Marja-Leena Pajusaari

Education export

The knowledge transfer perspective

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Author: Marja-Leena Pajusaari
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Supervisor: Minnie Kontkanen
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ABSTRACT:

Koulutusvienti mahdollistaa ammatillisia oppilaitoksia lisäämään kansainvälistä toimintaa ja saavuttamaan taloudellisia hyötyjä. Onnistuneet koulutusvientiprojektit edellyttävät tehokkaita tiedonsiirtoprosesseja ja -käytäntöjä. Ammatillisen koulutusviennin näkökulmasta aiheeseen liittyvä kirjallisuus on kuitenkin vielä vähäistä. Sen vuoksi tämän tutkimuksen tavoitteena oli selvittää, miten suomalaiset ammatilliset oppilaitokset ovat toteuttaneet koulutusvientiprojekteja tiedonsiirron näkökulmasta ja mitkä tekijät ovat vaikuttaneet tiedonsiirtoprosesseihin. Aihetta tutkittiin seuraavan tutkimuskysymyksen kautta: "*Miten suomalaiset ammatilliset oppilaitokset ovat toteuttaneet tiedon siirtämisen koulutusvientiprojekteissa ja mitkä tekijät ovat haitanneet ja edistäneet tiedonsiirtoa?*"

Tutkimuksen teoreettinen viitekehys perustuu koulutusvientikirjallisuuteen ja organisaatioiden väliseen tiedonsiirtokirjallisuuteen. Tutkimus on laadullinen tapaustutkimus, joka perustuu yksittäisen suomalaisen ammatillisen koulutusvientitiimin toiminnan tutkimiseen. Koulutusvientitiimin toimintaa tutkittiin kolmen eri maihin suunnattujen koulutusvientiprojektin osalta. Aineistonkeruumenetelmänä käytettiin puolistrukturoituja yksilöhaastatteluita. Haastateltavat koostuivat koulutusvientitiimin jäsenistä, johtajista, ulkopuolisesta asiantuntijasta sekä asiakasnäkökulmaa edustavasta agenttiyrityksestä.

Tutkimuksen löydökset korostavat, että suomalaisten ammatillisten koulutusvientiprojektien tiedonsiirtoon vaikuttavat siirrettävän tiedon luonteeseen ja tyyppiin, prosessin toimijoihin sekä tiedonsiirtomekanismeihin liittyvät tekijät. Nämä tekijät voivat olla esteitä, jotka hidastavat tiedonsiirtoa tai mahdollistajia, jotka edistävät tiedonsiirtoa. Löydökset esimerkiksi osoittavat, että tiedon siirtoa voidaan edistää tiiviillä yhteistyöllä, luottamuksen rakentamisella sekä oikean tiedonsiirto mekanismin valinnalla. Tiedonsiirtoa sitä vastoin hidastavat mm. vaikea terminologia, kulttuuriset eroavaisuudet, tulkin tarve sekä luottamuksen ja ajan puute.

Tutkimus myös osoittaa, että tiedonsiirron tehokkuutta ja projektien tuotoksen laatua tulisi mitata ja arvioida systemaattisemmin sekä tiedon siirtäjän että tiedon vastaanottajan osalta. Systemaattinen tiedonsiirron seuranta ja mittaaminen auttaa kehittämään koulutusvientiprojekteja ja mahdollistaa tehokkaamman tiedon siirron. Lisäksi tämä tutkimus osoittaa, että koulutusvientitiimin vientivalmius vaikuttaa tiedonsiirtoon erityisesti projektin alkuvaiheissa. Vientivalmiutta heikentää esimerkiksi prosessien, rutiinien ja kansainvälisen sopimusosaamisen puuttuminen. Lisäksi tämä tutkimus edistää myös koulutusvientitutkimusta tarjoamalla viitekehyksen koulutusvientiprojektin eri vaiheisiin liittyvistä tiedonsiirtoon vaikuttavista tekijöistä. Viitekehys mahdollistaa myös toteuttamaan tehokkaampia koulutusvientiprojekteja tiedonsiirron näkökulmasta.

