3. Entrepreneurial micro-ecosystems: a study on connectedness and collaboration in the edtech community

Anette Kairikko, Spinder Dhaliwal and Luca Cacciolatti

INTRODUCTION

> If you wish to navigate through the sea area of Helsinki, it does not help to have a nautical chart of San Francisco Bay. (Start-up entrepreneur)

This chapter focuses on entrepreneurial micro-ecosystems and examines a connected and collaborative community of edtech entrepreneurs and stakeholders within a broader regional entrepreneurial ecosystem. An entrepreneurial ecosystem in a region may encompass multiple ecosystems as Spigel (2017), Brown and Mason (2017) and recent research by Banc and Messeghem (2020) has shown by increasing attention at the micro-level.

We focus particularly on the connectedness and collaboration of entrepreneurial micro-ecosystems. The sense of community that characterizes such ecosystems fosters collaboration amongst its actors, thus dynamically shaping the behaviour of the collective. On the other hand, the behaviour of entrepreneurs and other stakeholders constantly shape the ecosystem, a process which has gained less attention than studies around ecosystem structures and patterns.

The notion that the ecosystem located in Helsinki has a leading position in the dimension of 'local connectedness' among the start-up ecosystems globally (Startup Genome 2018) triggers the interest to study collaborative aspects and underlying mechanisms. A relatively broad range of earlier research discusses the Finnish entrepreneurial ecosystems (e.g., Autio et al. 2014b; Nordling 2019; Pikkarainen et al. 2017; Sipola 2015: Sipola, Puhakka and Mainela 2016; Wallin, Still and Henttonen 2016). However, collaboration and connectedness deserve further investigations since the focus of the above-mentioned studies has been mainly on the elements of the ecosystem structure, growth, and policy discussions instead of the underlying mechanisms explaining the collaboration.

To address collaboration and connectedness in a micro-ecosystem, we aim to illustrate, through rich in-depth data, the collaboration and connectedness of the edtech entrepreneurs and their stakeholders in the Helsinki ecosystem. Thus, this research addresses the following question: How do edtech entrepreneurs and their stakeholders create a sense of community and collaborate in a local entrepreneurial micro-ecosystem?

We draw on the different levels of entrepreneurial ecosystems and propose how collaboration and connectedness enable the interplay of the entrepreneurial actors and their multiple contexts in an entrepreneurial ecosystem. This chapter seeks to highlight the relevance of the micro-dynamics of entrepreneurs and their stakeholders and suggests a novel micro-level perspective on entrepreneurial ecosystems. Thus, this study attempts to enrich studies of entrepreneurial micro-ecosystems (Banc and Messeghem 2020) by focusing on edtech entrepreneurs and other stakeholders within the entrepreneurial ecosystem in the Helsinki region, Finland.

Furthermore, this study addresses recent calls for contextual diversity and heterogeneity in entrepreneurship discourse (Belitski, Caiazza and Lehmann 2021; Lehmann, Schenkenhofer and Wirsching 2019; Pahnke and Welter 2019; Welter, Baker and Wirsching 2019; Korsgaard et al. 2020). Through the focus on the Finnish ecosystem, this study attempts to add to the discussion of the heterogeneous nature of diverse entrepreneurial ecosystems (Roundy, Brockman and Bradshaw 2017), which have been somewhat overlooked while focusing on the universal success factors of ecosystems (Brown and Mason 2017). Furthermore, we aim to add to the stream of literature which considers that entrepreneurship is not only an output of the system but rather entrepreneurs play a significant role in creating and maintaining ecosystems (Stam 2015; Spigel 2018).

THEORETICAL BACKGROUND

Entrepreneurial ecosystems have become a popular concept among policymakers and practitioners and studies of entrepreneurial ecosystems draw on a broad range of research within a variety of academic disciplines such as regional development, strategy, economic geography, innovation, and network literature (Spigel 2018; Acs et al. 2017). Entrepreneurial ecosystems are combinations of social, political, economic, and cultural elements within a region supporting and encouraging the growth and development of start-ups (Isenberg 2011) and defined by inter-related material, social, and cultural attributes (Spigel 2017). However, a common understanding of entrepreneurial ecosystems is lacking (Shwetzer, Maritz and Nguyen 2019), the concept is described as 'fuzzy' (Mason and Brown 2014) and seen as a conceptual umbrella (Spigel 2017).

Viewpoints also differ on whether entrepreneurial ecosystems cut across industries (Auerswald and Dani 2017) or whether they may or may not exist within one industrial sector (Spigel 2017). Similarly, as regional innovation systems and clusters, entrepreneurial ecosystems are also often linked with a geographical area (Spigel 2017; Autio et al. 2014a; Shwetzer et al. 2019; Hakala et al. 2020) even though, for example, Isenberg (2016) argues the entrepreneurial ecosystem is mistakenly considered to be a geographical concept and Stam (2015) highlights other systems that are less strictly defined in spatial terms. There are also views in the middle, stating it may or may not be geographically bounded (Brown and Mason 2017; Mason and Brown 2014). The territorial boundaries of the ecosystem also depend on the disciplinary position, regional development literature emphasizes the place, whereas strategy literature considers that the context is global (Acs et al. 2017).

The geographical dimension is also linked with the unit of analysis discussing what is a proper unit of analysis: is it country, state, region, university campus (Miller and Acs 2017)? Against the mainstream view of entrepreneurial ecosystems, even a university campus may be considered to be an entrepreneurial ecosystem (Miller and Acs 2017), differing from the general view to consider universities as central actors within an ecosystem but not as an ecosystem itself.

