of describing what a university is (Thomas & Pugh, 2020). In light of these arguments, this research studies the entrepreneurial and engaged university concept, which focuses equally on the economic and social contributions of the university.

The entrepreneurial and engaged university concept assigns the university a new role in solving challenges confronting society (Audretsch, 2014). With this new role, the entrepreneurial and engaged university aims to commercialize innovations from academic research (Etzkowitz, 2013), promote entrepreneurial thinking in the region (Audretsch, 2014), foster social entrepreneurship (Berglund et al., 2021), and share knowledge and resources with society and industry, i.e., research valorization (Kempton, 2019; Trippl et al., 2015). The entrepreneurial and engaged university is also expected to co-create solutions for sustainable development together with industry, government, and society (Rinaldi et al., 2018; Trencher et al., 2014; Wakkee et al., 2019). Hence, the entrepreneurial and engaged university is expected to play a key role in the economic and social development of the region as a knowledge-producing and disseminating institution and as an entrepreneurial capacity-building institution (Uyarra, 2010). From these perspectives, a better understanding of this concept and its implementation deserves attention for further research.

1.2 Research Task and Research Questions

The implementation of the entrepreneurial and engaged university concept is challenging. In addition to lacking entrepreneurial role models and an entrepreneurial culture at universities, Philpott et al. (2011) argue that academic progression criteria can even discourage academics from entrepreneurial activities. Faculty and students at the University of Helsinki, for example, have perceived the implementation of this concept as a threat to the university's autonomy and values (Katila et al., 2021).

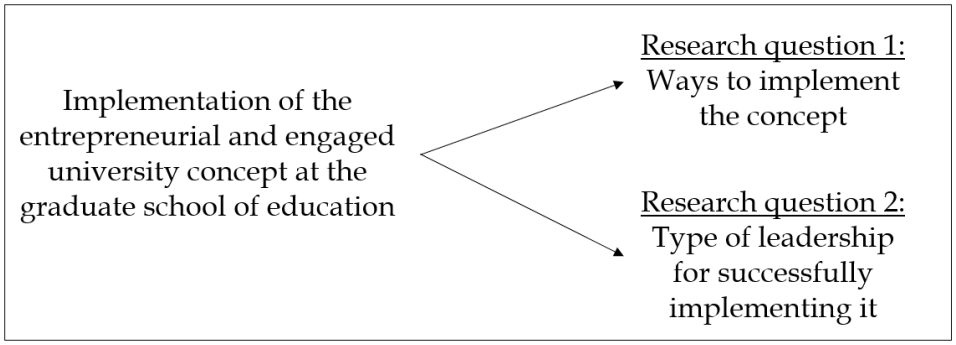
Indeed, if the concept is narrowly limited to academic entrepreneurship, its implementation seems to be achieved mainly by the engineering schools of top universities, such as the Massachusetts Institute of Technology (see O'Shea et al., 2007) and Stanford University (see Etzkowitz et al., 2019). This observation motivates to better understand how this concept can be implemented, in perhaps a broader sense, in other schools than the engineering school.

This research addresses this need and aims to explore how the entrepreneurial and engaged university concept can be implemented successfully at the graduate school of education. More specifically, it aims to understand the ways to implement the concept and the type of leadership needed for successfully implementing it at the graduate school of education (see Figure 1).

The graduate school of education was selected due to the reasons that such a study has not yet been undertaken, and that some academics in education science feel less valued after the introduction of the concept (Tapanila, 2022).

Figure 1

Research Topic and Questions (Source: Author's Own)



First, it is important to find out how the concept is applied at the graduate school of education. Hence, the first research question is as follows.

Research question 1: In which ways does the graduate school of education implement the entrepreneurial and engaged university concept?

After exploring the ways to implement the concept, this research adopts a leadership perspective to understand how the concept can be implemented successfully.

Leadership has been identified as a success factor for implementing the concept (Etzkowitz et al., 2019; European Commission & OECD, 2012; Gibb et al., 2018; Graham, 2014), but it remains to be explored what type of leadership is needed and how it can be exercised. Thus, the second research question is as follows.

Research question 2: What type of leadership is needed to successfully implement the entrepreneurial university concept at the graduate school of education?

Taking a leadership perspective brings a focused lens to study the broad topic. Moreover, identifying the suitable type of leadership can shed light on successfully implementing the concept (Klofsten et al., 2019). Furthermore, there is little and fragmented research on higher education leadership (Bryman, 2007; Dopson et al., 2018). Thus, taking a leadership perspective in the context of the entrepreneurial and engaged university concept may also contribute to the higher education leadership literature.

In answering the research questions, the empirical study employs the case study research strategy. The selected case is the Harvard Graduate School of Education (HGSE). The reasons behind this choice are that it is one of the world's leading graduate schools of education, and having celebrated its 100th anniversary in 2020, it argues to have achieved high levels of social impact. The analysis of this case can suggest some good practices to develop our understanding.

The structure of the rest of the thesis is as follows. Chapter 2 reviews the relevant literature, and Chapter 3 describes the methodology. Chapter 4 presents the results, and Chapter 5 discusses the findings.

2 LITERATURE REVIEW

2.1 Key Concepts

Key concepts in this research are *entrepreneurial university*, *engaged university*, and *leadership*. Regarding the broad concept of leadership, this research focuses on *entrepreneurial leadership* and *collaborative leadership*, two types of leadership that I perceive suitable, based on the literature review and the empirical study, for implementing the entrepreneurial and engaged university concept.

The *entrepreneurial university* has both a narrow and a broad definition. The narrow definition focuses on commercializing outputs from university research, i.e., academic entrepreneurship, whereas the broad definition describes the university's various contributions to regional development (Etzkowitz, 2013).

In addition to academic entrepreneurship, contributions in the broad sense definition can be undertaking contract research and providing training to the industry (Philpott et al., 2011), supporting knowledge assets and capabilities of local firms, providing institutional leadership in the region, and contributing to sustainable development (Rinaldi et al., 2018; Sánchez-Barrioluengo & Benneworth, 2019; Trencher et al., 2014; Wakkee et al., 2019).

Contributions of the entrepreneurial university in its broad definition overlap with the concept of the *engaged university*, which is defined by Moussa et al. (2019, p. 22) as follows.

> It is about community engagement aimed at fostering the well-being of a (primarily regional) society and its individuals by sharing knowledge, engaging in outreach activities, collaborating with local companies, and transferring technology, thus contributing to regional development.

While both concepts envision regional development, the entrepreneurial university prioritizes the economic relevance of knowledge whereas the engaged university emphasizes its social relevance and the responsiveness of universities to social problems (Blankesteijn et al., 2019).

In both concepts, engagement with industry and society in multiple ways diminishes the ivory tower image of the university (Rubens et al., 2017). Both concepts also add a third mission to the university's traditional missions of teaching and research. The third mission embraces the economic and social valorizations of knowledge produced by researchers and its transfer to the private sector in the region (Fayolle & Redford, 2014). It implies service to the regional community, outreach, as well as innovative entrepreneurship (Blankesteijn et al., 2019).

Leadership focuses on setting organizational direction and objectives and exercising influence to motivate organizational members to achieve organizational objectives (Yukl, 1994). Its main functions are direction setting, people development, and organizational design (Leithwood et al., 2007), and influence is its key attribute, exercised by individuals or groups (Gronn, 2008). Leadership is an interactive process of exercising influence to achieve a common goal of the organization (Northouse, 2019, p. 5). In contrast to the concept of management, which produces order and consistency, leadership produces change and movement by establishing direction and aligning, motivating, and inspiring people (Kotter, 1990).

Leadership is an old and multifaceted concept whose definition has evolved based on varying approaches to it, such as the trait approach, skills approach, behavioral approach, and situational approach, resulting in multiple conceptualizations like transformational leadership, authentic leadership, servant leadership, adaptive leadership, and team leadership (Northouse, 2019). Following the review of the literature, I select entrepreneurial leadership and collaborative leadership as suitable concepts for the context of the entrepreneurial and engaged university.

Entrepreneurial leadership refers to both the leadership performed in entrepreneurial ventures and the entrepreneurial mindset in organizations (Leitch et al., 2013). It motivates and directs organizational resources and agency toward recognizing and exploiting entrepreneurial opportunities (Renko et al., 2015). This type of leadership can be relevant because commercializing innovations

from academic research is one way to implement the entrepreneurial and engaged university concept. Entrepreneurial leadership is perceived as vital for higher education institutions to succeed in tomorrow's highly diverse, uncertain, and unpredictable learning environments (Hannon, 2018). In my opinion, entrepreneurial leadership promotes entrepreneurial agency and makes the university more entrepreneurial.

Collaborative leadership refers to the social process of participative leadership practices, actions, and learning to realize organizational goals (Jäppinen & Ciussi, 2016). It has similarities with distributed leadership and shared leadership (Fitzsimons et al., 2011; Youngs, 2017). I prefer to adopt here the term 'collaborative' rather than 'distributed' or 'shared' because it captures better the complexity of leadership practices by viewing them as outcomes of an emergent collaborative sense-making process (Jäppinen, 2014). It also reflects a more voluntary perspective on the active agency of organizational members.

This type of leadership is also relevant for this research because the entrepreneurial and engaged university concept demands close collaboration with actors in the region (Etzkowitz, 1998). In my opinion, collaborative leadership promotes collaborative agency and makes the university more engaged.

2.2 The Entrepreneurial and Engaged University

The literature on the entrepreneurial and engaged university has evolved in five waves. While the first two waves defined the concept and attempted to link it to related concepts and streams of literature, the focus shifted towards entrepreneurship education and organizational transformation during the third and fourth waves, and the fifth wave added a social role to the university's mission (Ramsgaard & Thrane, 2021).

To understand the entrepreneurial and engaged university concept, it is important to start with its relevance for regional develop-

ment occurs through innovations and new business development, which are outcomes of evolving interactions between industry, university, and government in knowledge-based economies (Etzkowitz, 1998).

These interactions occur in different forms and at different levels, possibly nurtured by independent hybrid organizations such as technology transfer offices at universities, industrial liaison offices, science parks, and business incubators (Etzkowitz & Leydesdorff, 2000). Levels of interaction vary over time, increasing especially during the innovation and new business formation stages (Pique et al., 2018).

Key activities of interaction are technology transfer, networking, coordination, and conflict moderation (Ranga & Etzkowitz, 2013). Successful interactions necessitate the university's capability to generate and diffuse knowledge and technology, the industry's absorptive capacity and demand for the technology generated by the university, the availability of support infrastructures for university technology transfer, and institutional leaders who have a vision for knowledge-based development (Cai & Etzkowitz, 2020).

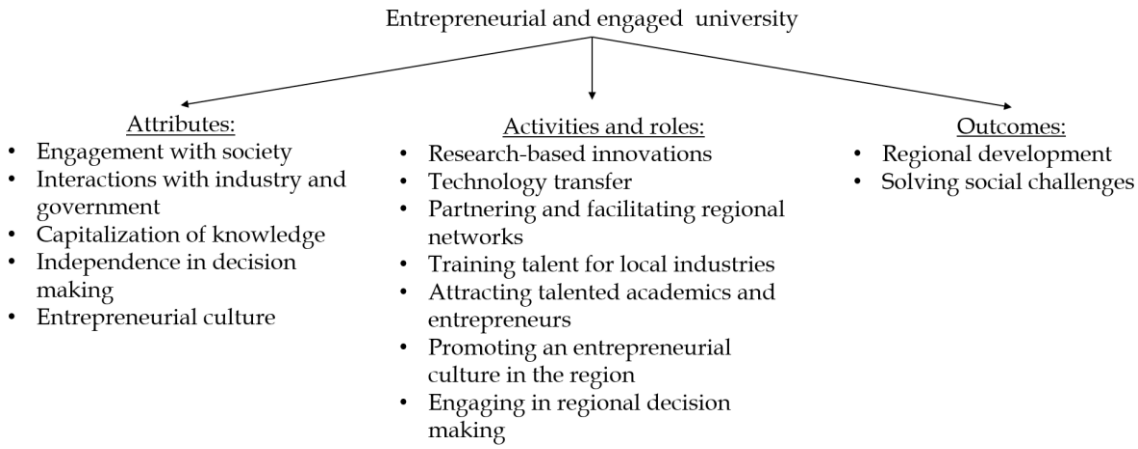
The main characteristics of the entrepreneurial and engaged university are engagement with society, capitalization of knowledge, independence in decision-making, interactions with industry and government, and having an entrepreneurial culture (Etzkowitz et al., 2017). These characteristics demand that the university has an open, problem-oriented, collaborative, and entrepreneurial mindset, aiming to generate useful multidisciplinary knowledge and seek useful applications for it (Etzkowitz et al., 2019).

In these respects, Pavlova (2020) views the entrepreneurial and engaged university as both an economic and a social actor that cooperates with regional businesses, generates spin-off startups, creates new workplaces, and promotes an entrepreneurial culture in the region. As a result, the entrepreneurial and engaged university fulfills the roles of training talent for the local industry, innovating and commercializing products from academic knowledge, partnering and facilitating networks with industry and government, and attracting talented academics and entrepreneurs to the region (Betts & Lee, 2005).

Based on the above review, Figure 2 summarizes the key attributes, activities, roles, and outcomes of the entrepreneurial and engaged university concept.

Figure 2

Key Attributes, Activities and Roles, and Outcomes of the Entrepreneurial and Engaged University Concept (Compiled from Betts & Lee, 2005; Etzkowitz et al., 2017; Pavlova, 2020)



2.3 Successful Implementation of the Entrepreneurial and Engaged University Concept

Implementing the entrepreneurial and engaged university concept bears risks and challenges. Barriers to its implementation include the lack of entrepreneurial role models, the absence of a unified entrepreneurial culture, conflicts between academic progression criteria and entrepreneurial efforts, fear of losing academic integrity and skepticism of faculty, pressures to make university activities more effective and sustainable, the lack of flexible structures to allow optimal interactions with industry and government, not having clear support mechanisms and pathways for entrepreneurship, and lacking suitable measures to assess the impact (Creed et al., 2021; Davey et al., 2016; Klofsten et al., 2019; Philpott et al., 2011; Rubens et al., 2017; Slaughter & Leslie, 1997).

Research shows that there is no best way to implement the entrepreneurial and engaged university concept (Hussler et al., 2010). Sánchez-Barrioluengo et al. (2019) found out that there are differences among UK universities. Whereas

old, established universities are more research-oriented, newer universities rely more on consultancy and the formation of spin-offs (Sánchez-Barrioluengo et al., 2019).

Transitioning to an entrepreneurial and engaged university demands integrating project-based experiential learning into education, seeking useful implications for research outputs, and developing a network of public and private partners (Etzkowitz et al., 2019). Public venture capital can initiate the transition (Etzkowitz et al., 2008), but there is a need for caution because a strong top-down push can discourage academic engagement (Philpott et al., 2011).

There are many factors behind the successful implementation. Clark (1998) points to a steering management team, diverse sources of funding, and an integrated entrepreneurial culture. Guerrero and Urbano (2012) highlight the relevance of the university's resources and capabilities, entrepreneurial organization and governance structure, entrepreneurship education, the university community's attitudes towards entrepreneurship, and corresponding support, role models, and reward systems for entrepreneurship. Gibb et al. (2018) further argue that leadership and governance are key in implementing the concept, together with organizational capacity, people, and incentives.

A case study of Stanford University's innovation ecosystem by Etzkowitz et al. (2019) demonstrates the complexity of governance mechanisms and the corresponding challenges of leadership. Another case study of the Massachusetts Institute of Technology reveals that success relies on excellent interdisciplinary research, informal internal and external networks, dedicated organizational structures, a strong commitment to the exploitation of research, and being located in a highly innovative region (O'Shea et al., 2007).

There have been attempts to assess the performances of universities in implementing the entrepreneurial and engaged university concept. In one of these attempts, the European Commission and OECD (2012, n.d.) developed a guiding framework, which has the following eight dimensions.

1. *Leadership and governance*. This dimension evaluates the extent to which entrepreneurship is part of the university's strategy, the level of commit-

ment to implement an entrepreneurial strategy, and the availability of established governance mechanisms to enact the entrepreneurial strategy (European Commission & OECD, 2012).

2. *Organizational capacity – funding, people, and incentives*. This dimension assesses the university's capacity for carrying out an entrepreneurial strategy and focuses on strategic resources of funding and people as well as incentives to achieve entrepreneurial goals (European Commission & OECD, 2012).

3. *Entrepreneurial teaching and learning*. This dimension investigates how the university develops students' entrepreneurial skills through teaching and training (European Commission & OECD, 2012).

4. *Preparing and supporting entrepreneurs*. This dimension studies how the university raises awareness for entrepreneurship and encourages faculty, students, and graduates to create their business ventures (European Commission & OECD, 2012).

5. *Knowledge exchange and collaboration*. This dimension evaluates how the university collaborates and exchanges knowledge with external stakeholders in capturing entrepreneurial opportunities (European Commission & OECD, 2012).

6. *The internationalized institution*. This dimension assesses the university's level of internationalization and its commitment to it (European Commission & OECD, 2012).

