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Capturing Knowledge Co-Creation with the Practice Ecosystem Framework in Business and Academia Collaboration

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This paper demonstrates how the evolutionary knowledge co-creation processes captured with the practice ecosystem framework in business and academia collaboration. Data are collected from 91 organizations in Finland during the period of 2007–2016. The scope of this research is limited to the educational field and to one Applied University of Sciences (UAS) master's degree programme in Finland. The implications are mainly empirical but they contribute also to the knowledge co-creation theory by demonstrating the value and usability of the theoretical framework. The novelty of the research paper lies in the application for the first time of this theoretical framework in an authentic ecosystem.

Keywords: knowledge management, knowledge co-creation, practice ecosystem framework, business and academia collaboration

Introduction and Main Concepts

In the knowledge and creative economy, understanding and enabling the knowledge co-creation processes as human activities is pivotal. However, these processes and practices are very complex and in a constant flux. Evolutionary human practices occur in physical, virtual, cognitive, and emotional places and spaces. In addition, the goals, objectives, rules, policies, and actors of the knowledge creation processes are evolving in time. Regardless of this high complexity, understanding the knowledge co-creation practices is important for advancing current existing knowledge. The theoretical practice ecosystem framework of knowledge co-creation (Jakubik, 2018) could provide help in capturing these practices.

The paper focuses on the business and academia collaboration ecosystem as a context where master's thesis projects are conducted. In this ecosystem, during the thesis project practices, students capture organizations' knowledge and, simultaneously, students' knowledge is captured by organizations. Figure 1 presents the focus of the paper. This figure utilizes the Johari window model (Suderman and Foster, 2015, 23) that helps to understand relationships between a person (i.e., students) and others

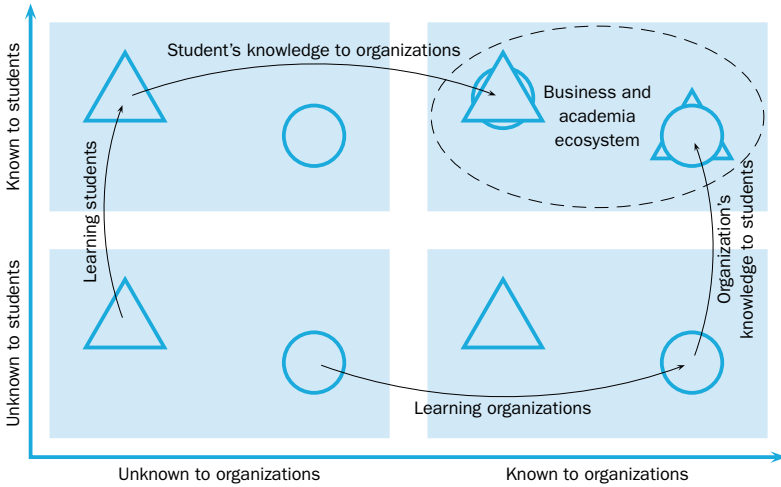


Figure 1 Focus of the Paper (triangles – students, circles – organizations)

(i.e., organizations). Psychologists Joseph Luft and Harrington Ingman created this model in 1955. It represents four areas as unknown unknowns, known unknowns, unknown knowns, and known knowns. In the business and academia ecosystem (i.e., known knows) during the thesis project as a work development project, the knowledge acquired by students in universities is transferred to organizations while, on the other hand, knowledge gained by organizations in business is transferred to students. The aim of this paper is to capture these knowledge co-creation processes in this specific context.

This paper builds on two earlier journal papers (Jakubik, 2017, 2018), as well as on an additional empirical research of the author. Data used in this paper are related to the master’s thesis process and to the students’ professional growth during the thesis project. Feedback were collected from 91 organizations in Finland during the period of 2007–2016. These secondary data will be used to demonstrate how the theoretical practice ecosystem of knowledge co-creation framework helps to capture and analyze knowledge dynamics in a business and academia ecosystem.

Next, in order to clarify some relevant concepts, the following questions will be briefly addressed: What is knowledge? What does ‘capturing knowledge’ mean? Why to capture knowledge? What knowledge can be captured? How could the knowledge co-creation processes be captured? How to capture something that is in a constant change?

What is Knowledge?