Current entrepreneurship literature focusing on entrepreneurial ecosystems has tended to be at the macro-level rather than focusing on practices and interactions at the entrepreneurial level. Various extant studies (Zahra and Nambisan 2012; Wang and Tan 2019; Letaifa and Rabeau 2013; Keane and Costin 2019; Turkina and Van Assche 2018) stress the collaboration aspect in entrepreneurial ecosystems and clusters. However, more analysis on interaction and collaboration within the ecosystems from multiple actors' points of view would be required (Hakala et al. 2020). This study is particularly focused on the underlying mechanisms enabling collaboration in entrepreneurial ecosystems which has been defined as 'coordinated, synchronous activity resulting from a continued attempt to construct and maintain a shared conception of a problem' and it differs from cooperation which is accomplished by each actor solving a portion of a problem (Hernández-Chea et al. 2021).

Ecosystems shape entrepreneurs but are also shaped by entrepreneurs. Entrepreneurs do not merely construct their venture but also their contexts and understanding of entrepreneurial contexts which requires re-orientation towards practices of entrepreneurship (Johannisson 2011). Referring to Spigel (2018) one of the tensions is how to study ecosystems: the ecosystem itself (top-down approach) or the actions within the ecosystem (bottom-up approach). The former focuses on the actors and factors that constitute successful ecosystems, whereas the latter emphasizes the micro-processes: what entrepreneurs do, how they engage in their community. Despite the certain,

universal aspects of ecosystems, contextual diversity is needed since what makes one region successful does not necessarily apply to another region (Spigel 2018).

Therefore, in this study we aim to focus on the bottom-up approach since the research question focuses on edtech entrepreneurs and stakeholders and connectedness and collaboration in their entrepreneurial micro-ecosystem. The attributes that constitute an ecosystem are extensively mapped by previous research (Spigel 2018). However, the process of emergence and development through individual actors of entrepreneurial ecosystems remains an understudied area. To further contribute to this area, the research methodology needs to be designed accordingly. Bottom-up approaches usually rely on qualitative methods (Spigel 2018).

Entrepreneurial support systems such as accelerators and incubators play an important role. They are matchmakers in the interaction between start-ups and stakeholders in entrepreneurial ecosystems (Autio et al. 2018; Goswami, Mitchell and Bhagavatula 2018; Spigel 2017) and in the emergence of a sub-system within a broader entrepreneurial ecosystem (Harris 2021). Cavallo, Ghezzi and Balocco (2019) propose that understanding the interactions in such sub-systems helps to understand the dynamics of the larger system.

Hernández-Chea et al. (2021) studied how intermediary organizations orchestrate collaboration in entrepreneurial ecosystems and identified three collaboration patterns: one-sided, joint, and mutual dependency-based collaboration. These collaboration patterns were based on resource dependency and embeddedness factors such as trust, commitment, structural position, interests, and cognition.

We focus on everyday entrepreneurial practices within a broader ecosystem, which may consist of multiple ecosystems for industries and groups (Brown and Mason 2017). Particular attention is targeted to the interactions at the micro-level which enable the emergence of a collaborative and connected community within a broader ecosystem.

Our conceptual framework consists of a multiplicity of contexts, entrepreneurial micro-ecosystems, and collaboration and connectedness in entrepreneurial ecosystems. First, regarding context, we refer to Whetten (1989) and Welter (2011) and are guided by the following questions: when (temporal context), where (business, social, spatial, and institutional contexts), and who (entrepreneurs and ventures)? Second, due to our focus on the micro-level approach of entrepreneurial ecosystems (Banc and Messeghem 2020), we are interested in the entrepreneurs, intermediaries, and stakeholders. We aim to understand the micro-dynamics of connectedness, in other words, the sense of community as well as collaboration defined as a coordinated shared activity

instead of an activity partially solved by different parties (Hernández-Chea et al. 2021).

METHODOLOGY

We have adopted an abductive approach (Dubois and Gadde 2002) and the research strategy was emergent meaning that decisions regarding subsequent interviews were made alongside the growing understanding of this phenomenon. Our empirical inquiry included a variety of sources such as interviews, observations, and documents. The data collection took place between 2016 and 2019 and, in accordance with theoretical sampling (Gibbert and Ruigrok 2010), the aim was to maintain flexibility throughout the data collection.

The research design was a single case study (Dyer and Wilkins 1991; Flyvbjerg 2006; Gummesson 2007; Ragin 1992). The strength of the single case is that it enables us to gain in-depth knowledge and nuanced insights of the phenomenon and has proven to be suitable for contextualized entrepreneurship studies (Paschke and Müller 2020). Understanding the dynamics, uniqueness, and limitations of context is central for entrepreneurship studies (Zahra 2007). Methodologically, participatory methods enable the researchers to be engaged in the community they are studying (Jack and Anderson 2002; McKeever, Jack and Anderson 2015; Shaw, Wilson and Pret 2017).

The data covers four years of the emerging edtech community (2016–2019). The focal community consist of the following contextual layers positioned in the broader entrepreneurial ecosystem: business context of edtech; spatial context of the Helsinki area; social context of edtech entrepreneurs; and stakeholders originating from various geographical locations. One of the researchers of this study started to follow the activities of the edtech community in 2016 and had access to the edtech community through the edtech accelerator.

The systematic data collection in the form of interviews (46) and observations (> 50 different occasions) took place from 2017 to 2018. A detailed description of different types of observations and interviews and their purpose is summarized in Table 3.1. The first steps in the data collection process were to define the range of key actors in the edtech community. The data collection through interviews evolved during the fieldwork period. The informants of the interviews consisted of entrepreneurs and key stakeholders from the emerging edtech community in the Helsinki area. These included start-ups, investors, mentors, corporates, representatives from the public sector, accelerator managers, and internationalization partners, both local and international.