7. *Measuring impact*. This dimension is about regularly assessing the impact of the university's entrepreneurial agenda (European Commission & OECD, 2012).

8. *Digital transformation and capability*. This dimension investigates the university's digital strategy to support innovation and entrepreneurship, its investments in digital infrastructure, and its use of digital technologies to develop the digital capability of students, faculty, and companies in the region (European Commission & OECD, n.d.).

A second attempt is the Global Entrepreneurial University Metrics Initiative, launched in 2015. This initiative measures performance according to inputs, throughputs, outputs, and outcomes (Etzkowitz et al., 2017).

Input measures cover whether the university has an entrepreneurial strategy, intellectual property policy, dual appointments in industry and academia, available funding for the commercialization of innovations, policies for supporting and rewarding entrepreneurial activities of faculty and students, and technology transfer support infrastructure (Etzkowitz et al., 2017).

Throughput measures include student internships in industry, partnership agreements with industry, industry scholarships and funding for research, incubator, and accelerator programs for startups, a technology park at the university, joint university-industry centers, entrepreneurship courses, and student entrepreneurship clubs (Etzkowitz et al., 2017).

Output measures are related to incomes from industry contracts, university spin-off companies, and patented innovations, as well as joint research publications with the industry (Etzkowitz et al., 2017).

Finally, outcome measures assess jobs and turnover created by university spin-offs, percentages of entrepreneurs among graduates and faculty, and the development of regional strategies and policies (Etzkowitz et al., 2017).

A third attempt is by the Accreditation Council for Entrepreneurial and Engaged Universities. This attempt sees entrepreneurship and community engagement as the vehicles for the university to create economic and social impact and offers a framework of assessment that consists of the following 15 standards (see Accreditation Council for Entrepreneurial and Engaged Universities, 2016a, 2016b).

1. The university is strategically committed to entrepreneurship and engagement.

2. The university has goals for entrepreneurship and engagement, with measurable targets.

3. The university has financial expenditure plans for entrepreneurship and engagement.

4. The university's values and leadership promote entrepreneurship and engagement.

5. The profiles of the faculty and staff meet the demands of the university's entrepreneurship and engagement strategy.
6. The university provides a system of incentives and rewards to support entrepreneurship and engagement activities.
7. The university establishes a culture that promotes entrepreneurship and engagement.
8. The university has internal structures to support entrepreneurship and engagement activities.
9. The university brokers access to external services to support entrepreneurship and engagement activities.
10. The university provides entrepreneurship education and engages with external stakeholders to enrich student learning.
11. Faculty engages in collaborative research with regional stakeholders and researches entrepreneurship.
12. The university performs commercial activities and serves regional stakeholders.
13. The university achieves continuous improvement in entrepreneurship and engagement.
14. The university is an influential stakeholder in the region concerning policy, practice, and entrepreneurship.
15. The university strives for greater economic, social, and cultural impact in the region.

Based on the above review, Table 1 summarizes the challenges and success factors in implementing the entrepreneurial and engaged university concept.

Table 1

Challenges and Success Factors in Implementing the Entrepreneurial and Engaged University Concept (Compiled from Accreditation Council for Entrepreneurial and Engaged Universities, 2016a, 2016b; Bezanilla et al., 2020; Clark, 1998; Creed et al., 2021; Davey et al., 2016; Etzkowitz et al., 2017; Etzkowitz et al., 2019; European Commission & OECD, 2012, n.d.; Gibb et al., 2018; Graham, 2014; Guerrero & Urbano (2012); Klofsten et al., 2019; Philpott et al., 2011; O'Shea et al., 2007; Rubens et al., 2017; Sánchez-Barrioluengo & Benneworth, 2019; Slaughter & Leslie, 1997)

Challenges	Lack of entrepreneurial role models and entrepreneurial culture, conflicts with academic progression criteria, fears and skepticism of faculty, pressures to make university activities more effective, lack of flexible structures to allow optimal interactions with industry and government, lack of support mechanisms, and lack of suitable measures to assess the impact.
Success factors	Integrating project-based experiential learning into education, seeking useful implications for research outputs, participating in trust-based regional, national, and international networks, having appropriate governance mechanisms under the leadership of a steering management team, accessing diverse sources of funding, committing to build and implement an entrepreneurial and engagement culture and an entrepreneurial and engagement strategy, providing support, role models, and reward systems for entrepreneurship and engagement, training students and faculty for entrepreneurship, conducting research on entrepreneurship, engaging in collaborative research with regional stakeholders, building physical and digital platforms for knowledge exchange and collaboration, and assessing economic and social impact.

2.4 Leadership to Implement the Entrepreneurial and Engaged University Concept

Research on leadership practices in higher education is fragmented, with little consensus on what is effective leadership (Bryman, 2007; Dopson et al., 2018; Žydžiūnaitė, 2018). The complexity is perhaps because higher education has multiple missions of teaching, research, and contributing to regional development and society. Žydžiūnaitė (2018, p. 33) defines leadership in higher education as follows:

> It is about performing leadership roles in ways that support the scholar's collaborative decision-making and empowerment.

Leadership is a multifaceted concept (Northouse, 2019). Žydžiūnaitė (2018) argues that it is challenging to find an appropriate balance of leadership practices between the different missions of higher education. As a result, this research focuses only on the mission of contributing to regional development and society. Adopting a process view of leadership, the aim is to understand how leadership can be exercised in implementing the entrepreneurial and engaged university concept. Two ideal types of leadership for this purpose are entrepreneurial leadership and collaborative leadership.

2.4.1 Entrepreneurial Leadership and Entrepreneurial Agency

Entrepreneurial leadership is the first suitable type for the entrepreneurial and engaged university concept, as hinted by the common term in their names. As Coyle (2014) argues, this type of leadership is essential for developing an entrepreneurial culture at the university, which is key for successfully implementing the entrepreneurial and engaged university concept.

Institutional entrepreneurship has been applied as a theoretical lens in the entrepreneurial and engaged university literature, viewing academics as institutional entrepreneurs (see Cai & Liu, 2020; Nieth & Benneworth, 2020). Furthermore, entrepreneurial leadership is seen as key to success in tomorrow's highly diverse and unpredictable learning environments of higher education (Hannon, 2018). Wahab and Tyasari (2020) argue that adopting appropriate entrepreneurial leadership can improve the job performance of university leaders.

Salamon and Verboon (2020) suggest developing entrepreneurial skills for 21st-century school leadership. In recent years, universities have been increasingly providing entrepreneurship education, contributing to the development of entrepreneurial skills of their students (Almahdi, 2019; Bodolica et al., 2021).

Combining the concepts of entrepreneurship and leadership, entrepreneurial leadership can emerge in any type and size of organization (Renko et al., 2015). At Babson College, entrepreneurial leadership is seen both as a skillset and a mindset, and it is defined as follows (Babson College, n.d.).

> It is the ability to help people in an influential way to increase their capacity to recognize and exploit entrepreneurial opportunities.

Similarly, Gupta et al. (2014, p. 242) define entrepreneurial leadership as follows.

> It is the type of leadership that creates visionary scenarios for mobilizing participants to commit themselves to discovery and its exploitation for strategic value creation.

Tasks of entrepreneurial leaders include strategic thinking and visioning, team building, personnel management, communicating, negotiating, and mobilizing resources (New Castle University, 2015). These tasks aim to motivate and direct resources and agency toward recognizing and exploiting entrepreneurial opportunities to create value (Renko et al., 2015). Such motivation occurs by providing people with opportunities and resources and encouraging them to take risks (Coyle, 2014). Communicating an entrepreneurial vision effectively, having processes and resources that support entrepreneurship, and facilitating idea generation further motivate entrepreneurial activity (Gupta et al., 2004).

Entrepreneurial leadership is expected to promote entrepreneurial agency, which can be defined as the ability and motivation of individuals or groups to create and capture entrepreneurial opportunities for the organization (Goss & Sadler-Smith, 2018; McMullen et al., 2021). Thus, entrepreneurial agency implies both the intention and the action for transforming the structural context in a novel way with the purpose of value creation (Mc Mullen et al., 2021).

Key attributes of entrepreneurial agents, compiled from the literature, include being visionary, proactive, innovative, risk-taking, problem-solving, challenge-seeking, versatile, passionate, collaborative, accountable, and creative (Bagheri et al., 2013; Brauckmann-Sajkiewicz & Pashiardis, 2020; Coyle, 2014; Leitch & Volery, 2017; New Castle University, 2015). Hence, the objective of entrepreneurial leadership can be recognized as creating an environment where these attributes will be nurtured for undertaking entrepreneurial agency. Entrepreneurial leadership and entrepreneurial agency are two key concepts employed in the theoretical framework of this research (see section 3.3.2).

Garud and Giuliani (2013) view entrepreneurial agency as an emergent and collaborative process in that entrepreneurial agents discover and create entrepreneurial opportunities in interaction with multiple stakeholders during their entrepreneurial journeys. Moreover, entrepreneurial agency can be undertaken not only by individuals but also by a collaborating group of individuals. The collaborative agency generates more resources for creating entrepreneurial opportunities, but it also adds communication and coordination costs (Mc Mullen et al., 2021). Successful facilitation of collaborative agency, in consideration of its challenges of implementation, may require a different type of leadership, namely collaborative leadership.

2.4.2 Collaborative Leadership and Collaborative Agency

Collaborative leadership is an emergent process of collaborative sense-making through the actions and interactions of people (Bennet et al., 2003). This type of leadership adopts the process view of leadership, which suggests that leadership emerges from the social interactions, reflections, and adjustments of all, who are engaged with it (Raelin, 2016). It emphasizes collaboration within the organization and across organizational boundaries. Jäppinen (2013, p. 226) defines collaborative leadership as follows.

> It is a dynamic complex adaptive system of shared actions toward shared goals through a collective learning process.

In my opinion, collaborative leadership is highly relevant to this research because the entrepreneurial and engaged university concept highlights collaborative interactions between the university, industry, and government in the region (Alatossava, 1997; Etzkowitz, 1998). In the 21st-century knowledge society, collaboration is a key skill for addressing the challenges of education (Ananiadou & Claro, 2009; Haugas, 2020), and collaborative leadership is expected to play a vital role in engaging communities for collaboration (Cleveland & Cleveland, 2018).

Collaborative leadership considers the contributions of multiple stakeholders and frames leadership as an outcome of interactions (Spillane, 2006; Spillane & Diamond, 2007). Having appropriate communication skills is a success factor for organizing these interactions effectively (Kramer & Crespy, 2011). Thus, an important role of collaborative leadership is to address the needs and interests of multiple stakeholders through communication (Cleveland & Cleveland, 2018).

Sharing is a core activity of collaborative leadership. It encourages participative decision-making, cooperation, and support, which increase organizational commitment, job satisfaction, and effectiveness (Hulpia et al., 2009, 2011; Jäppinen & Ciussi, 2016). Higher levels of collaboration also result in improved learning outcomes (Donohoo et al., 2018; Hallinger & Heck, 2010). Hence, exercising collaborative leadership, which fosters high levels of collaboration within and across organizational boundaries, can be a success factor in higher education (Humphreys, 2013; Jones et al., 2012).

Achieving these benefits is not easy. The complexity of coordinating diverse interactions and possible abuse of power differentials are the main challenges of implementing collaborative leadership (Cannatelli et al., 2017; Lumby, 2013). In resolving these challenges, flexible leadership practices, generative dialogue, and a climate of trust and shared knowledge are helpful (Collins et al., 2018; Jameson et al., 2006; Jäppinen & Sarja, 2011; Tian et al., 2016). Moreover, the sociocultural context should be taken into consideration (Shaikh et al., 2023).

Providing opportunities for organizational members to collaboratively analyze, envision, and redesign their practices will facilitate collaborative agency (Englund & Price, 2018). Conrad and Andrews (2023, p. 292) define collaborative agency as follows.

> It refers to people working together – across their potential differences – in ways that make possible and enhance their agency and also constitute an interdependent agency to achieve shared objectives.

The collaborative agency is mobilized through engaged social interaction (Raelin, 2016). It implies a feeling of togetherness based on shared values to materialize a

shared vision (Lemos, 2017). It occurs at multiple levels, whereby individuals and groups negotiate their agencies through their voices, actions, and reflections (Conrad & Andrews, 2023; Lemos, 2017).

The main characteristics of a collaborative agency are shared vision and values, interdependence and shared responsibility, mutual respect, empathy and vulnerability, ambiguity, communication through dialogue, and synergy (Lawrence, 2017). Thus, collaborative agency is a process in which individuals or groups engage in an open dialogue, listen to each other, reflect upon their differing views, and learn from each other (Raelin, 2016). Maintaining collaborative agency, however, is challenging (Robinson & Renshaw, 2022).To achieve this, there is a need for tolerance of ambiguity, openness and frankness, patience and suspension of judgment, empathy and unconditional positive regard, and commitment to learning (Raelin 2016).

Collaborative leadership and collaborative agency are also key concepts employed in the theoretical framework of this research based on the assumption that they are needed to increase collaboration and make the university more engaged (see section 3.3.2).

3 RESEARCH IMPLEMENTATION

3.1 Research Approach and Strategy

The research approach is qualitative, and the research strategy is a case study. The reasons behind these choices lie in their suitability with the research objective.

The objective of this research is to explore how the entrepreneurial and engaged university concept can be implemented successfully at the graduate school of education from a leadership perspective. In meeting this objective, it is assumed that reality in social sciences is complex because human behavior is dependent on its context (Burrell & Morgan, 1979). These assumptions led me to pursue a qualitative approach and case study strategy, which suit well to gain deep insights into a concept in its context (Yin, 2003).

The case study research strategy has been applied in the entrepreneurial and engaged university literature (see Etzkowitz et al., 2019; O'Shea et al., 2007; Sperrer et al., 2016; Wolf, 2017). It is most suitable for exploratory research because it does not aim to generalize findings (Eisenhardt & Graebner, 2007; Siggelkow, 2007). This feature makes it a suitable choice for this exploratory research.

Good sampling requires choosing cases that fit best with research objectives (Tracy, 2013). The case selected for this research is HGSE. The selection is based on my assumption that it would provide rich insights into how to implement the entrepreneurial and engaged university concept at the graduate school of education. This assumption relies on two facts.

First, HGSE is one of the world's leading schools in the field of education, number 1 according to the Shanghai Ranking and number 2 according to QS World University Rankings in 2022. Second, having celebrated its 100th anniversary in 2020, HGSE argues to have achieved high levels of social impact.

3.2 Research Context

Founded in 1636 in Cambridge, Massachusetts, Harvard University is today one of the leading research universities in the world with its 13 schools, over 35,000 students, and more than 400,000 alumni worldwide (Harvard University, n.d.a).

HGSE is one of Harvard University's 13 schools, and it was established in 1920. Already between 1948 and 1962, the school gained a national reputation as a leading institution in the field of education (Harvard Graduate School of Education, n.d.a).

HGSE introduced intensive short programs for professional education in 1978 to supplement its graduate degree programs (Harvard Graduate School of Education, n.d.a). The urban superintendents' program was launched in 1990 as the first comprehensive doctoral program in the U.S. for urban educational leaders, and the public education leadership program was established in 2003 to improve educational outcomes at urban schools (Harvard Graduate School of Education, n.d.a). This was followed by the introduction of the Doctor of Education Leadership Program in 2009, a practice-based program that integrates the fields of education, business, and public policy, and the Ph.D. in Education in 2012 (Harvard Graduate School of Education, n.d.a).

In 2022, HGSE had 74 full-time core faculty, serving the school's degree programs and 100 professional education programs with the mission of "*learn to change the world*" (Harvard Graduate School of Education, n.d.b). The degree programs of HGSE graduate around 700 students and the professional education programs train nearly 18,000 educators annually (Harvard Graduate School of Education, n.d.c).

Following the suggestion by O'Shea et al. (2007), it is not right to study a case as an identity independent of the local context, in which it is embedded. For the objectives of this research, the local context refers mainly to the innovation and entrepreneurship contexts in Massachusetts, Harvard University, and HGSE.

The Innovation and Entrepreneurship Context in Massachusetts: The innovation and entrepreneurship context in Massachusetts is world-famous. In the 1980s,

Route 128, north of Boston, boomed in minicomputer and mainframe technologies. Home to the world's leading universities like the Massachusetts Institute of Technology and Harvard University, it was the first region in the U.S. to adopt regulations on genetic research, giving birth to the world's leading innovation ecosystem in life sciences (Budden & Murrey, 2015).

The innovation and entrepreneurship context in Massachusetts comprises a university ecosystem, anchor technology firms, and a business support ecosystem (iLab Director, 2022). In the university ecosystem, Massachusetts hosts 114 colleges and universities, which inject 3.5 billion USD into research and development and generate more than 500 patents and 200 commercial licenses annually (Bussgang, 2021).