The question ‘What is knowledge?’ is an eternal question for humans. The purpose here is not to provide a historical, philosophical journey of how peo-

ple defined and what they thought about knowledge. Rather the aim is to focus on knowledge from the business and academia perspectives. In business, knowledge is primarily considered as an important asset, as an intangible resource that could be utilized to create value from it. In academia, the focus is on knowledge development of students, on knowledge sharing and co-creation processes. This might be a simplification but one could say that while in academia the focus is exploration, in business the focus is on exploitation of knowledge.

Taking the critical and postmodern perspectives to knowledge management, Styhre (2003a) writes that 'defining knowledge is the most difficult task' (p. 57) and the concept of knowledge is 'deeply imbued with ontological and epistemological qualities' (p. 50). Concurring with Styhre, the author of this paper thinks that 'knowledge *per se* is never an issue or source of interest, it is the *knowing* in terms of competitive advantage that makes the difference' and that 'knowledge can never be fully captured by checklists and normative models' (p. 64). Therefore, in this paper the focus is not on capturing the content but the process, i.e., actions of knowledge involvement. The main objective is to demonstrate how knowing evolves in a specific context of a business and academia ecosystem.

Instead of trying to define knowledge, it is better to focus on its characteristics. McDermott (1999) argues that knowledge is different from information in six ways: (1) knowledge is a human act, (2) knowledge is a residue of thinking, (3) knowledge is created in the present moment, (4) knowledge belongs to communities, (5) knowledge circulates through communities in many ways, and (6) new knowledge is created at the boundaries of old knowledge (p. 105). Seeing the characteristics of knowledge and knowing this way shows the unity of the content, process and the context of knowledge co-creation.

What Does 'Capturing Knowledge' Mean?

The word capturing in social context means understanding, sense making, storing, recording, documenting, archiving, generalizing, combining, categorizing, analyzing, sharing, diffusing, making explicit the tacit knowledge, and embodying the knowledge. Briefly, capturing is related to activities and human practices connected to knowledge creation.

Why to Capture Knowledge?

Knowing what we know and not re-inventing the wheel could make our practices more efficient. Building on existing knowledge, combining existing knowledge might lead to new perspectives and innovation. Capturing knowledge, depending on the purpose, could be a positive or a negative process. It could be done with the objective to gain knowledge and to use it for achieving good or bad purposes. Knowledge could be captured by force

or willingly. In this paper, the purpose of capturing knowledge co-creation actions is to demonstrate its evolutionary character.

What Knowledge Can Be Captured?

Von Krogh, Ichijo, and Nonaka (2000, 261) present a model that emphasizes capturing and locating knowledge as an activity that focuses on existing knowledge and on the content instead of the process. Concurring with them, the author of this paper believes that only existing knowledge can be captured. However, it is equally important to capture or to understand the context and the process of knowledge co-creation. Enabling the process, understanding how knowledge and knowing evolve in a specific social context, such as business and academia collaboration, or in a physical, virtual, or in a mental space is the key for creativity and innovation. The content, context (time, place, space) and the process are inseparable from each other.

How Could the Knowledge Co-Creation Processes Be Captured?

Styhre (2003b, p. 32) argues that 'knowledge is always indeterminate and fluid' and 'this processual and fluid view of knowledge represents an epistemological break with reductionist views of knowledge.' Knowledge has an emergent character, 'knowledge is neither solely a practice, nor concepts, but what emerges in-between the seeing and the saying, the operation and its conceptual framework' (p. 33). Not surprisingly, Nonaka, Toyama, and Hirata (2008) titled their book *Managing Flow: A Process Theory of the Knowledge-Based Firm*. This shows that they started to move away from the functionalist view of knowledge towards a more subjective, process-relational, aesthetic, and a practice-based view of knowledge (pp. 6-17). Indeed, this shift in paradigm is inevitable. Jakubik (2011, p. 391) emphasizes the processual and practice-based view of knowledge in her 'becoming to know' model, which could be called as 'becoming epistemology.' This model is built on three concepts: learning, knowing and becoming, and it 'highlights the social, human, interactive, evolutionary, and dynamic nature of knowledge creation' (p. 393).

The author of this paper assumes that knowledge (or rather knowing) is similar to a river: it is emergent and fluid. Knowing is evolving through the whole life of human beings.