The impact of contextualization on entrepreneurship research has several implications at the level of research practices (Zahra and Wright 2011), and one of them is the engagement of the researcher. One of the researchers undertook participatory and non-participatory observations – on 51 different

Table 3.1   *Data collection through observations, interviews, and documents*

	Observations (51 observation points)	Interviews (46 interviews)	Documents
Types of data collection and purpose	Accelerator trainings (6): Insights in terms of start-ups, edtech solutions, and dynamics in the cohorts and with the stakeholders.	All relevant groups related to the edtech micro-ecosystem, an interviewee identified as partner may represent several roles, such as, investor–mentor.	General statistics related to the edtech sector and entrepreneurial ecosystem in Helsinki area.
	Pitching events (3): Insights regarding the start-ups, solutions, and reactions from the stakeholders.	Accelerator management (5): consisting of CEO, programme director, marketing manager, community manager, and head of internationalization.	Research materials related to the edtech sector.
	International delegates visiting accelerator (4): Insights to the early international networks.	Start-ups: 31 entrepreneurs in 28 accelerated and 2 non-accelerated edtech ventures.	Portfolio of start-ups in accelerator cohorts.
	Informal discussions, accelerator as a working space conducting interviews; researcher as a member of the community (18): Gain in-depth understanding of the structures and actors in the accelerator environment and observe the activities. Background for interviews.	Investors: 3	Results on feedback surveys by the accelerator.
	Social events (2): Insights to edtech start-up community and interactions in it. A chance for informal discussions.	Internationalization: 2	Accelerator newsletters.
	Education fairs (2): Insights to activities with one key stakeholder group.	Education/municipality: 2	Social media posts (Facebook group for accelerator alumni, Twitter and LinkedIn posts) and by start-ups.

	Observations (51 observation points)	Interviews (46 interviews)	Documents
	Start-up event: Slush and edtech track (2): The holistic understanding of the broader ecosystem and edtech scene, meeting start-ups and network partners.	Coaches: 2	Articles published in the media.
	Visitor group from local higher education institution (1): Insights to interactions with accelerator, start-ups, and educational institution.	Corporate partner: 1	
	Follow-up visits to conduct interviews and/ or meet accelerator management (13): To up-date the latest news in the development of accelerator and start-ups.		
Average duration and number	51 observation points in total, duration from one hour to one day.	46 interviews, average 51 minutes varying from 23 minutes to 85 minutes.	352 documents selected to the analysis.
Time period	2017–2018	2017–2018	2016–2019
Venue/Format	Accelerator (46); exhibition centre (2); city hall (1); event forum in a shopping mall; (1) old student house (1).		Online documents.
Language	Finnish and English.	Finnish (36) and English (10).	Finnish and English.
Documentation	Notes and reflective diary describing, analysing, reflecting.	Recorded and transcribed verbatim.	Summarizing tables.

occasions – by attending activities and events coordinated by the edtech accelerator. Moreover, various documents, such as statistics and feedback from surveys, newsletters, and newspaper articles, as well as social media posts were included in the data collection.

The method of analysis was a constant comparative method (Anderson and Jack 2015; Timmermans and Tavory 2012) which consisted of several rounds of comparisons within, between, and across data sources. During those steps in the analysis, the researcher ensured that the contextualized viewpoint remained, even though categories of codes were created. The technique of constant comparison has been used in entrepreneurial network studies (Anderson, Park and Jack 2007; Jack and Anderson 2002; Jack et al. 2015; Shaw 1999), rendering it as a suitable method by which to analyse relationships and networks in ecosystems. The analysis included the following steps: comparisons within the type of data-collection sources; comparisons between the interviews followed by coding; comparisons between the interviews across different groups of interviewees and organizing the data according to the sub-groups of interview informants; and finally, comparisons between all types of data and between different sub-groups, merging categories and generating themes. These themes were generated by analysing relationships between different groups of actors within the edtech micro-ecosystem: start-up–start-up; start-up–stakeholder; start-up–accelerator; and accelerator–stakeholder.

CASE STUDY AND THE FINDINGS

Referring to Zahra and Wright (2011), contextualized studies mean the context is treated as part of the story if not the story itself. Therefore, the findings and analysis start with the story of the edtech community within the Helsinki start-up ecosystem and thereafter, we move to the analysis of the collaboration and connectedness.

Edtech Community within the Helsinki Start-Up Ecosystem

This case research portrays the emerging edtech community within the Finnish start-up ecosystem during the temporal context 2016–2019, a period that has been characterized by a growing interest in start-ups in Finland. The start-up boom in Finland has manifested itself, for example, in the emergence of both private and public incubators and accelerators as well as in other support services for start-ups (Lahtinen et al. 2016), and in the steady growth of investment in start-ups (Finnish Venture Capital Association 2019). Furthermore, Finland has received attention in start-up comparisons (Startup Genome 2018).

The growing publicity and interest in start-ups have also been fostered through movements by volunteers and students to create entrepreneurial

societies and events for start-ups, such as the event Slush, which started first as a small initiative run by volunteers, mainly students and start-up enthusiasts. Within 10 years, Slush has become one of the major start-up events in Europe, gathering increasing numbers of investors and start-up entrepreneurs, garnering extensive media coverage each year.[1] The event has also expanded to Tokyo, Singapore, and Shanghai.

Referring to Finland as an environment to create and develop educational solutions, the narrative of 'Finnish education' has been shaped by the fact that according to several international comparisons the quality of Finnish education is ranked high (e.g., Schwab 2016; PISA 2015) and positive international media attention for Finnish education has profiled the country with expressions such as 'education superpower'.[2] Consequently, Finland has also attracted foreign delegates from educational institutions and ventures alike to learn more about the Finnish system.

Regarding the characteristics of edtechs, the opportunities in the education technology and learning solutions are based on the 21st-century paradigm shift in learning and simultaneous advances in technology. The start-ups of this study represent the following types of edtech solutions targeted to meet the skill needs of the 21st century: Game-based learning; creative development; STEM (science, technology, engineering, and mathematics); learning and device management; AI; 3D printing; programming; lifelong learning; AR/VR; socio-emotional learning; early childhood education; and language learning. Notably, a solution may be a combination of several categories. Illuminating these combinations, one example of a learning solution is a robot to enhance language learning: that is, a combination of AI and language learning or a digital platform for immersive storytelling combining AR/VR and socio-emotional learning.