The Massachusetts Institute of Technology has been a key innovation powerhouse and collaboration partner for Harvard University in educational innovation projects such as the massive open online course portal edX. Anchor technology firms like Amazon Robotics, Google, and Microsoft are surrounded by highly innovative technology startups located in Kendall Square and the Boston Innovation District. Innovation and entrepreneurship are further supported by a business support ecosystem that includes incubators and business accelerators such as MassChallenge, Techstars, and Greentown Labs (iLab Director, 2022).

The innovation and entrepreneurship context at HGSE and Harvard University: HGSE and Harvard University support the innovation and entrepreneurship of students, alumni, faculty, and entrepreneurs from the region through multiple mechanisms.

Entrepreneurship courses at HGSE raise awareness among students while Dean's Innovation Challenge and Fellowships encourage them to compete for grants to pursue their entrepreneurial initiatives. HGSE Innovation and Ventures in Education (HIVE) is a community of entrepreneurs and innovators in education that aims to provide students with resources and networks to help them build their ventures (Harvard Graduate School of Education Innovation and Ventures in Education, n.d.).

Established in 2012, Harvard Innovation Labs (iLab) is a physical space where students from Harvard University's schools and alumni can develop their entrepreneurial ventures in teams under mentoring by Harvard faculty and entrepreneurs-in-residence (Harvard Innovation Labs, n.d.a). The iLab consists of three labs: the student iLab, LLX GEO for alumni, and Pagliuca Harvard Life Lab for faculty and alumni in life sciences.

The President's Innovation Challenge is a university-level competition where students from all schools of Harvard University participate to secure seed funding and a place at the iLab for their entrepreneurial ideas (Harvard Innovation Labs, n.d.b).

Established in 2006 with the motto of driving innovation toward impact, Harvard University's Office of Technology Development mediates between academics and industry for managing intellectual property by patenting innovations, supporting the commercialization of these innovations through running accelerator programs, and finding suitable entrepreneurs from the industry (Harvard Office of Technology Development, n.d.).

The Arthur Rock Center for Entrepreneurship, established in 2003, is the second-largest academic unit at Harvard Business School, hosting more than 30 faculty whose research and teaching focus on entrepreneurship (Harvard Business School, n.d.a).

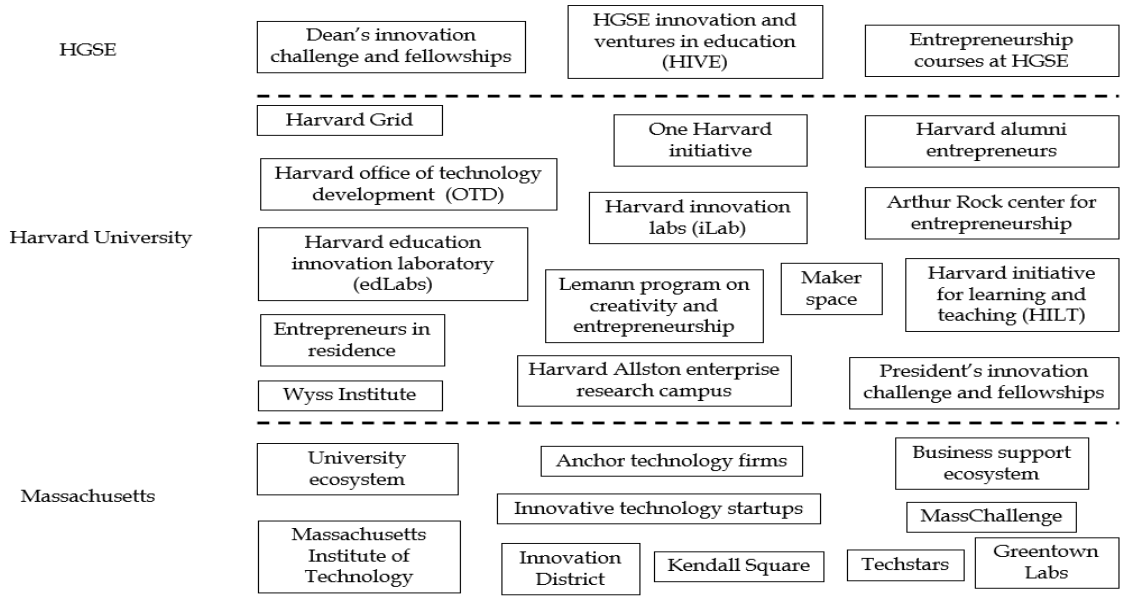
In addition to these key actors, Harvard alumni entrepreneurs, Harvard Grid, Harvard education innovation laboratory (edLabs), Wyss Institute, the maker space, Harvard Initiative for Learning and Teaching (HILT), and Lemann program on creativity and entrepreneurship further contribute to Harvard University's innovation and entrepreneurship context.

Finally, the One Harvard initiative aims to break down the Byzantine silos across the university's 13 schools and foster collaboration (iLab Director, 2022), and the Harvard Allston Enterprise Research Campus project aspires to host innovative firms on the Harvard campus and make Allston a leading innovation and entrepreneurship hub in the region (The Harvard Gazette, 2021).

Figure 3 illustrates actors in the innovation and entrepreneurship contexts of HGSE, Harvard University, and Massachusetts.

Figure 3

Key Actors of the Innovation and Entrepreneurship Contexts of HGSE, Harvard University, and Massachusetts (Source: Author's Own)



3.3 The Theoretical Framework for the Empirical Study

The objective of this research is to develop a leadership perspective on implementing the entrepreneurial and engaged university concept. The research questions aim to understand the ways how the concept can be implemented at the graduate school of education (research question 1), and what type of leadership is needed for successfully implementing it (research question 2). A theoretical framework is developed based on the literature review in the following sections, which will be used in designing the empirical study and analyzing the data.

3.3.1 Ways to Implement the Entrepreneurial and Engaged University Concept

In answering the first research question, this research adopts the broad definition of the entrepreneurial and engaged university (Etzkowitz, 2013). According to

this, contributions to regional development can be various, as presented in Table 2.

Table 2

Contributions of the Entrepreneurial and Engaged University to Regional Development (Source: Author's Own)

Cited literature	Adapted contributions
Betts & Lee (2005)	Innovating and commercializing products from academic knowledge, partnering and facilitating networks with industry and government, and attracting talented academics and entrepreneurs to the region.
Philpott et al. (2011)	Creation of a technology park, formation of spin-off firms, patenting, licensing, undertaking contract research, providing training courses on entrepreneurship to students, faculty, and the industry, and consulting.
Etzkowitz (2013)	Engaging in collaboration with industry and government in making and implementing strategic decisions related to the development of the region, transforming the university from being only oriented to support existing industries in the region to being involved in creating new industries based on existing or new technologies that arise from academic research at the university.
Rinaldi et al. (2018)	Supporting the assessment of regional knowledge assets and capabilities, enhancing absorptive capacities of local firms, contributing to institutional leadership and governance in the region by developing social relations, and addressing major social challenges in the region.
Pavlova (2020)	Development of an entrepreneurial culture in the region.

These contributions are grouped in the developed framework into five categories, namely,

1. Promoting academic entrepreneurship
2. Stimulating student entrepreneurship
3. Consulting and training the industry through contract research and education
4. Providing entrepreneurship training
5. Engaging in strategy building for regional development and promoting an entrepreneurial culture in the region.

These categories were utilized for analyzing the data concerning the first research question.

3.3.2 Type of Leadership to Implement the Entrepreneurial and Engaged University Concept

Following the literature review, entrepreneurial leadership and collaborative leadership were identified as suitable candidates to implement the entrepreneurial and engaged university concept.

Leadership is expected to define goals, clarify paths, remove obstacles, and provide support to exercise agency (Northouse, 2019). Following this argument, the developed framework assumes that while entrepreneurial leadership stimulates entrepreneurial agency (Goss & Sadler-Smith, 2018; McMullen et al., 2021) and makes the university more entrepreneurial, collaborative leadership fosters collaborative agency (Englund & Price, 2018; Raelin, 2016) and makes the university more engaged (see Figure 4).

Figure 4

A Framework of Leadership for Implementing the Entrepreneurial and Engaged University Concept (Source: Author's Own)

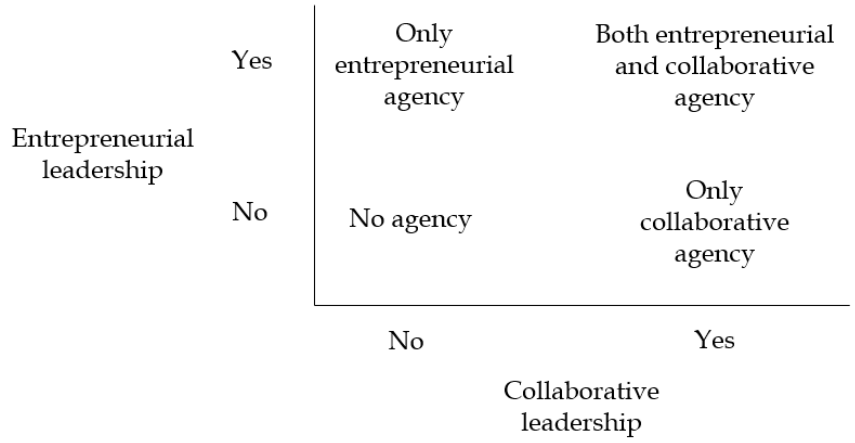


Figure 4 presents four scenarios. When entrepreneurial leadership and collaborative leadership are not exercised, there will be neither entrepreneurial nor collaborative agency. When entrepreneurial leadership is exercised but not collaborative leadership, there will be only entrepreneurial agency. This scenario can make the university entrepreneurial but not engaged because collaboration is needed for engagement. Vice versa, if collaborative leadership is exercised but

not entrepreneurial leadership, there will be only collaborative agency. This scenario can make the university engaged but not entrepreneurial.

Thus, none of these three scenarios will result in the successful implementation of the entrepreneurial and engaged university concept. It is only when the university exercises both entrepreneurial and collaborative leadership that both entrepreneurial and collaborative agency will flourish, and as a result, the university can be both entrepreneurial and engaged.

The next step in the framework is to unveil the ways to exercise entrepreneurial leadership and collaborative leadership, as well as the attributes of entrepreneurial agency and collaborative agency, and link them in the context of the ways of implementing the entrepreneurial and engaged university concept.

The following eight ways were identified from the literature review to exercise entrepreneurial leadership.

1. Commitment to implement an entrepreneurial strategy (European Commission & OECD, 2012)

2. Availability of established governance mechanisms, resources, and well-trained people to implement the entrepreneurial strategy (European Commission & OECD, 2012)

3. Establishing an entrepreneurial mindset and culture in the organization (Clark, 1998; Etzkowitz et al., 2017; Etzkowitz et al., 2019; Graham, 2014; Leitch et al., 2013; Philpott et al., 2011)

4. Having support mechanisms, incentives, role models, and pathways to raising awareness for and developing entrepreneurship (Bezanilla et al., 2020; Clark, 1998; European Commission & OECD, n.d.; Guerrero & Urbano, 2012; Klofsten et al., 2019; Sánchez-Barrioluengo & Benneworth, 2019)

5. Researching entrepreneurship and developing entrepreneurial skills of students, faculty, and potential entrepreneurs from the region (Bezanilla et al., 2020; Etzkowitz, 2013; European Commission & OECD, 2012; Guerrero & Urbano, 2012; Klofsten et al., 2019; Philpott et al., 2011)

6. Commitment to internationalization (European Commission & OECD, 2012)

7. Measuring the impact of entrepreneurial activities on regional development (European Commission & OECD, 2012)

8. Having a digital strategy to support entrepreneurship and innovation (European Commission & OECD, n.d.; Guerrero & Urbano, 2021).

These ways were utilized as themes in analyzing data concerning entrepreneurial leadership.

The following five ways were identified from the literature review to exercise collaborative leadership.

1. Collaborative sense-making and decision-making based on a climate of trust (Jäppinen, 2014; Jäppinen & Sarja, 2011; Tian et al., 2016; Vuori, 2019)

2. Knowledge exchange and collaboration with external stakeholders through established governance mechanisms and legal frameworks (Etzkowitz, 1998; European Commission & OECD, n.d.)

3. Having a core management team to steer the planning and implementation (Clark, 1998)

4. Having flexible leadership practices and non-bureaucratic structures (Collin et al., 2018)

5. International mobility and active participation in international networks (European Commission & OECD, 2012).

These ways were utilized as themes in analyzing data concerning collaborative leadership.

Key attributes of the entrepreneurial agency include being visionary, proactive, innovative, risk-taking, problem-solving, challenge-seeking, versatile, passionate, collaborative, accountable, and creative (Bagheri et al., 2013; Brauckmann-Sajkiewicz & Pashiardis, 2020; Coyle, 2014; Leitch & Volery, 2017; New Castle University, 2015). These attributes were utilized as themes in analyzing data concerning entrepreneurial agency.

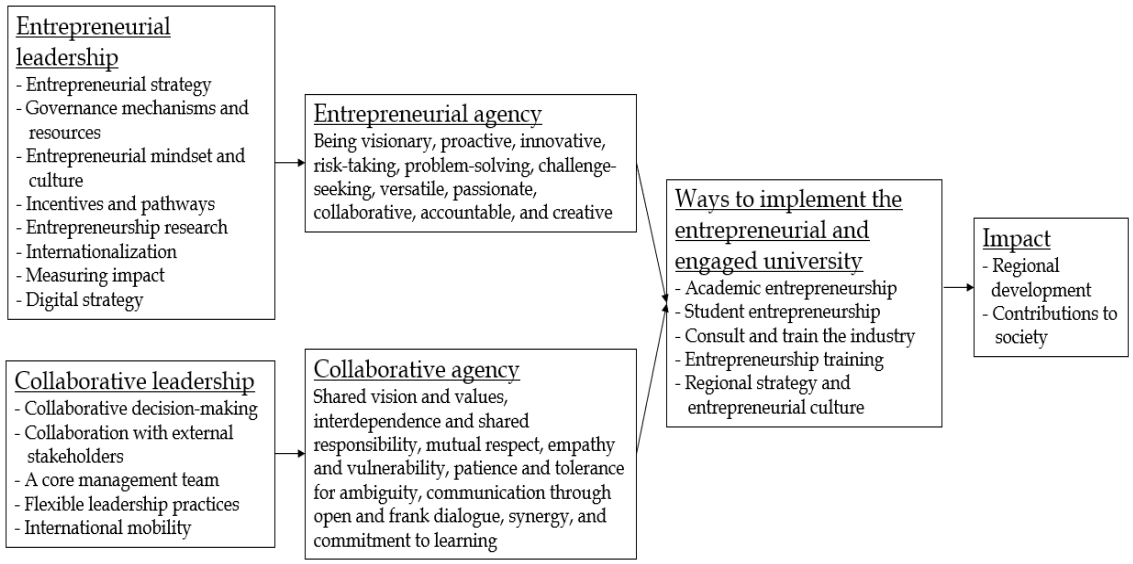
Key attributes of the collaborative agency include shared vision and values, interdependence and shared responsibility, mutual respect, empathy and vulnerability, patience and tolerance for ambiguity, communication through open and frank dialogue, synergy, and commitment to learning (Lawrence, 2017; Raelin,

2016). These attributes were utilized as themes in analyzing data concerning collaborative agency.

Figure 5 synthesizes all of these into a single framework and links them with the ways of implementing the entrepreneurial and engaged university concept and creating impact.

Figure 5

The Synthesized Framework for the Empirical Study (Source: Author's Own)



3.4 Data Collection and Analysis

Data collection and analysis went hand in hand during the research process. First, I collected data available about HGSE and Harvard University based on their relatedness to the research questions.

The data, which was collected in a single Microsoft Word file, includes entrepreneurial stories of students and alumni from HGSE, speeches and interviews made with the deans and faculty of HGSE and Harvard University, and related news from the Ed. Magazine, the Harvard Gazette, and the web pages of HGSE and Harvard University.

I also read the book by Johnson et al. (2015), where the faculty of HGSE and Harvard Business School share insights on the journey of the Public Education

Leadership Program (PELP), a joint initiative between HGSE and Harvard Business School faculty to improve leadership in urban school districts in the U.S.

I analyzed the data as I collected it, and the results from the analysis suggested where I should look for more data. The data was in the end from 135 sources, of which 116 were in text, 12 were video recordings, and 7 were audio podcasts. I transcribed the video recordings and the audio podcasts verbatim before their analysis. Full references of data sources corresponding to the utilized citations in the results chapter are presented in Appendix 1.

I visited Harvard University during December 12-15, 2022. During my visit, I had a semi-structured interview with a director of iLab, who had good knowledge of the innovation and entrepreneurship contexts at both Harvard University and the Massachusetts region. The interview took place on December 14, 2022, at the iLab. It was conducted in English, and it lasted for 30 minutes (see the interview questions in Appendix 2).

After my visit, I had a second interview with an alumna of HGSE, who has established a social enterprise in the field of education. The interview took place on December 25, 2022, virtually on Zoom, and it lasted for 24 minutes. The interview was conducted in Turkish, the native language of both the interviewer and the interviewee (see the translated interview questions in Appendix 2).