How to Capture Something That Is in a Constant Change?

In the knowledge management literature, authors talk about knowledge management episodes (i.e., KMEs). Holsapple and Joshi (2004, pp. 89–124) argue that 'examples of KMEs include making a decision, solving a problem, conducting an experiment, designing a product or process, brainstorming, evaluating a proposal, performing a scenario analysis, collaborat-

ing on a project, engaging in a workflow' and so on (p. 91). From this, it could be concluded that KMEs are practices.

Similarly, others (e.g., Heisig, 2009; Dalkir, 2011) tried to identify the activities in the process of knowledge creation. Heisig (2009) compared 160 KM frameworks around the world to discover their similarities and differences. The findings of Heisig related to KM practices in 117 out of 160 frameworks (pp. 22–26) are relevant to this paper. Heisig (2009, pp. 13–14) concludes that 'the result of the analysis shows that there are five most frequently mentioned broad categories of KM activities: share, create, apply, store and identify knowledge . . . KM practitioners, "apply knowledge" was related as "essential" and "very important" by a total of 96 per cent respondents. "Distribute knowledge" received 91 per cent, in third place "create knowledge" with 84 per cent, followed by "store knowledge" with 78 per cent and "identify knowledge" with 65 per cent.' It was surprising that 'capturing knowledge' was mentioned only in nine frameworks out of 117.

When Dalkir (2011, pp. 31–58) discusses the topic of KM cycle (p. 53, Table 2.1), he compares five KM cycle approaches from Meyer and Zack (1996), Bukowitz and Williams (2000), Rollet (2003) McElroy (2003), and Wiig (1993). After a detailed presentation of these different approaches, Dalkir concludes that 'an integrated KM cycle can be distilled . . . The integrated cycle subsumes most of the steps involved in the KM cycles' (Dalkir, 2011, p. 53). In the integrated KM cycle, Dalkir proposes three major steps, as follows: (1) Knowledge capture and/or creation, (2) Knowledge sharing and dissemination, and (3) Knowledge acquisition and application (p. 53). This conclusion is relevant to this paper because it considers capturing as the first and most important practice in knowledge co-creation.

This paper is organized in six main sections excluding appendix and references. The introduction highlighted the need for this research and briefly discussed the main concepts. In the next sections, the business and academia ecosystem, the data collection, and the theoretical framework are presented. Finally, the framework is applied in an authentic context, followed by the discussion of the findings and their implications.

Business and Academia Ecosystem

This paper focuses on business and academia collaboration during the master's thesis project. In this ecosystem (Figure 1), there are three main participants and other stakeholders. The main participants are (1) the students of the Master's Degree Programme in International Business Management, (2) the business managers of the organizations where the thesis project takes place and (3) the thesis advisors from the Applied University of Sciences (UAS). Other stakeholders include local or international customers, consumers, communities, and partners of the business organizations.

According to the Students' Guide (<http://www.haaga-helia.fi/en/opinto-opas/opintojaksokuvaukset/mgt7lg502?userLang=en>), the goal of the master's thesis is to develop and demonstrate the ability to apply the selected research strategies and methods in the identification and solution of an authentic, work related, international business management problem. Furthermore, the objectives of the thesis are to develop international business management skills, competences, and qualities of students that would make them competitive in the global job market. The Master's Thesis is directly linked to one large or many small, interrelated, international business or product development project/s.

The master's thesis is a work development project. Its process has four phases such as planning, implementing, assessing, and developing (Jakubik, 2017). From this paper's point of view, it is important to explain the practices in each phase because the theoretical framework applied in this paper will capture practices:

1. In the *planning* phase, the students discuss the development needs of their organization with a manager; they present their thesis idea in a workshop; and they write and submit their R&D plan for approval by the head of the master programme. After approval of the plan, the thesis advisor from the UAS is assigned.
2. In the *implementation* phase the students, managers, thesis advisors work together, they meet several times, give and receive feedback. The students do their research, search and study the relevant theories, read books and articles. They design and conduct interviews, surveys, analyze the collected quantitative and qualitative data, write the thesis report, present their work development recommendations at the organization and at the university, they implement their suggestions, collect feedback, make improvements, and submit the final version of their thesis for plagiarism check, and for assessment.
3. When the plagiarism check shows no copy-pasting results, the *assessment* phase starts. The participants in this phase include the UAS thesis advisor, an outside educator from the university, and the manager from the organization. They together assess the thesis on a scale of 1 to 5 based on the following criteria: topic and objectives, conceptual framework based on the literature review, research method, outcomes, reporting, and management of the thesis project. Managers assess the student's learning and professional growth during the thesis project. They also indicate how the organization has benefitted from the thesis, what was developed, what was implemented in practice, and what the immediate and long-term impacts and value are for the organization.