Increasing interest and opportunities in the area of edtech are linked with the transformation in education. The World Economic Forum (2017) estimates that 65 per cent of current primary school children will work in occupations that do not exist today, challenging educational systems to renew themselves and to apply new methods. Still, according to Schleicher (2015, p. 61), 'innovation in education is not just a matter of putting more technology into more classrooms; it is about changing approaches to teaching'. Consequently, the edtech start-ups are expected to articulate the pedagogical impact in their

---

[1]   Year 2018 Slush Helsinki attracted 20000 attendees, 3100 start-ups, 1800 investors, and 650 journalists.
[2]   The reputation of Finnish education has been discussed, for instance, in the following media: BBC News (2016); Business Insider (2011); Independent (2015); The Guardian (2015a, 2015b); The Hechinger Report (2016); and The Huffington Post (2016).

learning solutions. In a similar vein, different stakeholders in the edtech indus-
try share the viewpoint that a successful learning solution is a combination of
the following three elements: business, technology, and pedagogy:

> You need to understand business, technology and pedagogy and then understand
> how to create a concept, a service that is balanced. (Corporate partner – Interviewee
> 20)

The importance of stressing the social impact is another characteristic routed
to edtech. Many ventures in edtech are motivated and driven by the motto
'working for a greater cause'; they genuinely want to change the world through
education, at the same time creating profitable businesses.

Analysis of Collaboration and Connectedness

> That you are known and there is a link to something. A link to something that you
> aren't just simply a start-up from Oulu or Tampere. You are part of something
> larger, and that itself is already significant. (Start-up entrepreneur – Interviewee 10)

The actors of the Finnish edtech community include start-ups, investors,
accelerator management, corporate partners, partners for internationalization,
public sector partners, and mentors. Instead of looking at how ecosystems
affect the entrepreneurs, the approach is to look at the actors in the edtech
community who are part of the broader regional ecosystem.

The role of the edtech accelerator in the entrepreneurial micro-ecosystem
was significant. The accelerator was established 2015 in Helsinki, Finland, as
a privately funded accelerator focusing on transformative learning solutions in
the education sector and located next to the Faculty of Educational Sciences
of the University of Helsinki where teachers are educated, and educational
research is conducted. The intention was to attract promising start-ups globally
to be accelerated within the Finnish ecosystem. Thus, the idea from the very
beginning was to accelerate Finnish start-ups to meet the needs of international
markets and also to host start-ups from different parts of the world and support
their efforts to become international and global. A group of private investors
and corporate sponsors enabled the accelerator to be initiated. The people
who started to run the accelerator, the CEO, and the programme director, had
personally seen the difficulties faced by edtech start-ups during their earlier
careers in start-ups with an educational focus and while trying to export
education.

In this study we focus on the everyday actions of entrepreneurs and stake-
holders, not merely on the role of an accelerator. This analysis attempts to add
knowledge to the heterogeneity of ecosystems by focusing on the connected-
ness and collaboration of entrepreneurs and key stakeholders and how they

construct the context with their activities. As a result, the analysis identifies how collaboration appears in practice. Table 3.2 displays the various actors addressing the question 'who?'. Furthermore, the table addresses the question: how do connectedness and collaboration show in practice? The quotes from the interviews provide evidence of different types of collaboration.

In the next step of the analysis, the factors which characterize the connected and collaborative community are further grouped around three different themes: connecting actors from various contexts; the power of peer support; and collaborative development. These themes were generated following the process described in the methodology section.

Connecting Actors from Various Contexts

All the listed actors in Table 3.2 foster the connectedness of the community. The edtech accelerator connects several local and international start-ups with different professional and national backgrounds and maintains a network of start-ups and stakeholders. The accelerator orchestrates the selection of the cohorts and runs the programmes, during which team-building activities enable participants to become acquainted with each other, build relationships, and create trust. An industry-focused accelerator guarantees the relevance of the connections.

Start-up ventures represent different spatial contexts; start-ups originating from different parts of the world enrich the edtech community through their participation in accelerator cohorts. Internationally the accelerator provides a network of similar foreign organizations and relevant educational partners for internationalization. An important form of connecting is also through various events such as social events, fairs, and start-up events.

For stakeholders in the edtech community, it is easier to approach start-ups as a group to find the most suitable potential collaboration partner instead of approaching individual start-ups. The key here, from the stakeholder's point of view, is the role of the accelerator as a link between start-ups and network part-ners, enabling communication with start-ups through centralized coordination, agreements, and arranged events. In addition to the coordinated agreements, accelerator managers connect individual start-ups as and when appropriate with other relevant networks, which are not official partners of the accelerator and stem from the prior contacts of the accelerator.

Relevant stakeholders bring their own valuable connections for start-ups. The start-up peers provide contacts for further networks both at a local level and internationally. Start-ups have varying team formations in terms of national backgrounds. Certain well-known start-ups in the community are active and have the most visibility and seem to have the reputation of sharing and being open and helpful to others by appearing to be sparring partners for

Table 3.2   Analysis of connectedness and collaboration in the entrepreneurial micro-ecosystem