In both interviews, the questions were derived from the developed framework, and they focused on themes that the interviewees were knowledgeable of. Interview questions were shared with the interviewees in advance, and the objectives of the research were explained. I received consent for recording the interviews, and both interviews were recorded and later transcribed verbatim.

Data analysis utilized the method of theoretical thematic analysis, a widely used flexible approach for identifying, analyzing, and reporting patterns within qualitative data with the aid of an adapted theoretical framework suitable to answer the research questions (Braun & Clarke, 2006). For this purpose, I adopted the framework, developed in section 3.3, in formulating the organizing and basic themes, which guided what to look for in the data.

The organizing themes are (1) ways to implement the entrepreneurial university concept, (2) entrepreneurial leadership, (3) collaborative leadership, (4) entrepreneurial agency, (5) collaborative leadership, and (6) impact. Each organizing theme has basic themes, which characterize the organizing theme's properties identified from the literature and presented in the theoretical framework.

To structure the analysis process, I used the method of coding. This started with assigning numerical codes for each organizing theme and their basic themes (see Appendix 3 for the list of themes and their codes). Coding eased the categorizing of the reduced data under each theme.

The analysis process started with familiarizing myself with the data. At this phase, I transcribed the data in a Microsoft Word file, read through it a couple of times, reduced it with the aid of codes, and transferred the reduced data from Microsoft Word to Microsoft Excel. In the Excel sheet, each piece of transferred text is presented in a separate row, and some texts are presented twice if they refer to two different codes. The columns of the Excel sheet represent the code of the organizing theme (Code 1), the code of the basic theme (Code 2), the owner of the text (in anonymous form), the transferred text from Microsoft Word, comments from my initial analysis of the text, and the number of the page where the text can be found in the master file (see a sample of this Excel sheet in Appendix 4).

In the second phase, the reduced data was analyzed rigorously for each organizing theme, each base theme, and the relations between the themes. In doing this, sort and filter functions in Excel were used to organize the data by the codes of the organizing themes and the basic themes.

The analysis benefited from the strategies of asking further questions and making comparisons, which led to further data collection to fill the themes with missing data (Corbin & Strauss, 2008). Data collection continued until all themes were conceptually saturated with data.

The analysis at this stage was within each theme, revealing which themes stood out and what were their key properties. During the analysis, I made memos

and mind maps to visualize the themes and their properties (see a sample memo in Appendix 5).

In the third phase, the analysis shifted to understanding the relationships between the themes. For this purpose, I derived axial codes to note possible relationships between the themes of entrepreneurial leadership and entrepreneurial agency as well as between collaborative leadership and collaborative agency. This investigation helped to fine-tune the developed framework.

In theory-driven qualitative research, there is a risk of forcing the themes of the theoretical framework on the data and not noticing themes emerging from the data (Glaser, 2001). I paid attention to this warning and aimed to achieve a balanced interplay between the developed framework and data.

During the analysis, I went back and forth between the data and the theoretical framework. This made the nature of this research abductive (Gummesson, 2000) and allowed matching between explanation and observation (Ragin, 1994). The analysis ended with the further development of the theoretical framework and reporting the findings in the results chapter.

3.5 Quality of the Research

In qualitative research, quality is understood in terms of credibility, transferability, dependability, and confirmability of the research (Lincoln & Guba, 1985).

Credibility refers to the sense-making of results, i.e., whether the research questions are answered satisfactorily (Lincoln & Guba, 1985). To achieve this, the research questions guided the whole research process starting from choosing the literature to review, developing a suitable framework, and using it to answer the research questions.

Designing the empirical study with the guidance of a theoretical framework, thus linking data with theory, improves credibility by establishing internal coherence between the research questions and the findings (Miles & Huberman, 1994). In doing that, it is recommended to build explanations, consider other po-

tential explanations, and seek negative evidence (Miles & Huberman, 1994). I followed these recommendations during the research as I collected data, analyzed it, wrote memos, asked questions, made comparisons, and collected more data until reaching theoretical saturation.

Transferability is about the ability to transfer research findings to other contexts (Lincoln & Guba, 1985). As the nature of a case study is exploratory, it is not intended to generalize findings to other contexts (Siggelkow, 2007). This argument is true for this research. It remains an avenue for future research to find out to what extent findings from this research will apply in other contexts, e.g., other graduate schools of education, or other schools of the university.

Dependability refers to whether data is collected from reliable sources, and whether data collection and data analysis methods are implemented with rigor (Lincoln & Guba, 1985). To achieve this, data was collected from reliable sources, approached with skepticism, and triangulated from multiple sources (Yin, 2003). To increase dependability, interviews were recorded and transcribed verbatim, and data from all video and audio sources was also transcribed verbatim. Furthermore, data was reduced and analyzed rigorously with the aid of codes from the themes of the theoretical framework. Finally, emerging insights were instantly written in memos and stored for further analysis.

Confirmability is about the objectivity of findings (Lincoln & Guba, 1985). Excluding subjectivity is nearly impossible in qualitative research as researchers are influenced by their own experiences and perceptions when interpreting data (Gummesson, 2000). This can especially occur when the data is from secondary sources. Agreeing with this, I paid attention to supporting findings with evidence from multiple sources of data.

3.6 Ethical Solutions

This research adopted ethical guidelines for data protection. A data management plan was drafted to explain the protection of personal data, to disclose the researcher's relationship to the participants and the research venue, and to describe the ways for storing and disposing of data.

Regarding personal data collected via interviews, I acquired informed consent by informing the participants about the objectives of the research, sharing the interview questions in advance, and obtaining permission to record the interviews. I also confirmed with them that there was no confidential part in the interview data. To ensure the protection of personal data, the identities of the interviewees were kept anonymous.

Regarding personal data from the websites of HGSE and Harvard University, I followed the instructions of the Harvard University Office of the General Counsel. This office handles matters concerning the copyrights of the web pages of Harvard University and its schools. As informed by this office, data from their web pages can be used for research purposes since it fulfills the condition of fair use according to Section 107 of the U.S. Copyright Act (Harvard University Office of the General Counsel, n.d.).

While using data from the web pages of HGSE and Harvard University, I paid attention to maintaining anonymity and followed the principles of minimization and intended use. Thus, I used this type of data only in cases as seen necessary for the objectives of this research and avoided unnecessary details about the providers of data. I also made necessary citations in the text to the sources of the data and provided corresponding references in Appendix 1.

Regarding the research venue, I have been affiliated with the Microeconomics of Competitiveness Affiliate Network at the Institute for Strategy & Competitiveness at Harvard Business School since 2011. It is thanks to this network that I was able to secure an interview at the iLab and inform the Dean's Office at HGSE about the intentions of this research.

Protection of personal data demands the secured storage of the personal data and its disposal or anonymous storage after the research is over. Recordings

of the interviews and all transcribed data were stored anonymously on my computer, and their backup copies were taken regularly on a personal external hard disk. They will be disposed of two years after publishing the research results. Storing the data anonymously for an additional two years will enable its checking if need be.

4 RESULTS

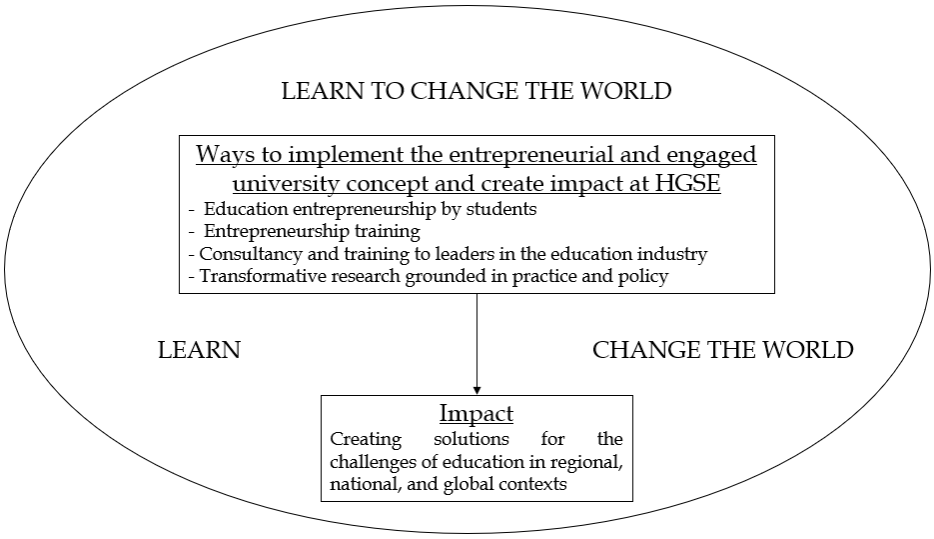
4.1 Ways to Implement the Entrepreneurial and Engaged University Concept and Create Impact

Since its establishment, HGSE has been aiming to achieve an impact by creating solutions for the challenges of education. In contrast to the preliminary framework, such impact is not only regional but also national and global (see Figure 6). This is visible both in HGSE's mission statement of "*learn to change the world*" and the fact that HGSE's nearly 30,000 alumni operate as educational leaders and social entrepreneurs in more than 110 countries (Harvard Graduate School of Education, n.d.d).

HGSE's mission statement bears two kinds of agency. One is to change the world, and the other is to learn (see Figure 6). While the former implies creating impact, the latter emphasizes the significance of learning to achieve it. The latter is further reflected in the identity of HGSE as an institution that learns (Harvard Graduate School of Education, 2021a).

Figure 6

Ways to Implement the Entrepreneurial and Engaged University Concept and Create Impact at HGSE (Source: Author's Own)



Based on the analysis, the entrepreneurial and engaged university concept is implemented in four ways at HGSE. These are education entrepreneurship by students, entrepreneurship training, consultancy and training to leaders in the education industry, and transformative research grounded in practice and policy (see Figure 6). These ways are presented in sections 4.1.1 to 4.1.4 respectively.

4.1.1 Education Entrepreneurship by Students

Based on the amount of evidence, this is one of the prominent ways to implement the entrepreneurial and engaged university concept at HGSE. According to the HGSE alumna (2022), students are perceived at HGSE as primary agents of change, thanks to whom the school will deliver its mission of changing the world through education. As a result, students are encouraged to develop an entrepreneurial mindset. This atmosphere at HGSE is described in the following words of the HGSE alumna (2022).

> Studying at HGSE is not like you are there to learn something from courses. Rather, everyone knows already that you are going to change the world, and the faculty and courses are there to support you in your mission. They give you this kind of feeling from the very beginning, and it develops your self-confidence for entrepreneurship.

HGSE empowers students to be innovators and selects them based on their potential and plans to make a change in the field of education (Harvard Graduate School of Education, 2021b). As informed by the iLab Director (2022), entrepreneurship as a career path among HGSE students has been growing, making HGSE student entrepreneurs the second largest group of students at the iLab in 2022 (representing 18% of all iLab students), following students from Harvard Business School (representing 23% of all iLab students). This is thanks to HGSE faculty who provide students with opportunities to raise their awareness and interest in pursuing entrepreneurial initiatives (Harvard Graduate School of Education, 2015a, 2018a).

Support mechanisms for student entrepreneurship are at both the school and university levels. Students can formulate their entrepreneurial ideas in for

example HGSE's "*Educational Innovation and Social Entrepreneurship in Comparative Perspective*" course (Harvard Graduate School of Education, 2015b) – see section 4.1.2 for more HGSE courses on entrepreneurship. Furthermore, HGSE's HIVE program is dedicated to helping students develop their new ventures by organizing competitions and providing resources, funds, and networks to selected student teams (Harvard Graduate School of Education Innovation and Ventures in Education, n.d.). In addition, Dean's Innovation Challenge and Fellowships as well as President's Innovation Challenge and Fellowships allow selected teams to further develop and build their ventures at the iLab for a summer, a semester, or longer (Harvard Innovation Labs, n.d.b).

Thanks to these opportunities, there are many successful for-profit and non-profit ventures established by HGSE students (see Harvard Graduate School of Education, 2020a). This way of implementing the entrepreneurial and engaged university concept demands the agency of students and involves both learning and changing the world. Entrepreneur students need to learn how to establish and run a business, and their ideas make a change in the world by providing solutions to the challenges of education.

4.1.2 Entrepreneurship Training

This way is highly correlated with the first way of education entrepreneurship by students. In response to increasing interest in entrepreneurship, the offer of entrepreneurship training to students, alumni, and entrepreneurs in the region has increased both at the school level and the university level (Harvard Graduate School of Education, 2016a). Selected from the curriculum of the master's degree program, the following courses at HGSE allow students to encounter entrepreneurship early in their studies.

- Leadership, entrepreneurship, and learning
- Educational innovation and social entrepreneurship in comparative perspective
- Entrepreneurship in the education marketplace

- Education sector nonprofits
- Managing financial resources in nonprofit organizations
- Education entrepreneurship
- Educational entrepreneurship practicum: launching and scaling your business.

Interested students can also take entrepreneurship courses from other schools of Harvard University, or partner universities in the region like Massachusetts Institute of Technology and Tufts University (HGSE alumna, 2022).

Students with entrepreneurial ideas can participate in the HIVE program at HGSE. They can take part in student competitions like the Dean's Innovation Challenge and the President's Innovation Challenge, and successful ones will earn fellowships to further develop their entrepreneurial ideas at the iLab (Harvard Innovation Labs, n.d.b). Moreover, to provide mentoring and training to student entrepreneurs at the iLab, Arthur Rock Center for Entrepreneurship hosts entrepreneurs-in-residence, Rock Executive Fellows, venture capital advisors, and lawyers-in-residence (Harvard Business School, n.d.b, n.d.c, nd.d, n.d.e).

There are three paths for students of entrepreneurship at Arthur Rock Center for Entrepreneurship (Harvard Business School, n.d.f). These paths are primarily for business students, but courses in these paths are also open to students from other schools.

Moreover, HGSE launched in 2016 an intensive three-day professional training program, called "*Scaling for Impact*". This program is intended for educational entrepreneurs or non-profit education organizations with the potential and desire to grow their ventures (Harvard Graduate School of Education, 2016b).

This way of implementing the entrepreneurial and engaged university concept demands the agency of faculty. It contributes to the learning of entrepreneurs and supports them to change the world.

4.1.3 Consultancy and Training to Leaders in the Education Industry

This way of implementing the entrepreneurial and engaged university concept also demands the agency of faculty.

As stated in HGSE's mission statement, HGSE faculty is committed to working at the nexus of practice, policy, and research, prioritizing the cultivation of educational leaders, collaborating on issues of education that matter, and communicating with practitioners of education (Harvard Graduate School of Education, 2020b). In line with these objectives, HGSE offers, in addition to its degree programs, professional training to more than 18,000 educators around the world every year with a portfolio of nearly 100 programs (Harvard Graduate School of Education, n.d.c). These programs aim to make a transformative impact by improving the practices of educators and educational leaders in service of their students, schools, and communities. They can be on-campus, online, or customized for a particular audience, bringing together diverse professionals and HGSE faculty to work on real-life problems of education (Harvard Graduate School of Education, n.d.c).

An excellent example of this way is PELP, a professional training program that was initiated in collaboration between the faculty of HGSE and Harvard Business School in 2003 to improve public education in U.S. urban school districts by developing the skills and practices of public education leaders (Harvard PELP, n.d.a). Since 2003, PELP has served 58 urban school districts across 27 states in the U.S., creating an impact at the national level (Harvard University, n.d.b).

PELP hosts a six-day Summer Institute on campus, where twelve teams, each team having eight members from an urban school district, learn together (Johnson et al., 2015). Team members are educational leaders in their district including for example senior central office leaders, principals, union leaders, and board members (Johnson et al., 2015). Each team brings to the Summer Institute a strategic educational problem of practice and tries to solve it during the intensive week under the supervision of Harvard faculty (Johnson et al., 2015). Teams

are also paired to share their work, and collaboration among teams continues throughout the year with regular meetings (Johnson et al., 2015).

In these respects, PELP is not only a tool for developing human capital, but also for supporting networking among leaders of education in the U.S. and solving their strategically important problems (Johnson et al., 2015). It is a unique program because it blends business and education with the mission of transforming education in the U.S. (Harvard PELP, n.d.a).

Another significant opportunity to consult the industry emerged with the break of the Covid-19 pandemic when all education went online and public schools in U.S. districts faced serious challenges. In response, HGSE facilitated a 12-week program and sent 26 recent graduates as Dean's Education Fellows to consult public schools in addressing their challenges from the pandemic (Harvard Graduate School of Education, 2020c).

4.1.4 Transformative Research Grounded in Practice and Policy

Demanding again the agency of faculty, research at HGSE aims to improve educational practices and policies, thus it is highly connected to educators, policymakers, and learners (Harvard Graduate School of Education, 2020b). Examples of this include the Saul Zaentz Early Education Initiative, the Center for Education Policy Research, PELP, edLabs, the REACH Initiative, and the Doctor of Education Leadership Program.

Launched in 2016, research at the Saul Zaentz Early Education Initiative has been seeking to drive action by developing leadership practices to transform early education in the U.S. (Harvard Graduate School of Education, n.d.e).