KEYWORDS: education export, knowledge, knowledge transfer, vocational education, knowledge transfer barriers and drivers

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1 Introduction

This section introduces the topic and the research problem of this thesis. First, background, the scope and the research problem for the present study are provided. Then, the research objectives and delimitations of the thesis are stated. Finally, the key concepts of the thesis are defined, and the structure of the thesis is outlined.

1.1 Background

International mobility and cooperation are important themes in education. Education is increasingly becoming a business and governments are investing in branding and marketing activities of education in several countries. **Education export** is an international business that is conducted on a long-term basis (Finnish Committee for the Future, 2016). Education export is also an important and growing sector in Finland due to a global interest in Finnish educational expertise. Especially, Finnish primary education is highly valued internationally due to high PISA-scores. Education export is expected to provide many new business opportunities for Finnish educational institutions and companies (Finnish Ministry of Education and Culture, 2010). The Finnish government has included education export as a part of the strategic government program with the goals to increase the internationalization of education and research, and removal of the barriers to education export (Finnish National Agency for Education, 2019). Since 2016, the goal of the Finnish government has been to promote education export (Finnish National Agency for Education, 2019).

Educational institutions have realized the potential of education export to expand their activities and gain economic benefits. This is also understood in secondary education, and the export of education is already an integral part of the activities of several vocational colleges (Kuokkanen & Autere, 2019). The expansion and globalization of the education export market provide new opportunities for vocational education (Finnish National Agency for Education, 2019). As the international labor market needs trained

professionals in all sectors, vocational education export has attracted worldwide interest (Vallin, 2017). Moreover, vocational institutions can derive financial benefits from education export by producing trained and qualified experts for the international labor market (Finnish National Agency for Education, 2020). Finnish vocational education enjoys international prestige (Finnish National Agency for Education, 2019). This has spurred the export of Finnish vocational education in recent years, and many vocational colleges also cooperate with other vocational education providers (Kuokkanen & Autere, 2019).

According to a recent study commissioned by the Finnish Ministry of Education and Culture, about 70% of the vocational education providers have a strategic policy on education export (Education Finland, 2020). Vocational education export is developed by several institutions in Finland, and degrees are also developed to meet international needs. For example, the National Board of Education has launched a Vocational Education Export Experiment program to promote vocational education export (Kuokkanen & Autere, 2019).

Educational knowledge is transferred from one country to another country in education export projects. Successful education export projects require effective **knowledge transfer** processes and practices. Knowledge transfer is a complex process that involves several sub-processes (Milagres & Burchart, 2018). Effective knowledge transfer processes and practices require the ability to understand the principles of knowledge transfer (Szulanski, 1996). Knowledge transfer is the foundation of sustainable competitive advantage (Argote & Ingram, 2000) as well as a key component of innovation (Lockett et al., 2008). An understanding of the factors influencing knowledge transfer will improve the implementation of education export projects.

Several previous studies have presented the challenges of education export activities (Cai et al., 2012; Knight, 2013; Naidoo, 2010). Knight (2013) presents the effects of internationalization on higher education, in particular what disadvantages and benefits it caused for academic education. Naidoo (2010) states that education export has been a

new function for many universities, so they may lack the skills and routines to perform the functions required by an education export project. The related export readiness, defined as a function of marketing orientation, has been more thoroughly studied (Naidoo, 2010). Cai et al. (2012) analyze the readiness of Finnish higher education institutions for education export on the basis of Naidoo's conceptual model (2010). To enable education export, the government should provide a clear education export strategy that can be easily adopted by education providers (Schatz, 2016).