Who?	How?	Quotes
Actors	How does connectedness show in practice? How does collaboration show in practice?	
Start-up entrepreneur	Connections, knowledge sharing, mental support, joint activities (e.g., in internationalization or marketing), sharing offices, sharing resources.	'Well, I would say the biggest thing, it has been this connecting … they create partnerships and share and learn from each other'. (Mentor – Interviewee 46)
Accelerator	Connects and coordinates various actors. Enables new forms of collaboration to emerge.	'I see their role [the accelerator] as a bridge builder. This is like a hub. This industry, if we consider Finnish edtech as such, in order to emerge and flourish, it needs to have a profile and that requires hubs like this'. (Start-up entrepreneur – Interviewee 39)
Investors	Links start-ups with relevant connections, provides support, and initiates and encourages collaboration among entrepreneurs.	'Those who do not know how to collaborate simply fall out'. (Investor – Interviewee 17)
Mentors	Contributes to the community through connections and advice which enable the start-ups to develop further.	'The most valuable part in coaching and mentoring was everything related to the internationalisation'. (Start-up entrepreneur – Interviewee 7)
Public sector partners	Enables start-ups to develop and test products and have first reference customers. The collaboration with start-ups enabled the schools and teachers to learn and test how to use edtech in teaching.	'For a start-up, collaboration with a city appears a nightmare – meaning endless amount of time consumed and no progress and everything just one big fight at the end of the day. I mean if the accelerator wouldn't have pushed us to that direction, I know it may sound arrogant, but I would have never ever in my right mind interfered in any activities steered by a city or a municipality, and then it turns out that they have genuine interest and, to my own surprise, this collaboration was fantastic'. (Start-up entrepreneur – Interviewee 24)

Who?	How?	Quotes
Partners for internationalization	Organizations like the accelerator located outside Finland and domestic organizations that support start-ups to enter foreign markets through new connections and enable them to further develop the solutions to meet the needs of foreign markets.	'What I found was that there was nobody in Asia helping Finnish companies scale their businesses in Asia in the edtech scene. So, I set up a company with a Finnish partner in Hong Kong'. (Partner for internationalization – Interviewee 21)
Corporate partners	Technology companies that provide support for the selected edtech start-ups as well as for the accelerator which is a start-up as well. Corporate partners participate in the selection of start-ups, and they have differing roles, such as sponsoring activities and workshops.	'The good thing is that this is focussed. Focussed on education. That is how the deep knowledge emerges'. (Corporate partner – Interviewee 20)

new start-ups. Mentoring and giving back to the community are important factors.

Power of Peer Support

The sense of community and collaboration are also shown in peer support which refers to the relationships between start-ups. Mutual support means sharing information, knowledge, contacts, and resources. Start-ups share unique features, which are not characterized by more established firms. Peer support covers both intangible and tangible support, varying from vague 'mental support' to concrete activities. Even for many start-ups, it is difficult to articulate the nature of peer support, yet they strongly argue that peer support is a key driver for the accelerator.

Peer support among start-ups is demonstrated through the new networks that the start-ups are able to develop through their peers. In this study, 'the power of peer support' is exhibited through the versatile activities the peers share. Even though each start-up venture focuses on its own development, start-ups strongly sense that being part of a strong community is beneficial for them. Peer support is present within accelerator cohorts and in the edtech micro-ecosystem, and this support encompasses collaborative efforts in local and international markets.

Peer support may also be initiated by key stakeholders such as investors, for example, through CEO gatherings of an investor's portfolio start-ups and strong encouragement to shadow each other's activities.

Collaborative Development

On one hand, for start-ups their development relates to the level of their own venture which, in turn, will also renew the whole industry if successful. On the other hand, development refers to the development and renewal of the activities of various stakeholders in the edtech community, which motivates actors to be part of the start-up community and contribute to the community.

In the start-up environment, businesses are emerging. As contrasted with established intra-industry linkages, the whole industry may still be emerging. Start-ups influence context, and context influences start-ups. Key stakeholders, such as corporate partners, consider start-ups not only as business opportunities but also as important drivers for renewal and change in their organizations. For large technology corporates collaboration with start-ups is part of their innovation activities. From start-ups' point of view partners and stakeholders are essential to establish sustainable businesses. As a result of these mutually beneficial collaborative relationships, the industry continues to develop. Thus,

through the development of start-ups the network partners develop and renew their organizations.

The accelerator in this study was a trigger for new forms of collaboration systemizing co-creation to acquire a first domestic customer at the public–private interface, which is an important reference for start-ups to enter foreign markets. For public sector partners, start-up collaboration brings innovation and renewal. Such collaboration enables start-ups to have chances to test and develop their products and educational institutions and public sector partners to have access to the latest edtech applications.

Start-ups have a high failure rate. The key is to recognize that, even though not all the start-ups succeed, the knowledge stays in the industry. This strengthens the overall emerging industry and ensures long-term knowledge accumulation in the given industry. Finally, the actors – start-ups and various actors in the community – all relate to each other in terms of credibility. The good results of any of the actors help the others to increase their credibility; thus, the success stories of start-ups benefit the whole emerging community.

DISCUSSION AND CONCLUSIONS

This research highlights the multiple voices of actors within the edtech community which belong to an entrepreneurial ecosystem in the Helsinki region. The findings illustrate particularly the connectedness and collaboration at the micro-level. Thus, this study adds to the literature of entrepreneurial ecosystems by focusing explicitly on the role of entrepreneurs and stakeholders at the micro-ecosystem level (Banc and Messeghem 2020).

We emphasized what entrepreneurs and stakeholders do and how they engage in their community. We identified practices and interactions at the entrepreneurial level. Thus, this case study contributes to the literature emphasizing the bottom-up approach (Spigel 2018) that has received relatively little attention compared to the top-down approach despite the broad existing literature on entrepreneurial ecosystems.

This study identifies the mechanisms driving collaboration and connectedness. Both entrepreneurs and stakeholders foster connections between other entrepreneurs and stakeholders from various contexts, peer support as well as collaborative development. The role of an accelerator was pivotal in initiating and enhancing a collaborative community to emerge and evolve. Thus, this research strongly supports the matchmaking role of an accelerator as an intermediary between the start-ups and stakeholders (Autio et al. 2018; Goswami et al. 2018; Hathaway 2016; Spigel 2017). This study indicates that the accelerator may enable peer support through the selection of matching cohorts, by enhancing group dynamics, and supporting the alumni community. Importantly, the role of an accelerator as a bridge builder in the ecosystem

might include a systematic approach to form collaborative models as this case study shows through the example of public–private collaborations. The intermediary role of the accelerator in this study stresses the positive impact on the non-accelerated start-ups as well. The more the accelerator absorbs the role of an ecosystem builder, the more the benefits from the accelerator go beyond the acceleration programme.