The Center for Education Policy Research works with more than 150 education agencies, 650 educational leaders, and 600 data strategists to deliver high-quality evidence and put it to practice for transforming education (Harvard University Center for Education Policy Research, n.d.).

Discussing educational problems with educational leaders has stimulated PELP faculty to initiate joint research on improving public education in urban

school districts, and their research has created new knowledge, published in articles, cases, and books (Johnson et al., 2015).

The edLabs was established in 2008 as a dedicated research unit to deliver innovations to improve the effectiveness of K-12 urban school district programs and practices in the U.S. (The Harvard Gazette, 2008).

REACH stands for Research, Education, and Action to create Change and Hope. The research-based initiative aims to create high-quality education in locations around the world where there is high migration and displacement, e.g., in Botswana, Syria, Lebanon, Kenya, and Uganda (Harvard Graduate School of Education, 2020d).

The Doctor of Education Leadership Program, established in 2009, has an innovative curriculum in which students conduct as their dissertation a professional reform project at a partner educational institution (Harvard Graduate School of Education, 2012). In these projects, students conduct research under the supervision of the faculty and contribute to transforming educational practices.

Finally, HGSE informs educational practitioners with research outputs on its "*usable knowledge*" platform (see Harvard Graduate School of Education, n.d.f).

This way of integrating research into practice, i.e., starting with the problems of practice, researching to answer them, and sharing new knowledge from research with practitioners in dedicated channels such as the "*usable knowledge*" platform, creates new learning opportunities that may contribute to change the world.

4.1.5 Unobserved Ways from the Preliminary Framework

Promoting academic entrepreneurship. Harvard University promotes academic entrepreneurship, evidenced by the fact that the Office of Technology Development issues more than 180 patents every year (Harvard Office of Technology Development, n.d.). Much of this success, however, comes from life sciences and engineering (The Harvard Gazette, 2013a). R&D commercialization is less common in social sciences.

At HGSE, academic entrepreneurship by faculty is not common, either, though some faculty offer consulting services, some serve on the advisory boards of some companies, and some have entrepreneurial backgrounds before joining academia (Harvard Graduate School of Education, 2011). Although academic entrepreneurship is not a priority, there is a very positive attitude toward student entrepreneurship among HGSE faculty (HGSE alumna, 2022).

Engaging in strategy building for regional development and promoting an entrepreneurial culture in the region. Based on the data, engaging in strategy building for regional development and promoting an entrepreneurial culture in the region was not observed at HGSE. Perhaps this is a contribution that can be expected at the university level. We can consider Harvard University's entrepreneurial ecosystem as a key contributor to making Massachusetts a highly innovative region. The university is currently planning an Enterprise Research Campus in the Allston district. This campus will attract innovative companies to locate themselves on the campus, further promoting the entrepreneurial culture in Allston and aiming to make it a leading innovation hub in Massachusetts during the next five to 10 years (The Harvard Gazette, 2021).

4.2 Entrepreneurial Leadership for Promoting Entrepreneurial Agency

Entrepreneurial leadership and agency are exhibited in all four ways to implement the entrepreneurial and engaged university concept at HGSE.

The most relevant attribute of the entrepreneurial agency, based on the number of mentions in the data, is being passionate. This is followed by being visionary, innovative/creative, collaborative, risk-taking, accountable, problem-solving, versatile, and perseverant (see Figure 7).

Entrepreneurial agency is about undertaking action to create a meaningful change in the world (Harvard Graduate School of Education, 2020b). It starts with a passion for solving a problem of education (Harvard Graduate School of Education, n.d.g). Passion energizes the self and the team, thus it is a source of

intrinsic motivation, bringing dedication and commitment, and also nourishing creativity (Harvard Graduate School of Education, 2012, 2018b, 2020a). Passion comes from having a meaningful purpose, which also attracts others to join the team (Harvard Graduate School of Education, 2016c). Entrepreneurial leadership could aim to raise awareness for the problems of education and create a passion for solving them.

Being innovative/creative demands having the vision to recognize an opportunity, and having the necessary skillset to think outside the box and come up with an innovative solution (Harvard Graduate School of Education, 2012). Entrepreneurial leadership could provide incentives and learning opportunities for entrepreneurial agents to develop their skillset to be innovative/creative.

Entrepreneurial agency also implies risk-taking, thus being bold and courageous (Harvard Graduate School of Education, 2012). The risk is to fail. The entrepreneur shall be ready to fail and demonstrate the perseverance and the versatility to continue by learning from failures (Harvard Graduate School of Education, 2018b; The Harvard Gazette, 2017a). Entrepreneurial leadership could provide support for entrepreneurial agents to continue after failure.

Risk-taking behavior promotes collaboration to share the risks, which demands being collaborative and accountable (Harvard Graduate School of Education, 2012, 2016a). Accountability develops trust, a key factor for successful collaboration. The collaborative attribute of the entrepreneurial agency is the link to the collaborative agency. Entrepreneurial leadership could provide networking possibilities to increase collaboration and empower entrepreneurial agents so that they feel accountable for their actions (Harvard Graduate School of Education, 2014a).

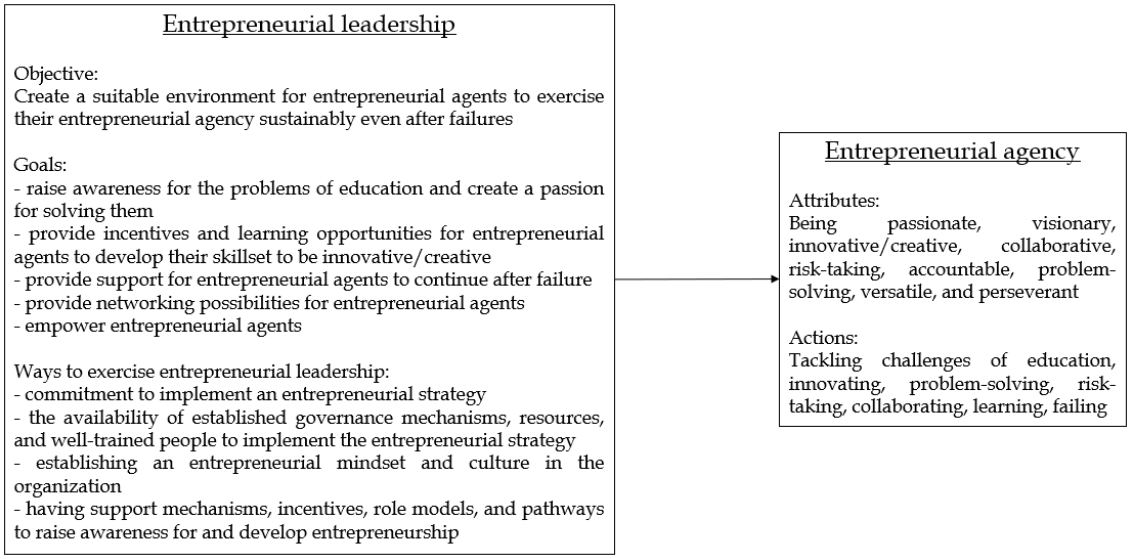
In light of these attributes and actions of entrepreneurial agency, the primary objective of entrepreneurial leadership could be to create a suitable environment for entrepreneurial agents to exercise their entrepreneurial agency sustainably even after failures (see Figure 7). As identified above from the case study and presented in Figure 7, the goals of entrepreneurial leadership to achieve this objective could be the following.

- Raise awareness for the problems of education and create a passion for solving them
- Provide incentives and learning opportunities for entrepreneurial agents to develop their skillset to be innovative/creative
- Provide support for entrepreneurial agents to continue after failure
- Provide networking possibilities
- Empower entrepreneurial agents.

Finally, Figure 7 also lists the four ways, from among the eight ways in the preliminary framework, to exercise entrepreneurial leadership, that were observed in the case study.

Figure 7

Entrepreneurial Leadership for Promoting Entrepreneurial Agency (Source: Author's Own)



The four ways to exercise entrepreneurial leadership, identified in the case study as relevant for promoting entrepreneurial agency, are presented in detail in sections 4.2.1 to 4.2.4 respectively. The other four ways in the preliminary framework, namely researching entrepreneurship, commitment to internationalization, measuring the impact of entrepreneurial activities, and having a digital

strategy to support entrepreneurship, were not identified in the case study as directly promoting entrepreneurial agency. They are discussed in section 4.2.5.

4.2.1 Commitment to Implement an Entrepreneurial Strategy

Having an entrepreneurial strategy is the starting point for driving entrepreneurial agency. What is more important, however, is the commitment to implement that strategy.

HGSE's entrepreneurial strategy is reflected in its impact-focused mission of changing the world through education, and HGSE faculty is deeply committed to realizing that mission. Such commitment is visible in the faculty's strategic priorities of cultivating innovators and leaders, collaborating on questions that matter, and communicating with practitioners in the field (Harvard Graduate School of Education, n.d.c). It is also visible in the faculty's passion for what they are doing, reflected in their care for students and their sense of urgency in tackling burning issues of education (Harvard Graduate School of Education, 2020b; Harvard information for employees, n.d.a; HGSE alumna, 2022).

Recalling emotional moments in closing lectures of her courses, HGSE alumna (2022) described that she was impressed by the faculty's passion for what they are doing and their commitment to their field. Hence, the school's mission is not just a statement on the strategy document, but a living concept embraced by HGSE faculty and shared with students (HGSE alumna, 2022).

4.2.2 Availability of Established Governance Mechanisms, Resources, and Well-Trained People to Implement the Entrepreneurial Strategy

Established governance mechanisms, resources, and well-trained people are key to implementing the entrepreneurial strategy.

There are established governance mechanisms and resources to implement the entrepreneurial strategy at both HGSE and Harvard University. Entrepreneurship courses, the HIVE program, and Dean's Innovation Challenge and Fellowships are mechanisms at HGSE that raise students' awareness and guide them to pursue entrepreneurship (Harvard Graduate School of Education, 2013a,

2014b). This is enabled by highly talented faculty at HGSE (Harvard Graduate School of Education, 2013b, 2020a; Harvard information for employees, n.d.b).

The President's Innovation Challenge, the iLab, Arthur Rock Center for Entrepreneurship, the Office of Technology Development and its accelerator fund, the Grid, and Maker Space offer mechanisms and resources to develop entrepreneurial initiatives at Harvard University (Harvard Graduate School of Education, 2021a; The Harvard Gazette, 2013a). As informed by the iLab Director (2022), these mechanisms and resources include the following.

- Access to mentoring from entrepreneurs-in-residence, venture capital advisors, and legal advisors
- Physical space where student entrepreneurs can network and develop their ventures
- Grants and seed funding to develop entrepreneurial ideas
- Patents for intellectual property
- Licensing agreements
- Connections to the Massachusetts entrepreneurial ecosystem.

These mechanisms and resources were made available through investments by the university, funded by generous donations from alumni and external sponsors (The Harvard Gazette, 2017b). As of 2022, Harvard University was a leading higher education institution in terms of resources with an endowment value of 50.9 billion USD (Harvard University, 2022).

4.2.3 Establishing an Entrepreneurial Mindset and Culture in the Organization

The commitment to implement the entrepreneurial strategy with investments in governance mechanisms, resources, and well-trained faculty leads to establishing an entrepreneurial mindset and culture.

Harvard University has a culture that strives for excellence, and its mission is to advance new ideas and promote enduring knowledge (Harvard information

for employees, n.d.a). However, as mentioned by the iLab Director (2022), entrepreneurship was not considered a career path for students and faculty 20-25 years ago.

This has changed significantly over time, and an entrepreneurial mindset and culture have been created at Harvard University among students and faculty thanks to established governance mechanisms and resources. Today the iLab serves roughly 10% of all Harvard University students, and more faculty have an entrepreneurial spirit that guides their teaching and research (iLab Director, 2022).

According to a former director of edLabs, key attributes of an entrepreneurial mindset are courage for risk-taking, having a vision for innovating, and creativity (The Harvard Gazette, 2008). During recent decades, Harvard University has achieved to build an innovation ecosystem, which fosters creativity in all its schools and allows tolerance for entrepreneurial failures as faculty and students take risks in tackling important social problems (iLab Director, 2022). The importance of failure as a step to success, and tolerance for such failure are key to promoting an entrepreneurial culture (The Harvard Gazette, 2017a).

An entrepreneurial mindset and culture also prevail at HGSE's mission of learning to change the world and its accompanying practices. According to the HGSE alumna (2022), HGSE has a democratic and positive environment with low power distance, where all ideas and opinions are listened to without prejudice or judgment and openly discussed. Such an attitude creates a very supportive atmosphere for developing innovative entrepreneurial ideas.

In addition, the school's strong support for entrepreneurship and the network of entrepreneurs around gives students the feeling that there is always a cushion to fall back on in case of failure (HGSE alumna, 2022). This feeling is very important for developing the courage to take risks, a necessary condition for undertaking entrepreneurial initiatives.

Furthermore, HGSE envisions attracting and recruiting entrepreneurial thinkers who have plans to make a change in the world (Harvard Graduate

School of Education, 2021a; Harvard University, 2018). This reinforces the entrepreneurial mindset and culture at the school.

4.2.4 Having Support Mechanisms, Incentives, Role Models, and Pathways to Raise Awareness for and Develop Entrepreneurship

An entrepreneurial culture also demands having necessary support mechanisms, incentives, role models, and pathways for entrepreneurship.

One of the career paths for HGSE students is education entrepreneurship, a type of social entrepreneurship to solve global educational challenges. While courses at HGSE raise awareness of students for entrepreneurship, the HIVE program and later the iLab provide support mechanisms and incentives, thus a smooth and clear path for launching and developing entrepreneurial new ventures (Harvard Graduate School of Education, 2015c).

The HIVE program provides space for HGSE students to share new ideas for developing solutions to challenges of education by organizing networking events like Wednesday HIVE nights, the Education Innovation Pitch Competition, and the HIVE Draft Business Plan Review Night (Harvard Graduate School of Education Innovations and Ventures in Education, n.d.). As the HGSE alumna (2022) shared, there are so many extracurricular activities related to entrepreneurship, where students can meet many diverse people, from whom they get insights, feedback on their ideas, and inspiration for entrepreneurship.

At student competitions like the Dean's Innovation Challenge, BRIDGE Educational Enterprise Idea Competition, and HGSE's Education Entrepreneurship Fellowship Program, a committee of HGSE faculty reviews the pitched ideas of students (Harvard Graduate School of Education, 2008). Selected student teams receive grants to work full-time on their ventures at the iLab during the summer. In the words of a former Associate Dean for Planning and Outreach at HGSE, the school makes an important contribution to the field of education by supporting its students to undertake entrepreneurial initiatives (Harvard Graduate School of Education, 2013a).

During their membership at the iLab, entrepreneurial teams acquire knowledge about entrepreneurship from faculty, entrepreneurs-in-residence, venture capital advisors, and legal advisors, and they receive one-to-one mentoring from entrepreneurs-in-residence, who act as role models for them (iLab Director, 2022). The iLab provides grants and possible access to funding opportunities, e.g., the President's Innovation Challenge awards a total of 515,000 USD every year (Harvard Innovation Labs, n.d.b). Finally, the iLab provides a common space for networking and collaboration through events and activities, like leadership circles and pitch feedback sessions, organized throughout the year (Harvard Innovation Labs, n.d.a).

According to the iLab Director (2022), moral support is critical because entrepreneurship is a challenging and lonely venture demanding patience and perseverance. Sharing with peers in other teams at the iLab and talking with entrepreneurs who have already walked through similar challenges provide valuable support (iLab Director, 2022). Hence, the iLab uses its space to build a community of people who help each other in their entrepreneurial initiatives. This community feeling provides moral support and develops self-confidence entrepreneurs need in their challenging journeys (iLab Director, 2022).

Another incentive provider to innovate new solutions for learning and teaching is the university-wide HILT initiative. Between 2011 and 2020 HILT awarded 5.6 million USD to Harvard's schools and 3.4 million USD to teams and individuals to fund a total of 312 innovation projects in learning and teaching (Harvard University, n.d.c).

4.2.5 The Ways of Entrepreneurial Leadership Not Identified as Directly Promoting Entrepreneurial Agency

Researching on entrepreneurship. Some of the HGSE faculty engage in research on education entrepreneurship (Harvard Graduate School of Education, n.d.h). This keeps them up-to-date and contributes to their teaching of education entrepreneurship. Similarly, research on entrepreneurship by dedicated faculty at the Arthur Rock Center for Entrepreneurship contributes to entrepreneurship studies

at Harvard University (Harvard Business School, n.d.a). These contributions, however, are rather indirect in promoting entrepreneurial agency.

Commitment to internationalization. With the motto "*One Harvard, One World*", the vision of Harvard University is to be a global institution with a global voice (The Harvard Gazette, 2013b). In line with this vision, the Office of the Vice Provost for International Affairs was established in 2006 to lead the university's international engagement (Harvard University, n.d.d). Harvard University has a global reach with 17 overseas offices and more than 50 international research centers and programs (Harvard University, n.d.d).