4. The last phase in the thesis process is the *development* phase, when the thesis process itself and any businesses involved are developed by implementing and utilizing the suggested business problem solutions.

In brief, this section presented the business and academia ecosystem (cf. Figure 1) participants, objectives of the work development project, the thesis process four phases and the participants' practices in each phase. Next, the data collection, feedback from managers will be described.

Data Collection

This paper uses secondary data collected from 91 managers as feedback on the students' professional growth, development of students' skills, knowledge, and competences during the master thesis project in the business and academia ecosystem. The managers provided 251 different feedback. Feedback were collected during the period of 2007–2016 and they were considered in the assessment phase.

The managers' occupations were for example CEO, CFO, Director of Learning & Development, Global HR Line Manager, Head of Product Development, Information Manager, Managing Director, Process Development Leader, Program Manager, Sales and Customer Service Manager, Sales Manager Finland, Senior Account Manager, Senior Executive, Senior Manager People Advisory Services, Technical Director. Among others, the following organizations provided feedback. Accenture, Basware Oyj, Danone Finland Oy, Danske Bank Oyj, Ericsson Finland, Ernst & Young Oy, Fazer Food Services, Hartwall, Hewlet-Packard Oy, InterCall Sweden Ab, KONE Corporation, Nokia Oyj, Reaktor, Trawise Oy, and so on.

It is important to note that the data are secondary data, as they were not collected with the purpose of this paper. However, they are valuable when capturing the knowledge co-creation practices. These data will be handled with confidentiality, none of the managers, organizations, or students could be identified from this paper. Next, the theoretical model and its components will be presented.

The Theoretical Framework

As mentioned earlier, the knowledge co-creation practices are very complex and constantly evolving processes. The theoretical framework, i.e., the practice ecosystem of knowledge co-creation (Jakubik, 2018), could be applied in emerging forms (e.g., lean, agile, virtual, and networked) of organizations (Chia, 2003; Faraj, von Krogh, Monteiro, & Lakhani, 2016; Handy, 2007; Heckscher & Adler, 2006; Senge, 1990; Senge, Scharmer, Jaworski, & Flowers, 2005; Wenger, 2005, 2000; Wenger & Snyder, 2000; West &

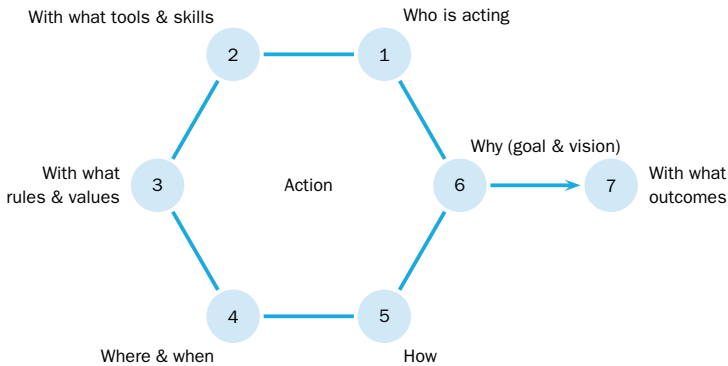


Figure 2 Basic Building Block of the Practice Ecosystem of Knowledge Co-Creation Framework

Wood, 2013). With the help of this framework, knowledge co-creation could be captured in flux environments such as business and academia collaboration ecosystem (Figure 1).

The practice ecosystem of knowledge co-creation framework is based on four theories: (1) the human activity theory (Engeström, 2005, 1994, 1990), (2) the theory of practice (Korkman, 2006; Tsoukas, 2003), (3) the organizational knowledge creation theory, including the process model of the knowledge-based firm (Nonaka, Toyama, & Hirata, 2008), and (4) the ecosystem theory (Tukiainen, Lindell, & Burström, 2014).