The focus on collaboration in this case study demonstrates how entrepreneurs respond to different environments and contexts (Baker and Welter 2020; Welter and Baker 2020). Through this contextualized study we were able to identify an interesting difference. Remarkably, competition among start-ups did not appear to be strongly present in this study, yet there is contrary evidence from other studies in other contexts (Cohen, Bingham and Hallen 2019). The aspect of collaboration versus competition does, however, deserve further examination.

We acknowledged the manifold facets of context (Welter and Baker 2020; Baker and Welter 2020) and studied the local entrepreneurial ecosystem by considering the multiplicity of contexts and following the idea of 'thinking contextually' (Welter, Gartner and Wright 2016). Methodological considerations are closely related to the complexity of multiple contextual layers. In terms of a further research agenda, we propose collecting self-reported data from the entrepreneurs (Chlosta 2016) in order to have endogenous views from the entrepreneurs upon the collaboration and connectedness in an entrepreneurial ecosystem.

Furthermore, a sense of community and collaboration in entrepreneurial ecosystems in the post-Coronavirus pandemic world provides interesting research opportunities such as including the spatial perspective to entrepreneurship (Korsgaard et al. 2020). Studies focusing on local potentialities could include studies of dispersed, peripheral places since a holistic, collaborative approach and digital technologies allow even more peripheral places to develop entrepreneurial ecosystems (Xu and Dobson 2019). The insights regarding new forms of collaboration at a distance during the pandemic would provide an interesting starting point for such a study.

This study has limitations as the focus is on start-ups even though it is misleading to consider entrepreneurial ecosystems merely as start-up communities (Brown and Mason 2017; Mason and Brown 2014; Isenberg 2016). Thus, arguably the limitations of this study refer to the selected scope of start-ups.

Despite the focus on edtechs, the findings may be transferable to other business contexts, especially to those where public sector customers form an important customer segment. Entrepreneurs within the same ecosystem but representing different sectors, benefit from each other, for example, through learning (Spigel 2017).

Finally, the findings of this study are particularly illuminating for anyone interested in the dynamics of an industry community within a broader ecosystem. This study has the following implications for organizations enhancing entrepreneurial activities regionally or involved in early-stage venture growth. Collaboration amongst entrepreneurial actors does not simply emerge; it takes effort to connect entrepreneurial actors from various contexts, and to ensure peer support and collaborative development. We have illustrated these efforts through this case study. The willingness and openness to support each other and to form a connected community may be enhanced by an intermediary such as an accelerator. However, a connected and collaborative community emerges through collective actions by entrepreneurs and stakeholders.

REFERENCES

Acs, Z. J., Stam, E., Audretsch, D. B., & O'Connor, A. (2017). The lineages of the entrepreneurial ecosystem approach. *Small Business Economics*, **49**(1), 1–10.

Anderson, A. R., & Jack, S. L. (2015). An introduction to the constant comparative technique. In H. Neergaard & C. M. Leitch (Eds), *Handbook of Qualitative Research Techniques and Analysis in Entrepreneurship*. Edward Elgar Publishing, pp. 15–20.

Anderson, A., Park, J., & Jack, S. (2007). Entrepreneurial social capital: Conceptualizing social capital in new high-tech firms. *International Small Business Journal*, **25**(3), 245–272.

Auerswald, P. E., & Dani, L. (2017). The adaptive life cycle of entrepreneurial ecosystems: The biotechnology cluster. *Small Business Economics*, **49**(1), 97–117.

Autio, E., Kenney, M., Mustar, P., Siegel, D., & Wright, M. (2014a). Entrepreneurial innovation: The importance of context. *Research Policy*, **43**(7), 1097–1108.

Autio, E., Nambisan, S., Thomas, L. D., & Wright, M. (2018). Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems. *Strategic Entrepreneurship Journal*, **12**(1), 72–95.

Autio, E., Rannikko, H., Handelberg, J., & Kiuru, P. (2014b). Analyses on the Finnish high-growth entrepreneurship ecosystem. *Aalto University publication series*.

Baker, T., & Welter, F. (2020). *Contextualizing Entrepreneurship Theory*. Routledge.

Banc, C., & Messeghem, K. (2020). Discovering the entrepreneurial micro-ecosystem: The case of a corporate accelerator. *Thunderbird International Business Review*, **62**(5), 593–605.

BBC News. (2016, October 27). Why do Finnish pupils succeed with less homework? http://www.bbc.com/news/education-37716005 (accessed 13 September 2019).

Belitski, M., Caiazza, R., & Lehmann, E. E. (2021). Knowledge frontiers and boundaries in entrepreneurship research. *Small Business Economics*, **56**(2), 521–531.

Brown, R., & Mason, C. (2017). Looking inside the spiky bits: A critical review and conceptualisation of entrepreneurial ecosystems. *Small Business Economics*, **49**(1), 11–30.

Business Insider. (2011, December 14). 26 amazing facts about Finland's unorthodox education system. http://www.businessinsider.com/finland-education-school-2011-12?r=US&IR=T&IR=T (accessed 13 September 2019).

Cavallo, A., Ghezzi, A., & Balocco, R. (2019). Entrepreneurial ecosystem research: Present debates and future directions. *International Entrepreneurship and Management Journal*, **15**(4), 1291–1321.

Chlosta, S. (2016). Methodological approaches towards context-sensitive entrepreneurship research. In F. Welter & W. B. Gartner (Eds), *A Research Agenda for Entrepreneurship and Context*. Edward Elgar Publishing, pp. 109–119.