Harvard University attracts students and scholars from all around the world. In the academic year 2022-2023, Harvard University had 6,527 international students on campus, representing 25.8% of the student body; adding also foreign scholars the international population on Harvard University's campuses was 8,087 (Harvard Worldwide, n.d.a). Similarly, HGSE hosted 15 foreign scholars in 2022 (Harvard Graduate School of Education, n.d.i), and the ratio of its international students during the 2022-2023 academic year was 36.0% (Harvard Graduate School of Education, n.d.j). Harvard University promotes a diverse and inclusive learning environment and provides strong support for international students and scholars (Harvard Graduate School of Education, n.d.k).

In addition, Harvard University and HGSE faculty provide online courses to students from all around the world through an online platform called Harvard Online (Harvard Online, n.d.). Furthermore, LLX GEO, part of the iLab, supports entrepreneurial initiatives of global alumni thanks to Harvard University's network of experts and mentors around the world (Harvard Worldwide, n.d.b). Crowning its international commitment, Harvard University organizes annually the Worldwide Week (Harvard Worldwide, n.d.c).

Commitment to internationalization contributes to having a more global than regional impact and offers possibilities for networking internationally, but the data does not suggest a direct link to promoting entrepreneurial agency.

Measuring the impact of entrepreneurial activities on regional development. Achieving impact is a key measure of success at HGSE. In celebrating its centennial in 2020, HGSE published on its website 100 stories of impact (Harvard Graduate School of Education, 2020e). The documentation of these narratives may raise awareness and interest in the entrepreneurial agency but does not necessarily promote it directly.

The impact is measured and monitored for each project. For example, participating urban school districts in PELP report and share their progress annually, and the overall impact of the project is assessed every five years (Harvard University, n.d.b). Based on the data, these measurements are valuable for taking necessary actions to guide future implementation, but they do not directly promote entrepreneurial agency.

Having a digital strategy to support entrepreneurship and innovation. The information technology vision of Harvard University is to empower the Harvard community by enabling effortless access to data and supporting collaboration (Harvard University Information Technology, n.d.). Such vision is reflected in the modernization of the information technology infrastructure across the university and the introduction of Harvard Online.

In addition to being an enabler of collaboration and productivity, technology can also be a driver for entrepreneurship, as observed in the field of ed-tech, which combines education with technology (see Harvard Graduate School of Education, 2014c, 2019). HGSE hosted the "*Across Boundaries*" conference on ed-tech in 2014, and Massachusetts, being the Mecca of education and technology, can be the right place for giving birth to successful ed-tech companies (Harvard Graduate School of Education, 2014c). The achievement of this goal, however, requires more direct contributors to promote entrepreneurial agency, as presented in sections 4.2.1 to 4.2.4, than having a digital strategy.

4.3 Collaborative Leadership for Promoting Collaborative Agency

Leadership at HGSE and Harvard University is a "*team sport*" (The Harvard Gazette, 2022). Indeed, HGSE's mission of "*learning to change the world through education*" demands a high level of impact, which can be achieved via collaborative agency since no one can change the world alone (Harvard Graduate School of Education, 2012, 2019a, 2020b, 2021b; The Harvard Gazette, 2017a).

The collaborative agency is present in all four ways to implement the entrepreneurial and engaged university concept at HGSE, such as establishing education start-ups by students in teams, or faculty collaborating with educational practitioners and leaders in their consulting and research projects. A good example of the latter is PELP, a collaborative initiative of faculty from HGSE and Harvard Business School, which was presented in section 4.1.3.

The most relevant attribute of collaborative agency, based on the number of mentions in the data, is having a shared vision (a higher purpose) and shared values (Harvard Graduate School of Education, 2012, 2016a, 2020b, 2021b, n.d.c; The Harvard Gazette, 2017a). Other observed attributes include creating synergy by sharing resources, sharing risks, sharing responsibilities, and supporting and learning from each other (Harvard Graduate School of Education, 2013b; Harvard Innovation Labs, n.d.a; Harvard PELP, n.d.a, n.d.b; Johnson et al., 2015; The Harvard Gazette, 2013b); having mutual respect, empathy, and tolerance (Harvard Graduate School of Education Innovations and Ventures in Education, n.d.; The Harvard Gazette, 2017a); and communicating through open and frank dialogue (Harvard Graduate School of Education, 2012, 2019a; Harvard PELP, n.d.a, n.d.b) (see Figure 8).

Based on the data, the collaborative agency is about collaborative learning, collaborative problem-solving, sharing, and co-creating to achieve a shared common goal and make an impact (Harvard Graduate School of Education, 2013b, 2022; Harvard Innovation Labs, n.d.a; Harvard PELP, n.d.a, n.d.b; Mostaghimi & Tallon, 2018). Successful collaborative agency requires community-building by

engaging diverse stakeholders around a higher purpose (Harvard Office for Equity, Diversity, Inclusion & Belonging, n.d.; The Harvard Gazette, 2017a), having shared values (The Harvard Gazette, 2022), and a culture of inclusion and belonging (Harvard information for employees, n.d.a; Harvard Office for Equity, Diversity, Inclusion & Belonging, n.d.; The Harvard Gazette, 2022). Sharing knowledge and experiences, networking, communication, providing support, and coordination are key actions of the collaborative agency (Harvard Graduate School of Education, 2012, 2013b; Harvard Innovation Labs, n.d.a).

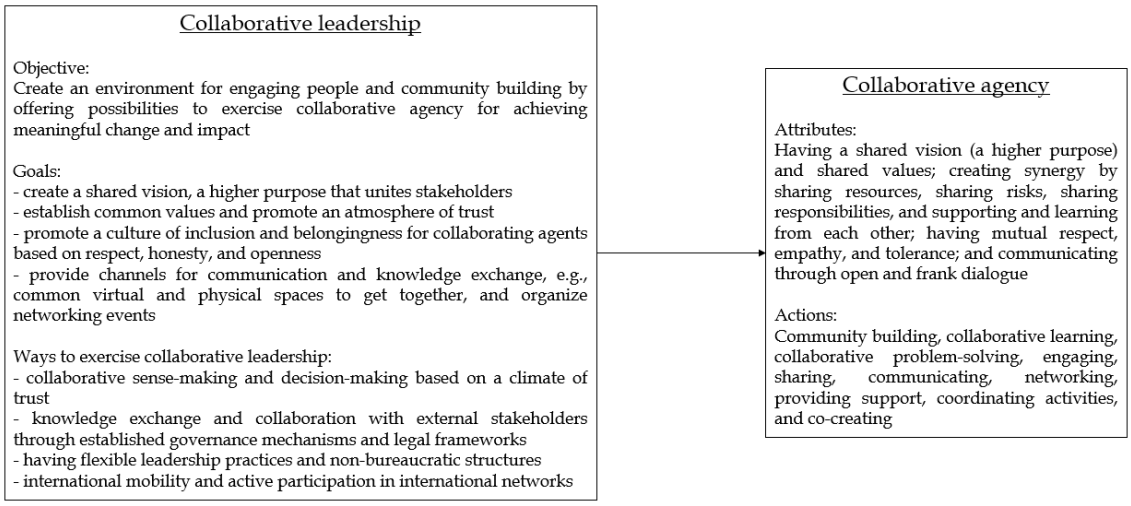
In light of these observations on the attributes and actions of the collaborative agency, the primary objective of collaborative leadership is about engaging people and community building, i.e., creating an environment that offers possibilities for exercising collaborative agency for achieving meaningful change and impact (Harvard University, n.d.b; The Harvard Gazette, 2017a). As identified above from the case study and presented in Figure 8, the goals of collaborative leadership to achieve this objective could be the following.

- Create a shared vision, a higher purpose that engages stakeholders
- Establish common values and promote an atmosphere of trust
- Promote a culture of inclusion and belongingness based on respect, honesty, and openness
- Provide channels for communication and knowledge exchange, e.g., common virtual and physical spaces to get together, and organize networking events.

Figure 8 presents the four ways, from among the five ways in the preliminary framework, to exercise collaborative leadership, that were observed in the case. These four ways are presented in detail in sections 4.3.1 to 4.3.4 respectively. The fifth way from the preliminary framework, namely having a core management team to steer the planning and implementation, was not identified as promoting collaborative agency. This is discussed in section 4.3.5.

Figure 8

Collaborative Leadership for Promoting Collaborative Agency (Source: Author's Own)



4.3.1 Collaborative Sense-Making and Decision-Making Based on a Climate of Trust

At HGSE key decisions are taken by the involvement of faculty in a democratic and collaborative atmosphere, as shared by an earlier Dean of HGSE with the following sentences (Harvard Graduate School of Education, 2020f).

> Lesson two: you need to involve faculty. At the end of the day, if they are not interested in it or excited by it, it will not work out. That is not something you can impose on faculty. Having them be involved in the design of it is the key to making it successful.

According to an HGSE lecturer, entrepreneurship demands collaboration among tight and trusting networks of professionals (Harvard Graduate School of Education, 2011). An HGSE student entrepreneur adds that it is important for students to learn skills to work collaboratively (Harvard Graduate School of Education, 2021c). HGSE strives to build a community gathered around the school's mission based on shared values, in which faculty and students trust and care for each other (Harvard Graduate School of Education, 2020b).

Faculty usually takes the lead in initiating innovative ideas at HGSE, and management provides a supportive atmosphere. A good example of this is the birth of the PELP initiative in 2003. As the Dean of that time recalls, it was the enthusiasm of faculty from Harvard Business School and HGSE that started the

program, and her role as dean was only supportive (Harvard Graduate School of Education, 2020g). Similarly, the executive director of the Doctoral Program on Educational Leadership remembers how much their Dean trusted the faculty when they came up with the innovative idea of introducing curricular units in the curriculum of the doctoral program (Harvard Graduate School of Education, 2012).

Collaboration is challenging when people have diverse backgrounds and priorities, leading sometimes to the emergence of competing views and accompanying tensions. Faculty from Harvard Business School and HGSE who collaborated in PELP recognize such moments, and it is thanks to their open communication and respect for each other that they were able to handle these situations (Johnson et al., 2015).

A key factor behind the successful collaboration in PELP was that the two schools needed each other to implement the program. HGSE would not be able to run the program alone without Harvard Business School's management knowledge, and Harvard Business School couldn't do it alone without HGSE's knowledge of instruction and school organization, as well as its connections to the practice of education (Harvard University, n.d.b).

4.3.2 Knowledge Exchange and Collaboration with External Stakeholders Through Established Governance Mechanisms and Legal Frameworks

HGSE collaborates in multiple ways with external stakeholders, such as other schools of Harvard University and stakeholders outside of Harvard University. One area of collaboration is in course offerings to students. HGSE students can take courses from the other schools of Harvard University as well as partner universities in Massachusetts (HGSE alumna, 2022). Vice versa, students from Harvard University's other schools and partner universities can take HGSE courses.

According to the HGSE alumna (2022), this opportunity allows students to gain new perspectives from other disciplines and universities, and at the same

time gives access to tap into new networks, which paves the way for the development of innovative ideas and possible new ventures. This is also the main idea behind the One Harvard initiative.

As informed by both interviewees, Harvard University's 13 schools have their own different cultures. According to the iLab Director (2022), the operating culture at Harvard University has been historically byzantine with silos, resulting in a lack of collaboration beyond borders and a tremendous loss of opportunity. This is understandable in that Harvard University is the third largest employer in Massachusetts with multiple scattered campuses. This has led to decentralized decision-making and a lack of coordination of activities among its schools and resulted in uneven progress across the university (iLab Director, 2022).

The One Harvard initiative aims to reverse this trend by aligning the university's schools around a coordinated common vision and strategy, eliminating bureaucracy and creating opportunities for increased collaboration across Harvard University (The Harvard Gazette, 2013b). This is enabled by the implementation of new technologies that ease virtual collaboration as well as the 2008 Common Spaces Initiative that created more common spaces where faculty and students from different schools can meet face to face (The Harvard Gazette, 2013b).

The iLab offers a common space and organizes events, which create intentional and unintentional connections that support collaboration among students, faculty, alumni, and entrepreneurs-in-residence (iLab Director, 2022). It's designed for this purpose with moveable whiteboards, configurable desks, large display screens, movable carts, and help-exchange boards with student-placed want ads (Harvard Graduate School of Education, 2013b).

As informed by the iLab Director (2022), the approach of the iLab team is based on serendipity and inclusiveness, acting as a resource center rather than a matchmaker, putting the burden on students to make connections in establishing and running their ventures.

The iLab has also strong connections to actors in the Massachusetts entrepreneurial ecosystem like Techstars Boston, MassChallenge, and Greentown

Labs (iLab Director, 2022). They collaborate formally and informally, which allows student entrepreneurs to build relationships for a possible soft landing after graduation (iLab Director, 2022). As an HGSE alumnus recalled, the spirit of collaboration is ingrained in the culture of the iLab, and it is great working there because of the people (Harvard Graduate School of Education, 2013b).

Engaging with practitioners of education and policymakers is part of HGSE's mission. HGSE embarks on this mission through collaborative initiatives such as PELP. HGSE also communicates with its stakeholders by sharing findings from faculty research and news about events through its web pages, the Ed. Magazine, and the usable knowledge platform.

Collaboration with external stakeholders is also visible at the university level. A key collaboration partner for Harvard University is the Massachusetts Institute of Technology. Their joint initiatives include the Roosevelt Project to facilitate the transition to a decarbonized future, the online learning platform edX (established in 2012 and sold to 2U in 2021), a nonprofit established in 2021 to tackle longstanding inequities in education, and the creation of the Massachusetts Consortium on Pathogen Readiness in 2020 to enhance preparedness for future pandemics (The Harvard Gazette, 2022).

Harvard faculty and students engage with the local community in Allston through the Harvard Ed Portal. With the motto "*for everyone in our community, at every stage and place in life*", the Harvard Ed Portal provides learning opportunities to the local community through its digital learning platform for Allston (Harvard University, n.d.e). It has programs for youth programming, workforce development, local business development, health and wellness, arts and culture, and public-school partnerships. The public-school partnerships program connects HGSE faculty, alumni, and students with youth, teachers, and parents in Allston and Cambridge (Harvard University, n.d.f). The Enterprise Research Campus, which is under construction, will bring more collaboration opportunities in the future (The Harvard Gazette, 2021).

Finally, a key stakeholder in developing external collaboration is alumni present all around the world. Alumni have made significant contributions to the

development of the university through donations. For example, PELP was funded by a significant 40th Reunion gift from the Harvard Business School Class of 1963 (Harvard University, n.d.b).

4.3.3 Having Flexible Leadership Practices and Non-Bureaucratic Structures

Flexible leadership practices and non-bureaucratic structures promote a bottom-up approach and empower people to exercise their entrepreneurial and collaborative agencies. Empowerment is needed especially in the context of pursuing entrepreneurial initiatives where there is a high level of uncertainty (The Harvard Gazette, 2022). It is also needed to lower the barriers in front of collaboration, especially across borders of organizations, e.g., different schools of Harvard University (The Harvard Gazette, 2013b). Inflexible leadership practices and bureaucratic structures will endanger collaboration for innovative initiatives.

HGSE has a culture of empowering students to be innovators (Harvard Graduate School of Education, 2020b). This culture is described by HGSE alumna (2022) as follows.

> One of the things that influenced me most at HGSE was the highly democratic atmosphere in the classroom. It was completely different than the hierarchic structure I was exposed to during my bachelor's degree in my home country. Everything you said was valued, and people listened to your ideas without judging them. This is very important for building collaboration and developing new initiatives.

This culture of empowerment applies equally to faculty at HGSE so that they can serve students and the community best. This was observed, for example, when management empowered faculty with their PELP initiative and provided all necessary support to realize it (Harvard Graduate School of Education, 2020g).

Collaboration requires flexibility and the elimination of bureaucracy in crossing borders between organizations. Being the third largest employer in the region, Harvard University bears a decentralized structure of different cultures in its 13 schools, which creates barriers to collaboration and results in silos (iLab

Director, 2022). The One Harvard initiative aims to lower the barriers and enhance collaboration across the university by sharing students, faculty, and facilities among the 13 schools (The Harvard Gazette, 2013b). This will create new opportunities to create impact by tapping into the strengths of each school (iLab Director, 2022).

4.3.4 International Mobility and Active Participation in International Networks

International mobility and international networking are important for creating global impact at HGSE and Harvard University.

International mobility occurs for reasons like work, study, volunteer service, and research. HGSE and Harvard University support international student mobility with financial resources, instructions, guidance related to travel practicalities, and emergency assistance (Harvard Graduate School of Education, n.d.l).

International student mobility can be inspiring for getting new ideas and developing collaboration that may turn into new ventures as in the case of VRsatility, an education technology venture of two HGSE students (see Harvard Graduate School of Education, 2019b). Inspired by HGSE's high quality of international educational travel, a few HGSE alumni have collaborated to establish an educational travel company, which organizes international study trips that educate students to think critically about global issues (see Harvard Graduate School of Education, 2014d).