Figure 2 presents the basic building block of the framework with its seven components. Similar to a complex tissue that is a composition of cells, this framework is a composition of these basic building blocks. Another example of this framework could be building a complex statue from standard LEGO blocks. The evolutionary character of the framework comes from the repetitions of this basic building block in place, space and time. The author of this paper argues that complex phenomena, like evolutionary human processes of knowledge co-creation, could be captured and better understood by systematically applying the building block of this framework. Next, it will be demonstrated how knowledge co-creation captured with this framework in business and academia collaboration during the thesis writing process.

Application of the Framework and Management Feedback

In this paper, the aim is to demonstrate how co-creation of knowledge in a business and academia ecosystem (Figure 1) is captured with the theoretical framework (Figure 2) presented in the previous section. Capturing knowledge co-creation practices has the following steps:

1. Selecting and presenting the context (business and academia ecosys-

- tem as collaboration of business organizations in Finland and one master's degree programme of one UAS in Finland).
2. Selecting and describing the process (master's thesis writing as a work development project).
 3. Identifying phases (planning, implementing, assessing, and developing) in the process and naming the knowledge co-creation practices in each phase.
 4. Deciding on the time (period of 2007–2016) of the data collection.
 5. Selecting and introducing the participants (master students, UAS thesis advisors, managers, ecosystem stakeholders).
 6. Getting familiar with the theoretical framework.
 7. Applying the framework to a selected phase and practices to demonstrate its viability as a tool for capturing complex and evolutionary practices.

The first six steps were presented in previous sections of this paper. The aim here is not to apply the framework for the whole process and for all the practices but rather to demonstrate how it can be applied in practice. The implementation and assessment phases of the R&D project where businesses and students capture each other's knowledge are important too. However, these phases are the most complex to show when applying the framework.

For the purpose of the paper, the author of this paper believes that it is adequate to show how the framework can be applied in the planning phase of the thesis process. Therefore, the framework will be applied only to the planning phase of the thesis writing process that has several practices/actions such as:

1. Exploring the development needs of the organization
2. Presenting the thesis idea
3. Writing the R&D plan
4. Submitting the plan
5. Approving the plan
6. Assigning the thesis tutor
7. Presenting the plan

By applying the basic building block of the framework (Figure 2) and its seven components, it is demonstrated in Table 1 how the knowledge co-creation actions are captured with the framework. It is important to note that the outcomes of one action lead to the next action. It means that the process of knowledge co-creation is evolving in time, places and spaces.

Next, examples from the managers' feedback will show the knowledge co-creation in business and academia collaboration (Figure 1). In addition, there will be few illustrations of the managers' feedback on the thesis process.

There were 251 different feedback collected from 91 managers through the period of 2007–2016. Managers were asked to answer several questions when the thesis project was accomplished. Feedback related to the knowledge co-creation during the project are relevant to this paper. They were qualitatively analysed. First, four answers were ignored as they were irrelevant. For example when the manager wrote that he/she is not able to evaluate and give feedback. Then, the relevant feedback was read, keywords were identified, and grouped according to the four phases of the thesis project. Next, a brief summary was provided of such feedback according to planning, implementing, assessing, and developing phases of the thesis process, as it proved how knowledge was co-created in the business and academia ecosystem (Figure 1).

Planning Phase

Below are few managerial comments about exploring the development needs of the organization, learning about the company, proposing ideas for development, learning how to scope the project, how to collect and make sense of information.

The student understood the situation fast. She understands our business. He was able to understand the whole picture about the development needs of the organization. She has learned quickly about our company and its business environment. He has gained deeper understanding of our company and its people. He learned to understand very quickly the structure of the organization and its challenges with communication. The field of communication was new for the student. The student understood fast the business processes and the strategy. She gathered a lot of information about the company.

She has been open to new ideas. She has come up with new ideas. The student proposed a topic. He presented new ideas for business development. She was able to develop new ideas. She has gained new insights. She was able to find a new angle to our problem. He understands the root causes of why the process has not been successful. She knows our current processes and she is able to provide suggestions on how to improve them. She has developed new ideas.