Cohen, S. L., Bingham, C. B., & Hallen, B. L. (2019). The role of accelerator designs in mitigating bounded rationality in new ventures. *Administrative Science Quarterly*, **64**(4), 810–854.

Dubois, A., & Gadde, L. (2002). Systematic combining: An abductive approach to case research. *Journal of Business Research*, **55**(7), 553–560.

Dyer Jr, W. G., & Wilkins, A. L. (1991). Better stories, not better constructs, to generate better theory: A rejoinder to Eisenhardt. *Academy of Management Review*, **16**(3), 613–619.

Finnish Venture Capital Association. (2019). www.paaomasijoittajat.fi/en

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, **12**(2), 219–245.

Gibbert, M., & Ruigrok, W. (2010). The 'what' and 'how' of case study rigor: Three strategies based on published work. *Organizational Research Methods*, **13**(4), 710–737.

Goswami, K., Mitchell, J. R., & Bhagavatula, S. (2018). Accelerator expertise: Understanding the intermediary role of accelerators in the development of the Bangalore entrepreneurial ecosystem. *Strategic Entrepreneurship Journal*, **12**(1), 117–150.

Gummesson, E. (2007). Case study research and network theory: Birds of a feather. *Qualitative Research in Organizations and Management: An International Journal*, **2**(3), 226–248.

Hakala, H., O'Shea, G., Farny, S., & Luoto, S. (2020). Re-storying the business, innovation and entrepreneurial ecosystem concepts: The model-narrative review method. *International Journal of Management Reviews*, **22**(1), 10–32.

Harris, J. L. (2021). Bridging the gap between 'Fin' and 'Tech': The role of accelerator networks in emerging FinTech entrepreneurial ecosystems. *Geoforum*, **122**, 174–182.

Hathaway, I. (2016). What startup accelerators really do. *Harvard Business Review*, **7**(1), n.p.

Hernández-Chea, R., Mahdad, M., Minh, T. T., & Hjortsø, C. N. (2021). Moving beyond intermediation: How intermediary organizations shape collaboration dynamics in entrepreneurial ecosystems. *Technovation*, **108**, 102332.

Independent. (2015, March 20). Finland schools: Subjects scrapped and replaced with 'topics' as country reforms its education system. http://www.independent.co.uk/news/world/europe/finland-schools-subjects-are-out-and-topics-are-in-as-country-reforms-its-education-system-10123911.html (accessed 13 September 2019).

Isenberg, D. (2011). The entrepreneurship ecosystem strategy as a new paradigm for economic policy: Principles for cultivating entrepreneurship. Presentation at the Institute of International and European Affairs, 12 May, Dublin.

Isenberg, D. J. (2016). Applying the ecosystem metaphor to entrepreneurship: Uses and abuses. *The Antitrust Bulletin*, **61**(4), 564–573.

Jack, S. L., & Anderson, A. R. (2002). The effects of embeddedness on the entrepreneurial process. *Journal of Business Venturing*, **17**(5), 467–487.

Jack, S. L., Anderson, A. R., Drakopoulou Dodd, S., & Moult, S. (2015). Using the constant comparative technique to consider network change and evolution. In H. Neergaard & C. M. Leitch (Eds), *Handbook of Qualitative Research Techniques and Analysis in Entrepreneurship*. Edward Elgar Publishing, pp. 21–51.

Johannisson, B. (2011). Towards a practice theory of entrepreneuring. *Small Business Economics*, **36**(2), 135–150.

Keane, C., & Costin, Y. (2019). Collaboration in an entrepreneurial cluster: A study of an urban coop. *Journal of Enterprising Communities: People and Places in the Global Economy*, **13**(5), 605–624.

Korsgaard, S., Hunt, R. A., Townsend, D. M., & Ingstrup, M. B. (2020). COVID-19 and the importance of space in entrepreneurship research and policy. *International Small Business Journal*, **38**(8), 697–710.

Lahtinen, H., Pekkala, H., Halme, K., Salminen, V., Härmälä Valtteri, Wiikeri, J., … Rouvinen, P. (2016). *Startup-yritysten kasvun ajurit ja pullonkaulat* (accessed 30 March 2019).

Lehmann, E. E., Schenkenhofer, J., & Wirsching, K. (2019). Hidden champions and unicorns: A question of the context of human capital investment. *Small Business Economics*, **52**(2), 359–374.

Letaifa, S. B., & Rabeau, Y. (2013). Too close to collaborate? How geographic proximity could impede entrepreneurship and innovation. *Journal of Business Research*, **66**(10), 2071–2078.

Mason, C., & Brown, R. (2014). Entrepreneurial ecosystems and growth oriented entrepreneurship. *Final report to OECD, Paris*, **30**(1), 77–102.

McKeever, E., Jack, S., & Anderson, A. (2015). Embedded entrepreneurship in the creative re-construction of place. *Journal of Business Venturing*, **30**(1), 50–65.

Miller, D. J., & Acs, Z. J. (2017). The campus as entrepreneurial ecosystem: The University of Chicago. *Small Business Economics*, **49**(1), 75–95.

Nordling, N. (2019). Public policy's role and capability in fostering the emergence and evolution of entrepreneurial ecosystems: A case of ecosystem-based policy in Finland. *Local Economy*, **34**(8), 807–824.

Pahnke, A., & Welter, F. (2019). The German Mittelstand: Antithesis to Silicon Valley entrepreneurship? *Small Business Economics*, **52**(2), 345–358.

Paschke, M., & Müller, A. (2020). Contextualization of entrepreneurship research: Methodologies of the trend (No. 05/20). Working Paper.

Pikkarainen, M., Ervasti, M., Hurmelinna-Laukkanen, P., & Nätti, S. (2017). Orchestration roles to facilitate networked innovation in a healthcare ecosystem. *Technology Innovation Management Review*, **7**(9), 30–43.