International faculty mobility occurs in two ways, incoming and outgoing. Harvard University's schools offer visiting scholar/researcher programs that attract international scholars to Harvard University to do research, lasting from three months to one year (Harvard Worldwide, n.d.a). These visits develop research collaboration between Harvard faculty and international faculty.

Outgoing international faculty mobility happens short term and long term. Whereas short-term mobility occurs through participation in conferences, accompanying student study trips, or conducting research and development projects, long-term mobility can be through work appointments at Harvard University's

research centers in different countries, or long-term faculty exchange during their sabbatical year (Harvard Worldwide, n.d.b).

A good example of international networking is the Microeconomics of Competitiveness Affiliate Network, which was established in 2002, and I have been an affiliate of since 2011. Having more than 100 affiliate institutions from all around the world, the network has enabled Harvard faculty to collaborate with network affiliates and create global impact through training, consulting, and engaging in development projects in different countries.

4.3.5 The Way of Collaborative Leadership Not Identified as Promoting Collaborative Agency

Having a core management team to steer the planning and implementation. Academic governance at HGSE is led by the Academic Dean and organized under three steering committees, which oversee policy and progress of the school's academic programs in collaboration with the Academic Dean (Harvard Graduate School of Education, n.d.m).

The collaborative initiative of PELP is also led by a steering committee of faculty from HGSE and Harvard Business School, which sets the program's mission, oversees its implementation, and meets regularly to discuss issues related to teaching and research in the program. (Harvard University, n.d.g).

These steering committees play an important function in coordinating activities. The data, however, does not allow to make a connection between the existence of a steering committee and an increase in collaboration.

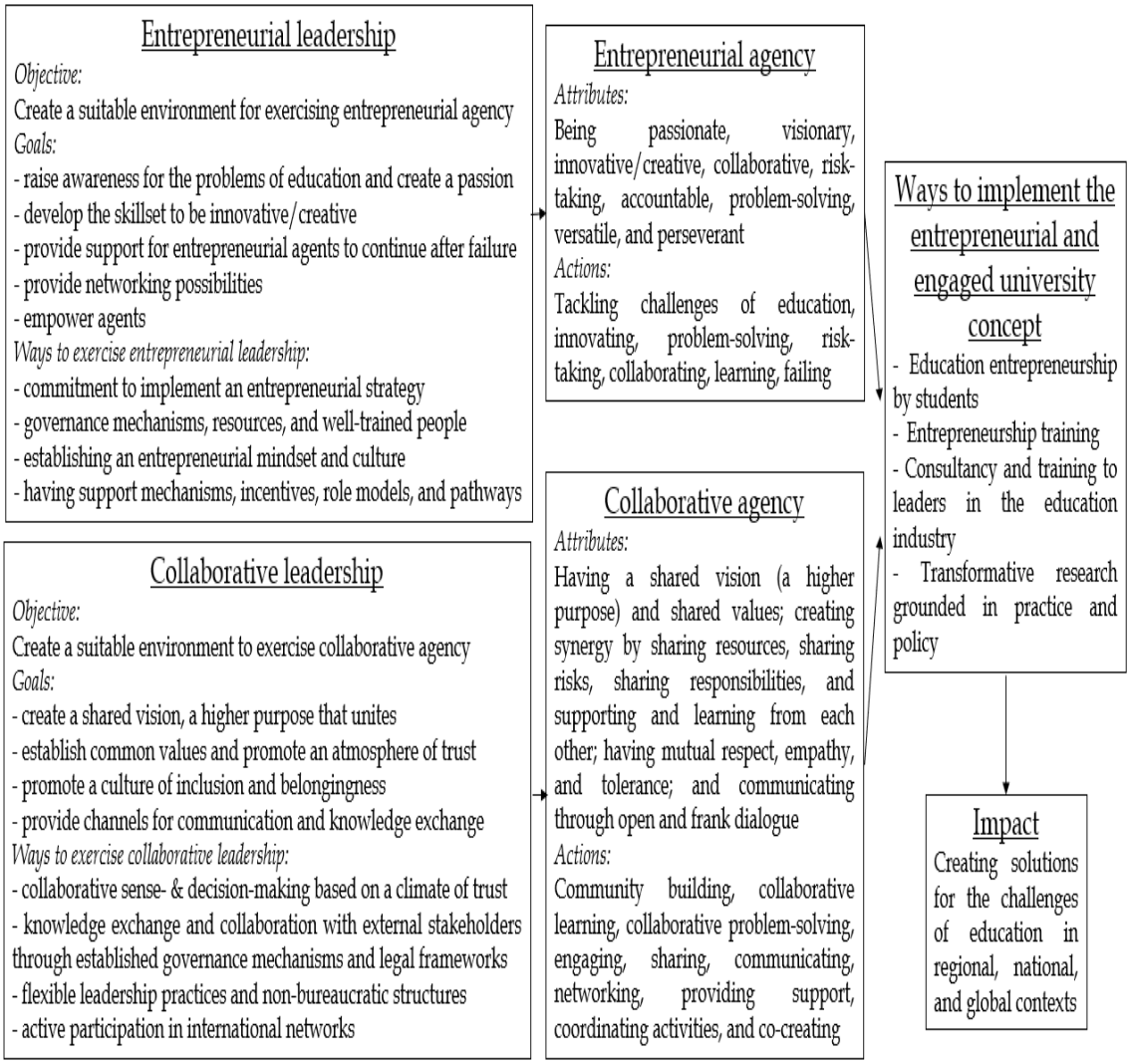
4.4 The Revised Framework for Implementing the Entrepreneurial and Engaged University Concept at the Graduate School of Education

Synthesizing findings from the case study, presented in sections 4.1 to 4.3, allows gaining a holistic understanding of how the entrepreneurial and engaged university concept can be implemented at the graduate school of education and what kind of leadership is needed to create an impact. Figure 9 presents this holistic

framework as a revision of the preliminary framework of the empirical study, which was outlined in section 3.3 and presented in Figure 5.

Figure 9

A Framework for Implementing the Entrepreneurial and Engaged University Concept at the Graduate School of Education (Source: Author's Own)



In answer to the first research question, the case study revealed that the graduate school of education can achieve impact in regional, national, and global contexts by creating solutions to tackle the challenges of education (see Figure 9). This occurs in four ways: education entrepreneurship by students, provision of entrepreneurship training, provision of consultancy and training to educational leaders, and conducting transformative research and sharing the new knowledge with practitioners and policymakers.

In answer to the second research question, the case study suggests that both entrepreneurial leadership and collaborative leadership are required in building an entrepreneurial and collaborative community, which will exercise entrepreneurial and collaborative agency to create an impact (see Figure 9).

In understanding how entrepreneurial leadership and collaborative leadership can be exercised, the case study identified first the attributes and actions concerning entrepreneurial agency and collaborative agency respectively (see Figure 9). Later, the analysis focused on entrepreneurial leadership and collaborative leadership. Based on the identified target attributes and actions of entrepreneurial agency and collaborative agency, it set corresponding objectives and goals for the two types of leadership. Finally, it assessed the ways of exercising the two types of leadership from the preliminary theoretical framework and identified the ways that best serve the set objectives and goals in promoting the attributes and actions of entrepreneurial agency and collaborative agency.

Entrepreneurial leadership could aim to create a suitable environment for exercising entrepreneurial agency. It could more specifically pursue the goals of raising awareness for the problems of education and creating a passion for solving them, providing incentives and learning opportunities for entrepreneurial agents to develop their skillset to be innovative/creative, supporting entrepreneurial agents to continue after failure, providing networking possibilities, and empowering entrepreneurial agents (see Figure 9). These goals can be achieved through the following four ways, which were described in sections 4.2.1 to 4.2.4.

- Commitment to implement an entrepreneurial strategy
- Availability of established governance mechanisms, resources, and well-trained people to implement the entrepreneurial strategy
- Establishing an entrepreneurial mindset and culture in the organization
- Having support mechanisms, incentives, role models, and pathways to raise awareness for and develop entrepreneurship.

Collaborative leadership could aim to create a suitable environment for engaging people and community building by offering possibilities to exercise their collaborative agency. It could more specifically pursue the goals of creating a shared vision, establishing common values and promoting an atmosphere of trust, promoting a culture of inclusion and belongingness, and providing channels for communication and knowledge exchange (see Figure 9). These goals can be achieved through the following four ways, which were described in sections 4.3.1 to 4.3.4.

- Collaborative sense-making and decision-making based on a climate of trust
- Knowledge exchange and collaboration with external stakeholders through established governance mechanisms and legal frameworks
- Having flexible leadership practices and non-bureaucratic structures
- International mobility and active participation in international networks.

5 DISCUSSION

5.1 Examination of the Results and Conclusions

This research aimed to understand how the entrepreneurial and engaged university concept can be implemented at the graduate school of education from a leadership perspective. More specifically, the research questions focused on the ways of implementing the concept and the type of leadership needed for a successful implementation.

Following the literature review, a preliminary theoretical framework was developed for answering the research questions (see section 3.3). The framework identified the ways to implement the entrepreneurial and engaged university concept. These ways guided the empirical study in response to research question 1. The framework also revealed the types of agency and their attributes, as well as the types of leadership and the ways to exercise them to successfully implement the entrepreneurial and engaged university concept. These guided the empirical study in response to research question 2. Following the empirical study, this framework was revised in light of observations from the case of HGSE (see section 4.4).

The first research question was about the ways to implement the entrepreneurial and engaged university concept and create an impact at the graduate school of education. In contrast to earlier literature (see Clark, 1998; Etzkowitz & Leydesdorff, 2000), results suggest that the impact is not necessarily limited to the region. As observed in the case of HGSE, it can also be national and global. The impact, which is created at the graduate school of education through providing innovative solutions to the challenges of education, is not only economic but also social. In that respect, the graduate school of education can be considered to fulfill conditions for being both entrepreneurial and engaged (Moussa et al., 2019; Thomas & Pugh, 2020).

Such impact is achieved through the entrepreneurial and collaborative agencies of students and faculty who all pursue HGSE's mission of changing the

world through education. Education entrepreneurship by students, providing entrepreneurship training, providing consultancy and training to leaders in the education industry, and conducting transformative research grounded in practice and policy are the ways how HGSE implements the entrepreneurial and engaged university concept.

Contrasting again earlier literature (see Betts & Lee, 2005; Etzkowitz, 2013), it is interesting to note that promoting academic entrepreneurship, the key tenet of the narrow definition of the entrepreneurial university (Etzkowitz, 2013), and engaging in strategy-building for regional development are not necessarily the preferred ways to implement the concept at the graduate school of education. The former is perhaps more relevant to the fields of life sciences and engineering (see Etzkowitz et al., 2019; O'Shea et al., 2007), as also observed at Harvard University (see The Harvard Gazette, 2013a). The latter is perhaps more relevant at the university level than the school level, as observed in Harvard University's development of the Enterprise Research Campus in the Allston district (see The Harvard Gazette, 2021).

The second research question concerned the type of leadership required to implement the entrepreneurial and engaged university concept. The empirical study revealed that success lies in building an entrepreneurial and collaborative community of students and faculty, who will be able to exercise their entrepreneurial and collaborative agencies to create economic and social impact.

The accomplishment of this objective demands adopting simultaneously entrepreneurial leadership and collaborative leadership. Entrepreneurial leadership will promote entrepreneurial agency and make the university more entrepreneurial, while collaborative leadership will promote collaborative agency and make the university more engaged. As presented in Figure 4, it is only when both types of leadership are exercised that both types of agency will flourish, and the university will be both entrepreneurial and engaged.

This finding questions the traditional understanding of education leadership, which sets as its primary objective the provision of opportunities for en-

hancing the learning of students (see Leithwood et al., 2006). With the introduction of the entrepreneurial and engaged university concept, the objective of higher education leadership could be rethought to also include the creation of a suitable environment for students and faculty to exercise their entrepreneurial and collaborative agencies to create economic and social impact.

Supporting Berglund et al. (2021), entrepreneurship is understood at the graduate school of education more as social entrepreneurship, and concurring with Babson College (n.d.), entrepreneurial leadership is viewed at HGSE both as a skillset and a mindset, aiming to change the world by solving challenges of education. The theoretical framework connected entrepreneurial leadership with the concept of the entrepreneurial agency. In line with the definition of Renko et al. (2015), the objective of entrepreneurial leadership was set as creating a suitable environment for exercising entrepreneurial agency, i.e., recognizing and exploiting entrepreneurial opportunities to create an impact.

In unveiling the successful implementation of entrepreneurial leadership, the attributes and actions of the entrepreneurial agency were first identified. After that, the corresponding goals for entrepreneurial leadership were set and the eight ways to implement entrepreneurial leadership from the preliminary theoretical framework were assessed with the aid of the case study.

Results suggest that entrepreneurial agency will be nurtured in an environment where there is a commitment to entrepreneurial strategy, an entrepreneurial mindset and culture in the organization, established governance and support mechanisms, resources, incentives, and role models for entrepreneurship, and well-trained faculty to implement the entrepreneurial strategy. These are in line with earlier findings by Bezanilla et al. (2020), Clark (1998), Etzkowitz et al. (2017), Etzkowitz et al. (2019), European Commission and OECD (2012, n.d.), Graham (2014), Guerrero and Urbano (2012), Klofsten et al. (2019), Leitch et al. (2013), Philpott et al. (2011), and Sánchez-Barrioluengo and Benneworth (2019).

In contrast with earlier literature (Bezanilla et al., 2020; Etzkowitz, 2013; European Commission & OECD, 2012, n.d.; Guerrero & Urbano, 2012; Klofsten et al., 2019; Philpott et al., 2011), the other four ways of the preliminary framework,

namely, researching entrepreneurship, commitment to internationalization, measuring the impact of entrepreneurial activities on regional development, and having a digital strategy to support entrepreneurship and innovation were not observed in the case study as influential in promoting the entrepreneurial agency.

Researching entrepreneurship develops new knowledge on entrepreneurship, but this is perhaps an indirect contribution to increasing entrepreneurial agency. Similarly, commitment to internationalization lays the ground for more possibilities to create impact, but it does not necessarily imply a direct contribution to increasing entrepreneurial agency. The same holds for measuring the impact of entrepreneurial activities on regional development and having a digital strategy to support entrepreneurship and innovation.

The theoretical framework connected collaborative leadership with the concept of the collaborative agency. In parallel to the definition of Jäppinen (2013), the objective of collaborative leadership was set as creating an environment for engaging people and community building, i.e., providing opportunities to exercise collaborative agency with internal and external actors to create an impact.

In unveiling the successful implementation of collaborative leadership, the attributes and actions of the collaborative agency were first identified. After that, the corresponding goals for collaborative leadership were set and the five ways to implement collaborative leadership from the preliminary theoretical framework were assessed with the aid of the case study.

Results suggest that collaborative agency will flourish in an environment with collaborative sense-making and decision-making based on a climate of trust, established governance mechanisms and legal frameworks for knowledge exchange and collaboration with external stakeholders, flexible leadership practices and non-bureaucratic structures, and active participation in international networks. These are in line with earlier findings by Collin et al. (2018), Etzkowitz (1998), European Commission and OECD (2012, n.d.), Jäppinen (2014), Jäppinen and Sarja (2011), Tian et al. (2016), and Vuori (2019).

Unlike Clarke (1998), having a core management team to steer the planning and implementation, the fifth way in the preliminary theoretical framework was not observed in the empirical study as a promoter of the collaborative agency. As in the case of PELP, a steering committee was established after the start of collaboration. Thus, it cannot be considered as a promoter of collaborative agency.

Finally, the revised framework suggests that neither entrepreneurial leadership nor collaborative leadership is sufficient to implement the entrepreneurial and engaged university concept successfully. This is because there is a need for both entrepreneurial agency and collaborative agency to create a meaningful impact. Without entrepreneurial leadership, there will not be entrepreneurial agency, and without collaborative leadership, there will not be collaborative agency.

Integrating different types of leadership is not new. For example, Heikka (2014) combined pedagogical leadership with distributed leadership to illustrate an interactive process of enactment by interdependent stakeholders to develop pedagogical practices. Following a similar line of logic, it may be possible to integrate entrepreneurial leadership and collaborative leadership to describe an interactive process to recognize and exploit opportunities for creating impact in collaboration with internal and external stakeholders, i.e. an entrepreneurial and collaborative community.

The findings from this research contribute to the entrepreneurial and engaged university literature in three ways. First, being the first study to apply the concept at the graduate school of education, it identifies the ways how the concept can be implemented there. The case demonstrates a successful implementation. This provides some relief to the prevailing concerns among the faculty of education, as presented in earlier research by Katila et al. (2021) and Philpott et al. (2011).

In understanding an implementation at the graduate school of education, we should not adopt a narrow definition that limits the concept to academic entrepreneurship (see Etzkowitz, 2013). Indeed, the case shows that academic entrepreneurship is not a preferred choice at the graduate school of education. We

shall adopt a broad definition that covers ways that aim for not only economic but also social impact. As observed in the case, the social impact is more important in the context of the graduate school of education as a motive for innovating solutions to the challenges of education. Such an adoption makes the graduate school of education both entrepreneurial and engaged (Davey et al., 2018).