She finds lots of new information. She has gathered lots of information about the company. She has learned to prioritize. She was able

Table 1 Capturing Knowledge Co-Creation Actions in the Planning Phase

Actions	Steps (see Figure 2 for explanation)
1 Exploring the development needs of the organization	1 The student
	2 Experiencing, observing, communicating
	3 Following the organization’s rules and values
	4 In the organization, when the thesis process starts
	5 Organizing a meeting, asking managers
	6 Finding a topic for the thesis
	7 Having the thesis topic as work development project
2 Presenting the thesis idea	1 The student, teacher, peers
	2 Writing and presenting
	3 Following the university rules, guidelines, and values
	4 In the thesis workshop when master studies starts
	5 Preparing slides, sharing them in the virtual learning platform, and presenting the idea to others
	6 Receiving feedback from teachers and peers
	7 Clarified thesis idea
3 Writing the R&D plan	1 The student
	2 Writing, thinking, computer skills
	3 Following the thesis guidelines and ethical values of the university
	4 During the Applied Research and Development course of the university, in the beginning of the studies (first semester)
	5 Logically, editing the text
	6 To have a good, feasible R&D plan
	7 Plan is ready for submission
4 Submitting the plan	1 The student
	2 Computer,virtual platform
	3 Following the submission instructions and criteria
	4 Applied Res. and Development course, following the required due day
	5 Using the university’s virtual learning platform
	6 To pass the Applied R&D course and to have a plan for the thesis
	7 Plan is sent for approval

Continued on the next page

to limit the scope of the project. She was able to make the necessary adaptations in order to adjust the work development project into our specific case. The student was able to focus and scope the wide knowledge area. He had a clear focus. She did her work with good planning and background research. He was able to identify the research framework.

She has shared the plan in several internal meetings. The work helped the student to get inside company’s way of working.

Table 1 *Continued from the previous page*

Actions	Steps (see Figure 2 for explanation)
5 Approving the plan	<ol style="list-style-type: none"> 1 Teacher 2 Computer,virtual platform, experience 3 Based on R&D plan assessment criteria, being objective and constructive 4 By the end of the Applied Research and Development course 5 By providing written, constructive feedback to students 6 When the plan is approved thesis tutor can be assigned 7 Approved R&D plan
6 Assigning the thesis tutor	<ol style="list-style-type: none"> 1 Head of the master's programme, thesis tutors 2 E-mail, communication 3 Considering the competencies, willingness, and passion of the tutor 4 In the master's degree programme of the university 5 Informing the tutors about thesis tutoring opportunities and the topics of the approved thesis/R&D plans 6 Getting a tutor who is competence in tutoring master students 7 Having tutors assigned to the students working on their thesis
7 Presenting the plan	<ol style="list-style-type: none"> 1 Student, thesis tutor, manager 2 Oral presentation, communication skills 3 Limited duration of the presentation (20 min), discussion, questions, clarifications, openness 4 In the kick-off meeting at the organization 5 Oral F2F presentation or Skype presentation 6 Getting the manager committed and supportive to the project of the student, clarifying the university requirements of the master's thesis 7 A manager who is aware about the requirements of the thesis, who is committed to the student's project, and who supports the student

Implementing Phase

Most of the managerial feedback was related to this phase. This is understandable because it is the longest phase where students and managers capture each other's knowledge, where they collaborate the most. Below are few comments related to research knowledge, literature review, applying theory in practice, the student's attitude to the project, managing the project, receiving and utilizing feedback, and about learning during the development project.

She learned about conducting research during the project. She learned a lot about the investigation process. She developed competence in research methods. She organized and conducted a research and interviews. He developed the questionnaire based on feedback. She was able to conduct a survey, gather results and analyze them. She

was able to identify, analyze and structure information. He learned to handle statistical materials, draw conclusions, and compare them with earlier results. She has learned to analyze and understand the findings. She became familiar with the research material. She was able to identify the research framework. She has learned how to execute a customer survey and how to analyze the results. He learned about survey and data analysis.

The master student has been reviewing the literature and gained excellent new perspective. He learned a lot from the literature review. He independently studied the literature. He learned from books and articles. He learned to find the relevant literature. She is mastering the theoretical background. She read the literature about job satisfaction and change management. She used business literature and put them into practice in an excellent way.