PISA. (2015). *PISA: Results in Focus*. Paris: Organisation for Economic Co-Operation and Development.

Ragin, C. C. (1992). 'Casing' and the process of social inquiry. In C. C. Ragin & H. S. Becker (Eds), *What is a Case*. Cambridge University Press, pp. 217–226.

Roundy, P. T., Brockman, B. K., & Bradshaw, M. (2017). The resilience of entrepreneurial ecosystems. *Journal of Business Venturing Insights*, **8**, 99–104.

Schleicher, A. (2015). Schools for 21st-century learners: Strong leaders, confident teachers, innovative approaches. International Summit on the Teaching Profession, OECD.

Schwab, K. (2016). *The Global Competitiveness Report 2016–2017*. http://www3 .weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitiveness Report2016-2017_FINAL.pdf (accessed 18 August 2018).

Shaw, E. (1999). Networks and their relevance to the entrepreneurial/marketing interface: A review of the evidence. *Journal of Research in Marketing and Entrepreneurship*, **1**(1), 24–40.

Shaw, E., Wilson, J., & Pret, T. (2017). The process of embedding a small firm in its industrial context. *International Small Business Journal*, **35**(3), 219–243.

Shwetzer, C., Maritz, A., & Nguyen, Q. (2019). Entrepreneurial ecosystems: A holistic and dynamic approach. *Journal of Industry-University Collaboration*, **1**(2), 79–95.

Sipola, S. (2015). Understanding growth and non-growth in entrepreneurial economies: Analysis of startup industries and experimental winner generation in Finland, Israel and Silicon Valley. Acta Universitatis Oulensis G Oeconomica, 73.

Sipola, S., Puhakka, V., & Mainela, T. (2016). A start-up ecosystem as a structure and context for high growth. In T. M. Devinney, G. Marman, T. Pedersen, & L. Tihanyi (Eds), *Global Entrepreneurship: Past, Present & Future*. Emerald, pp. 179–202.

Spigel, B. (2017). The relational organization of entrepreneurial ecosystems. *Entrepreneurship Theory and Practice*, **41**(1), 49–72.

Spigel, B. (2018). *Envisioning a New Research Agenda for Entrepreneurial Ecosystems: Top-down and Bottom-up Approaches. Reflections and Extensions on Key Papers of the First Twenty-five Years of Advances*. Emerald.

Stam, E. (2015). Entrepreneurial ecosystems and regional policy: A sympathetic critique. *European Planning Studies*, **23**(9), 1759–1769.

Startup Genome. (2018). https://startupgenome.com/reports (accessed 25 April 2019).

The Guardian. (2015a, March 31). Q: What makes Finnish teachers so special? A: It's not brains. https://www.theguardian.com/education/2015/mar/31/finnish-teachers-special-train-teach

The Guardian. (2015b, June 17). Highly trained, respected and free: Why Finland's teachers are different. https://www.theguardian.com/education/2015/jun/17/highly-trained-respected-and-free-why-finlands-teachers-are-different (accessed 13 September 2019).

The Hechinger Report. (2016, February 18). How Finland broke every rule – and created a top school system. http://hechingerreport.org/how-finland-broke-every-rule-and-created-a-top-school-system/ (accessed 13 September 2019).

The Huffington Post. (2016, April 8). Three lessons from Finland's education system. http://www.huffingtonpost.com/zandre-campos/three-lessons-from-finlan_b_11332254.html (accessed 13 September 2019).

Timmermans, S., & Tavory, I. (2012). Theory construction in qualitative research: From grounded theory to abductive analysis. *Sociological Theory*, **30**(3), 167–186.

Turkina, E., & Van Assche, A. (2018). Global connectedness and local innovation in industrial clusters. *Journal of International Business Studies*, **49**(6), 706–728.

Wallin, A., Still, K., & Henttonen, K. (2016). Entrepreneurial growth ambitions: The case of finnish technology startups. *Technology Innovation Management Review*, **6**(10), 5–16.

Wang, L., & Tan, J. (2019). Social structure of regional entrepreneurship: The impacts of collective action of incumbents on de novo entrants. *Entrepreneurship Theory and Practice*, **43**(5), 855–879.

Welter, F. (2011). Contextualizing entrepreneurship: Conceptual challenges and ways forward. *Entrepreneurship Theory and Practice*, **35**(1), 165–184.

Welter, F., & Baker, T. (2020). Moving contexts onto new roads: Clues from other disciplines. *Entrepreneurship Theory and Practice*, 1042258720930996.

Welter, F., Baker, T., & Wirsching, K. (2019). Three waves and counting: The rising tide of contextualization in entrepreneurship research. *Small Business Economics*, **52**(2), 319–330.

Welter, F., Gartner, W. B., & Wright, M. (2016). The context of contextualizing contexts. In F. Welter and W. B. Gartner (Eds), *A Research Agenda for Entrepreneurship and Context.* Edward Elgar Publishing, pp. 1–15.

Whetten, D. A. (1989). What constitutes a theoretical contribution? *Academy of Management Review*, **14**(4), 490–495.

World Economic Forum (2017). *The Role of Technology in the Education of the Future.* https://www.weforum.org/agenda/2017/05/science-of-learning/ (accessed 18 August 2018).

Xu, Z., & Dobson, S. (2019). Challenges of building entrepreneurial ecosystems in peripheral places. *Journal of Entrepreneurship and Public Policy*, **8**(3), 408–430.

Zahra, S. A. (2007). Contextualizing theory building in entrepreneurship research. *Journal of Business Venturing*, **22**(3), 443–452.

Zahra, S. A., & Nambisan, S. (2012). Entrepreneurship and strategic thinking in business ecosystems. *Business Horizons*, **55**(3), 219–229.

Zahra, S. A., & Wright, M. (2011). Entrepreneurship's next act. *Academy of Management Perspectives*, **25**(4), 67–83.