The second contribution of this research is that it applies a leadership and agency perspective to understand how to implement the entrepreneurial and engaged university concept successfully. As a result, the developed theoretical framework employs entrepreneurial leadership, entrepreneurial agency, collaborative leadership, and collaborative agency as key constructs, and it identifies the attributes and actions of both types of agency as well as the objectives, goals, and ways of the two types of leadership.

The developed framework can be considered a contribution not only to the entrepreneurial and engaged university literature but also to the fragmented literature on leadership in higher education (see Bryman, 2007; Dopson et al., 2018; Žydžiūnaitė, 2018). With the introduction of the entrepreneurial and engaged university concept, there is a need to broaden the focus of leadership from aiming to improve student performance (see Leithwood et al., 2006) to aiming to create economic and social impact, and the developed framework can serve as a starting point for discussion in that direction.

The third contribution of this research concerns the scope of impact. The literature on the entrepreneurial and engaged university concept envisions mainly regional impact (see Clark, 1998; Etzkowitz & Leydesdorff, 2000). The case suggests that impact is not necessarily limited to the region. It can be national and global for the graduate school of education. This is because a key mission for the graduate school of education is solving issues of education, which are not limited to the region. This observation necessitates a rethinking of the scope of the entrepreneurial and engaged university's impact.

5.2 Evaluation of the Research

Section 3.5 outlined the measures undertaken to ensure the quality of the research in terms of credibility, transferability, dependability, and confirmability. Section 3.6 presented the measures undertaken to conduct the research ethically. In light of these measures, I evaluate the research for its quality, limitations, and compliance with ethical standards.

The results are credible in that they answer the research questions satisfactorily with the aid of a developed theoretical framework (see Figure 5 for the preliminary framework and Figure 9 for the revised framework). In answering the first research question, the ways to implement the entrepreneurial and engaged university concept were identified and presented in section 4.1. In answering the second research question, the types of leadership and agency to implement the entrepreneurial and engaged university concept were identified and presented in sections 4.2 and 4.3.

Transferability, i.e. generalization of findings, was not the intention of this exploratory research. In social sciences, where context matters, the aim of pursuing a qualitative research approach with a case study exploratory research strategy is to gain deep insights into the phenomenon, and not to generalize findings (Eisenhardt & Graebner, 2007; Siggelkow, 2007; Yin, 2003). In these respects, reliance on a single case study can be perceived as a limitation of the research, and it remains a task for future research to see to what extent findings are applicable in other contexts.

The results can be considered dependable in that data was collected from multiple reliable sources, subjected to triangulation to the extent possible, verbatim transcribed (in the cases of interviews and audio-visual sources), approached with skepticism and analyzed with rigor with the aid of codes from the theoretical framework and written memos. The case offered rich data available on the corresponding websites of HGSE and Harvard University. These were complemented by interviews with a director of the iLab and an alumna of HGSE. There

could be interviews with HGSE faculty and perhaps a longer visit to the institution to gain more observations. I consider these as a limitation of the research.

Achieving confirmability, i.e. objectivity is difficult in qualitative research because there is always room for some interpretation in analyzing qualitative data, which can be influenced by the researcher's experiences and perceptions (Gummesson, 2000). The research benefited from a theoretical framework, data was collected from multiple sources, and I had some earlier exposure to the research context. All of these contributed to achieving some level of objectivity. Nevertheless, I agree with the interpretive nature of this research and perceive it as a limitation that I was the sole interpreter of the data.

The research process followed the ethical guidelines concerning the use of literature and the protection of personal data. Credit was given in the thesis to the sources of literature via the appropriate use of citations and corresponding references. Moreover, the interviewees were informed in writing about the objectives of the research, and their informed consent was acquired by sharing the interview questions in advance and asking for their permission to record and use the interview data. The identities of the interviewees were also kept anonymous.

Furthermore, as suggested by the Harvard University Office of the General Counsel, the office that handles copyright issues at Harvard University, it was possible to use data on the web pages of HGSE and Harvard University under the conditions of fair use, as set by Section 107 of the U.S. Copyright Act (see Harvard University Office of the General Counsel, n.d.). In using such data, I paid attention not to disclose the identities of any persons and referred always to the sources via citations (see Appendix 1 for the list of sources). Finally, I shared my affiliation with Harvard Business School in section 3.6 and also explained how I would store and dispose of the data based on my previously prepared data management plan. All of these contribute to the compliance of this research with ethical guidelines.

5.3 Topics for Future Research and Practical Applications

The limitations of this research present possibilities for future research. I recommend future research to apply the developed framework in the context of not only graduate schools of education but also other schools from other universities in the U.S. and other countries. Comparing results among graduate schools of education from different universities will contribute to the further development of the framework. Moreover, comparing results between different schools can increase our understanding of variations in the implementation of the entrepreneurial and engaged university concept at the school level.

The scope of the developed framework is broad, providing a holistic view of leadership and agency in implementing the entrepreneurial university concept. Future research could aim to focus on certain areas of the framework. The focus could be for example one of the ways of implementing the concept. That would allow us to gain deeper insights into each of the four observed ways. The focus could also be one of the two types of agency and its corresponding leadership. That would shed more light on the attributes and actions of an agency and the objectives, goals, and ways of its corresponding leadership.

Future research could also aim to develop propositions from the framework and test them using a quantitative approach. For example, it would be interesting to test the impact of the ways of entrepreneurial leadership (or collaborative leadership) on the attributes of entrepreneurial agency (or collaborative agency). For this purpose, I recommend designing a survey with Likert scale questions on the attributes of entrepreneurial agency and collaborative agency, as well as the ways of entrepreneurial leadership and collaborative leadership.

Hence, there is room for improving our understanding of entrepreneurial and collaborative leadership to promote entrepreneurial and collaborative agency among students and faculty, and we need both qualitative and quantitative research to achieve this goal.

This research has implications for graduate schools of education, which are under pressure to deliver economic and social impact and thus be more entrepreneurial and engaged (Davey et al., 2018). The findings of this research offer avenues for how graduate schools of education can successfully create an impact.

For the graduate school of education, impact means solving issues of education. This can be realized by undertaking initiatives in collaboration between faculty, students, and stakeholders in the field of education. Such impact is most visible in the mission statement of HGSE called "*learn to change the world*". This mission requires an experiential and transformative approach to designing activities related to traditional teaching and research missions, as observed in the PELP project. PELP exemplifies how research can be integrated with teaching to solve real-world problems and create an impact. It is an excellent demonstration of building synergies among the missions of the university.

Taking a leadership perspective, this research argues that the entrepreneurial and engaged university concept is about creating economic and social impact, and its successful realization requires developing entrepreneurial and collaborative leadership in the organization. In other words, if universities and their graduate schools of education wish to progress to adopt the entrepreneurial and engaged university concept, they should focus their efforts on developing their leadership to promote entrepreneurial and collaborative agency among their faculty and students. This may require a shift of mindset, and the developed framework can be used as a guide in setting the objectives and goals of entrepreneurial and collaborative leadership.

In my opinion, the developed framework offers an operational ability for graduate schools of education to assess their performances in entrepreneurial leadership and collaborative leadership. As a result, they can determine where they need improvement.

In benefiting from the results of this research based on the case of HGSE, graduate schools of education should not forget to take into consideration differences in the contexts in which they are embedded. This is because there will be

cultural differences in different countries, in different universities, and as observed in the case of Harvard University, even among different schools of the same university. These differences could impact how entrepreneurial and collaborative leadership can be exercised to implement the entrepreneurial and engaged university concept successfully.

Overall, looking back at the research questions, I am satisfied with having answered them with the aid of the developed framework and the analysis of the case of HGSE. This research offered me a valuable learning opportunity. I hope that the results will be useful for graduate schools of education aiming to implement the entrepreneurial and engaged university concept. I also hope that the developed framework will be utilized in future research.

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APPENDICES

Appendix 1 Sources of data

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Appendix 2 Interview questions

Questions of the interview with the iLab Director

1. Can you tell a bit about what you do at the iLab and your background?
2. Your activities seem to focus mainly on student entrepreneurship. How about faculty entrepreneurship at Harvard?
3. Some entrepreneurship services, like for example the Arthur Rock Center for Entrepreneurship, are organized under the Business School. Are these services mainly for business students, or are they also for students from other schools, like for example the Graduate School of Education?
4. Is cross-disciplinarity and collaboration among students from different disciplines something preferred when you are choosing the teams at the President's Innovation Challenge?
5. How would you describe the organizational culture at Harvard?
6. What kind of support do you offer to students in their entrepreneurial initiatives at the iLab?
7. The iLab offers a common space for people to collaborate and interact. How would you describe the collaboration atmosphere here?
8. What kind of services do you offer at the iLab to your alumni? What percent of your customers are alumni?
9. How do you see your connections with external stakeholders in the Boston entrepreneurial ecosystem? Who are your key external collaboration partners?
10. One thing I want to understand is your impact on the region. For example, I know about the Allston project, which is under construction. How would you see your impact on Allston in specific and the Boston area in general?
11. Harvard students are not only from Boston but also from the US and abroad. In that respect, how would you see your impact nationally and globally?
12. My last question is about the One Harvard initiative. How will the One Harvard initiative contribute to collaboration among different schools of Harvard?

Translated questions of the interview with the HGSE alumna

1. HGSE has the mission to "*learn to change the world*", and the school proudly presents its impact during its 100th anniversary in 2020. How do you see HGSE's impact regionally, nationally, and globally?
2. As an alumna of HGSE, you have created an impact by establishing your social enterprise. How did HGSE and Harvard support you in developing your initiative? Can you give specific examples?
3. Did you have a team when you were developing your entrepreneurial initiative at HGSE?
4. Can you tell a bit about the organizational culture at HGSE?
5. How did your relationship with HGSE continue after graduation? Did you receive any support for your social enterprise as an alumna?
6. How about the entrepreneurship of the HGSE faculty? What is their view on entrepreneurship? Are they entrepreneurs themselves, do they serve on the boards of their students' enterprises, or do they focus primarily on their teaching and research?
7. Finally, how does HGSE collaborate with other schools at Harvard and stakeholders outside of Harvard? Which are HGSE's main collaboration partners?

Appendix 3 List of numerical codes for the organizing and basic themes

Organizing theme	Basic themes related to the organizing theme
1 - Ways to implement the entrepreneurial and engaged university concept	1.1 – promoting academic entrepreneurship 1.2 – stimulating student entrepreneurship 1.3 – consulting and training the industry through contract research and education 1.4 – providing entrepreneurship training 1.5 – engaging in strategy building for regional development and promoting an entrepreneurial culture in the region
2 - Entrepreneurial leadership	2.1 – Commitment to implement an entrepreneurial strategy 2.2 – Availability of established governance mechanisms, resources, and well-trained people to implement the entrepreneurial strategy 2.3 – Establishing an entrepreneurial mindset and culture in the organization 2.4 – Having support mechanisms, incentives, role models, and pathways to raise awareness for and develop entrepreneurship 2.5 – Researching on entrepreneurship and developing entrepreneurial skills of students, faculty, and potential entrepreneurs from the region 2.6 – Commitment to internationalization 2.7 – Measuring the impact of entrepreneurial activities on regional development 2.8 – Having a digital strategy to support entrepreneurship and innovation
3 - Collaborative leadership	3.1 – Collaborative sense-making and decision-making based on a climate of trust 3.2 – Knowledge exchange and collaboration with external stakeholders through established governance mechanisms and legal frameworks 3.3 – Having a core management team to steer the planning and implementation 3.4 – Having flexible leadership practices and non-bureaucratic structures 3.5 – International mobility and active participation in international networks
4 – Entrepreneurial agency	4.1 – Visionary 4.2 – Proactive 4.3 – Innovative 4.4 – Risk-taking 4.5 – Problem-solving 4.6 – Challenge-seeking 4.7 – Versatile 4.8 – Passionate 4.9 – Collaborative 4.10 – Accountable 4.11 – Creative
5 – Collaborative agency	5.1 – Shared vision and values 5.2 – Interdependence and shared responsibility 5.3 – Mutual respect 5.4 – Empathy and vulnerability 5.5 – Patience and tolerance for ambiguity 5.6 – Communication through open and frank dialogue 5.7 – Synergy 5.8 – Commitment to learning
6 - Impact	6.1 – Regional development 6.2 – Contributions to society

Appendix 4 Sample analysis of the reduced data in the Excel sheet

Code 1	Code 2	Owner of text	Text	My initial comments	Page
2	2.1	Ex-Dean 1	We were working on the strategy document on how to leverage the graduate school of education to have a greater impact on public education.	Creating impact is part of the strategy	2
3	3.1	Ex-Dean 2	The president was always eager for the schools to work together. But fair to say that the graduate school of education was not every other school's first choice to work with.	Prejudices against collaboration with the graduate school of education.	2
3	3.4	Ex-Dean 3	I didn't establish PELP. The faculty members established it. I certainly gave my support. We had breakfast about the PELP with a significant donor at the Business School, who would financially support the project. Significant enthusiasm among faculties of both schools. My role was to be supportive, but the faculty really did that.	Bottom-up approach and collaboration with multiple stakeholders in realizing the Public Education Leadership Project.	2
3		Ex-Dean 2	But, when the first U.S. report came out with the ranking of U.S. Schools of Education, it was very nice that the Harvard Graduate School of Education was number one.	Acknowledgment of success opens doors for collaboration.	2
3	3.1	Ex-Dean 1	Next time faculty said, "*we should be working also with the Kennedy School*". If you want to be an educational leader, you have to know about schools and learning, politics and policymaking, and leadership and how to run an organization. So, those three schools fit together to make an educational leader. A lot of brainstorming. It grew when the faculty got hold of the idea.	Faculty decide whom to collaborate with. Now they decided to collaborate with the Business School and the Kennedy School. The faculty's role is key for implementing new projects.	3
3	3.1	Ex-Dean 4	One of the most rewarding things was how many faculty got involved.	Collaborative sense-making with faculty	3
3	3.2	Ex-Dean 1	We also hoped that they would get together in annual conferences and share best practices, help one another, hire one another, and work hard in policy and practice.	Strong collaboration with alumni	3
2	2.3	Ex- Dean 4	Lesson One: you need to recognize that change will take the time that it needs. The bigger the change, the more time it will take, and you can't rush it. All you can decide is whether you spend time at the front end, planning and getting people to buy in, or at the back end, cleaning up the mess.	Big changes demand time. It requires commitment and patience.	3

Appendix 5 Sample memo written on August 19, 2023

Ways to implement the entrepreneurial and engaged university concept at HGSE (1): Based on the data, stimulating student entrepreneurship (1.2) and providing entrepreneurship training (1.4) are the main ways to implement the concept. These two ways are also closely interrelated because students need entrepreneurship training. Entrepreneurship training is also offered to alumni, but this is at a comparably smaller scale.

In 1.2, the agencies of students are key for creating impact. The role of faculty here is more to support students in their entrepreneurial initiatives. Other supportive stakeholders in this way are entrepreneurs, venture capitalists, and legal advisors in residence, who can be considered as faculty.

A third way to implement the concept is through consulting and training leaders and practitioners in the education industry (1.3). The PELP project is a good example of this. It also demonstrates the collaborative leadership of the faculties of Harvard Business School and HGSE and their entrepreneurial leadership to create a unique program.

A fourth way to implement the concept is through transformative research, grounded in practice and policy, to improve educational practices. This way emerges from the data, and it was not included in the preliminary framework. It appears repeatedly in the speeches of the Dean and the mission statement of HGSE.

Academic entrepreneurship (1.1) is more relevant for academics from the fields of biology, materials science, and computer science, and less so for academics from the field of education.

Moreover, engaging in strategy building for regional development (1.5) was not observed at HGSE. Rather, engagement with society occurs through HGSE's "*usable knowledge*" platform, where HGSE faculty inform practitioners of education with applicable knowledge from their research.

Creating impact (6): I understand that creating an impact for HGSE means solving the challenges of education in national and global contexts. This vision is driven by the mission of "*learning to change the world*". HGSE sees tomorrow's

alumni (today's students) as the key agents to create an impact with their future initiatives to improve educational practices. Faculty is another key agent. They create impact by providing entrepreneurial training, consulting and training leaders and practitioners in the education industry, and conducting transformative research to improve educational practices.

The impact is not limited to the region (6.1). It is more at national and global levels, aiming to solve the challenges of education. The global impact is observed first in HGSE's mission to "*learn to change the world*", and second in the fact that alumni work in many countries.

Furthermore, the second type of impact, i.e. "*contributions to society*" (6.2) sounds very general and vague. It requires adaptation to the context of education. I suggest merging 6.1 and 6.2 and calling the impact for HGSE "*creating solutions for the challenges of education in regional, national, and global contexts*".

Finally, the mission "*learn to change the world*" gives a powerful message. I think it is the core element for implementing the entrepreneurial and engaged university concept at HGSE. The mission consists of two kinds of agencies: "*change the world*" and "*learn*". "*Change the world*" implies a global impact, and "*learn*" emphasizes the significance of learning for achieving that impact.