The student applied theories and facts from the respondents. His determination came from mixing theory and practice. He has put a lot of effort to understand the business. She was able to use theory in the interview questions. He developed a concept. She studied the new concept and applied it. She has suggested development ideas for improving critical issues in our strategy. She has managed to comprehend both the technical and business sides. He developed the theoretical and practical ground for the community. She has been able to connect theory and practice well.

She had strong self-motivation during the project. She has been very motivated and enthusiastic about the project. She has shown a great interest in the project. She has been active, motivated and managed the challenges. She has shown commitment to the company. She has been passionate and motivated about the topic. She has been truly interested and engaged with the topic. She had strong commitment to the project. I am impressed with her tenacity, dedication and openness. She has been motivated, pro-active, and worked hard. She had a very mature approach, she has been a well-focused, reliable and committed person. He was the main driver and motivating factor of the community.

She had a natural capability to engage with people in all levels of the organization. He has developed presentations about critical development areas related to the strategy. She kept us updated on the process and the findings. He was able to present the project in a clear and an understandable way. She gave a professional presentation of the findings. She is able to convince business decision makers. The

student has taken a great ownership to drive the completion of this project. She has presented her findings in our management meeting. She had the ability to think the big picture, apply available theory and information and provide suitable, practical change management solutions for project management.

The student asks questions and takes feedback. She listened to the feedback. She has been willing to consider different point of views. She learned how to take criticism in a constructive way. He was attentive to feedback and suggestions. She was ready to adapt to changes. She has been persistent regardless of the numerous feedback. She accepted feedback.

The whole process was a valuable learning for both for her and the organization. Through her, I also learned theoretical background of the topic. The student learned about the topics from different perspectives. He learned about complexity of our business model, sales channels and distribution. He developed a holistic view of the market. She has been able to widen her knowledge about strategy, leadership competencies and people strategy.

She gained deeper understanding of the internal processes and the customers' needs. He learned about low budget marketing strategies and channels. She has increased her knowledge about customer experience. She learned about the pay-for-performance system. She has learned valuable knowledge about foreign investments. She learned about financial matters and that will support her career. She gained lots of new knowledge on knowledge management, operations and challenges of a globally operating enterprise. He developed his knowledge for developing job satisfaction. She deepened her knowledge about project and change management. The project enabled the student to have more in-depth discussions with our clients. She has learnt how to listen, how to make onboarding work in an international, multicultural company with virtual teams and local presence. The development project has been useful for his learning process.

Assessing Phase

Here are few comments about the students' professional development, working moral and practice, and about their skills and business knowledge enhancement during the thesis project.

She has become expert in the topic. She moved from a learner's level to level that is far more expert. She gained skills in evaluating the current process, investigating optional working methods, proving sug-

gestions. His way of working is very professional, which shows in the results of his research. He has become more determined and consistent with his decisions. She strengthened her performance as a consulting practitioner. The student showed the capability to move from IT-focused specialist towards the total requirement-understanding manager. She showed good growth and maturity. She has grown in knowledge and confidence. Her learning has contributed to her professional growth. His development and learning has been remarkable during the whole process. She became self-confident in protecting her views.

She has achieved to plan, evaluate and implement her insights. She wrote a professional research paper. I am impressed with her extensive research. He was able to draw conclusions based on his research. The student provided a good quality work. She worked independently. She worked hard. She does a good quality work. It was easy to work with her. She has been proactive and worked independently. She handled the project very well. In the final presentation, she was very familiar with the work, concepts, and findings.

She developed her writing and communication skills, conducting a survey, technical skills, using Webropol. She has learned a lot from these MBA studies. She was constantly learning. He has increased his knowledge in business. She seemed to be very experienced in digital marketing. She has developed deeper understanding of the factors influencing a positive and motivating working environment. She has gained new ideas, new theoretical knowledge in marketing communication work. His theoretical understanding of the topic increased along the project.

Developing Phase

The feedbacks below from managers were related to the students' professional growth, development of their skills, and specific business related knowledge.

She has gained more confidence and courage to lead a high profile management development program, design and implementation. She has grown in knowledge and confidence. She has matured into her role and become a very talented Account Manager and overall salesperson. She will be able to use her knowledge in her work. She has grown a lot during the project. The thesis work has benefitted her personal growth. She has developed during this thesis. The project enabled her to develop herself. It has been a real pleasure to see her grow and learn during this project.

His communication skills have developed considerably during the project. She has developed her research skills. She has improved her presentation and communication skills. He had skills of documenting the business model. I appreciated her ability to listen to others and to express herself.

She developed her understanding of customer relationship management. She was able to develop her project management skills. She has developed her skills of leading and following up the process. The student has built a deep understanding of the new service development and reverse logistics. He understands how not to lead a unit holistically across all elements that influence future performance. She has learned a lot about selling digital products and about the business model. The student learned about start-ups.

Summing up, in this part of the paper first, the theoretical practice ecosystem of knowledge co-creation framework (Figure 2) was applied to the planning phase and its seven actions of the thesis writing process (Table 1) to demonstrate how it could be applied for capturing knowledge co-creation. Then, the analysis of the managerial feedback on knowledge development during all four phases of the thesis project in the business and academia ecosystem (Figure 1) was illustrated by few quotations. Next, in the final part of the paper the conclusions and discussion of implications, limitations, theoretical contributions, and novelty of this research paper are presented.

Conclusions and Discussion

This paper presents how co-creation of knowledge is captured with the practice ecosystem framework in a business and academia ecosystem. This ecosystem (Figure 1) is a collaborative context where students and organizations capture each other knowledge and where knowledge is co-created during the thesis project actions. In addition, the knowledge co-creation is supported by 91 managers' feedback. This feedback as collected through the period of 2007–2016. The paper presents the theoretical model (Figure 2), and demonstrates the application of this model for the planning phase actions of the work development project (Table 1).

Next, the practical implications for businesses, students, and educators, limitations and future research directions, and the theoretical contribution and novelty of the paper are discussed.

Practical Implications

The paper suggests implications for both managers and educators. *First*, a managerial implication is an increased awareness of the contributions

of students' work to businesses. In Finland, at the Universities of Applied Sciences (UAS) it is required to do the master's thesis as a work development project. This practice, however, is not common at the Universities of Sciences (USC). *Second*, the collaboration of businesses and academia has benefits for all participants as a learning takes place. *Third*, infusing theoretical knowledge into business practices has several benefits: it helps businesses to make sense of their practices, it helps them to create new concepts and to come up with innovative solutions during the knowledge co-creation process. Combining practical and theoretical knowledge in solving business problems is an advantage too because it leads to addressing current challenges, as well as to future business opportunities. Collaboration could lead to competitive advantage in business.

On the other hand, the paper proposes implications for educators and students, as well. Educators (e.g., thesis supervisors) involved directly in the project learn from businesses, they learn about their current concerns and, through the students, they help business to address the challenges. The contribution of educators in this process is very valuable because they guide the students, suggest them relevant theories, sources, support and encourage them (in many cases emotionally as well) during the process. They also provide guidelines for the thesis report writing and ethical rules (e.g., how to handle confidentiality, business secrets, how to conduct empirical research professionally). Nevertheless, the students are those who mostly benefit from business and academia collaboration. They learn new theories, approaches during their studies and they directly apply them in a business context. They learn about business practices, strategies, values, and specific topics. Students develop their business knowledge and acquire useful skills. This way they increase their employability and career opportunities.

Limitations and Research Implications

The scope of this research paper is limited to the educational sector, to one UAS and to one master's degree programme in Finland. Therefore, this limitation could lead to several further research opportunities, such as examining other master programmes at the same UAS, or other UAS in Finland, as well as to researching other UAS in other countries. Furthermore, it would be an interesting future research area to study the master's thesis ecosystem of USC, to compare them and to find out the differences in their knowledge co-creation ecosystems in Finland and internationally. In addition, another future research could apply the theoretical framework not only in the educational context but also in another practice ecosystem. This way, the model could be proved as a useful tool for capturing and understanding the dynamics of knowledge co-creation practices in general.

Theoretical Contribution and Novelty

The paper demonstrates the viability of the practice ecosystem of knowledge co-creation theoretical framework in an authentic ecosystem. The paper contributes to the knowledge co-creation theory and to the practice view of knowledge. It demonstrates the dynamic, evolutionary character of knowledge co-creation. It provides an example of development of knowing in a real ecosystem. The novelty of the paper lies in the application of this theoretical model for the first time into practice.

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