Education export has also been considered from other perspectives such as tuition fees, management and administration, education policy, quality, and customer experiences. There has been also much debate in the literature about the motives for exporting education. Especially, what are the motives of universities to internationalize and globalize (Altbach & Knight, 2007). In addition, quality is an important issue in education export. Sharp (2017) presents academic standards for quality and Juusola and Räihä (2020) present quality requirements from the customer's point of view.

Education export has also been studied from the perspective of educational export markets, which countries are exporters, and which are importers (Altbach & Knight, 2007; Marginson, 2006). In addition, countries that are considered potential target countries, such as China, have been the target of research. For example, the questions of how higher education providers can enter the Chinese market (Cai et al., 2013; Cao, 2017; Yang, 2014) and how the education export project to China has been carried out (Cao, 2017) have been addressed in the literature.

There are several models in the literature related to the utilization of knowledge transfer in education. Neville and Warren (1986) present classical knowledge transfer related theories in education such as the research, development and diffusion model, the social interaction model, the problem-solving model, and the linkage model. However, these theories focus more on the transfer of knowledge between individuals. The internationalization of education has also been studied from a policy borrowing perspective. Chung

(2017) analyzes how Finnish teacher education policy and university education can be transferred to another context based on policy borrowing theory developed by Phillips and Ochs (2004). Lönnqvist et al. (2018) bring out a new research perspective in which education export is studied from the intellectual capital perspective and what are the customer needs. They analyzed how intellectual capital transfer can be used as a concept to examine education export.

The implementations of the education export project are presently being analyzed to an increasing extent. For example, Juusola and Räihä (2018) and Aro et al. (2018) present the experiences of implementing the degree programs from one country to another country. Aro's et al. (2018) study is also one of the few studies that integrates education export and knowledge transfer. Examining the implementation of education export from the perspective of knowledge transfer requires familiarization with the factors influencing knowledge transfer. Interorganizational knowledge transfer is one aspect of knowledge transfer partnership research. However, it is not a single process that can be classified as a specific approach (Battistella et al., 2016).

Szulanski (1996) provided the basis for several subsequent studies. He analyzes how knowledge stickiness affects transfer of the best practices in an organization and presents a resulting process model. Milagres and Burchart (2018) identify various factors that influence knowledge transfer in interorganizational partnerships and how these factors interact with each other. Reagans and McEvily (2003) discussed the effects of network properties on knowledge transfer. There are also several studies on knowledge flows in multinational companies. Moreover, increased research effort into subsidiary knowledge flows has surfaced conflicting findings and conclusions (Michailova & Mustaffa, 2012). The literature related to the knowledge flow of subsidiaries should be carefully evaluated before being utilized to generate information.

Most of the knowledge transfer studies place more emphasis on knowledge transfer itself than on its outcomes (Milagres & Burchart, 2018). In particular, the efficiency of

knowledge transfer has been measured less. More is measured whether knowledge was transferred to the recipient, and factors affecting knowledge transfer are not considered. In recent years, more attention has been paid to it. However, there are many conflicting observations associated with performance measurement depending on complex and causal relationships and variables (Milagres & Burchart, 2018). Milagres and Burchart (2018) propose a measure of knowledge transfer efficiency and performance. Knowledge transfer has also been studied from the perspective of partners' collaborative relationships (Sherwood et al., 2011).

One of the goals for Finnish education export in the next few years is to involve more Finnish actors in wide-ranging and diverse partnerships in the field (Finnish National Agency for Education, 2020). Thus, more research related to education export is needed in Finland at every level of education to produce information and promote the planning and implementation of education export projects, as well as to enhance the transfer of knowledge. Finnish education export can be developed by sharing information on the successes and challenges of education export projects (Mattila, 2018). Even more research is needed in this area to ensure effective and high-quality educational export activities.

Most of the literature on education export examine the political aspects of education export, and the readiness of different countries to export education or general motives and challenges for education export. Thus, less literature can be found on the implementation of an education export project and the evaluation of its outcomes. In addition, to a lesser extent, scientific literature can be found on education export and the associated educational knowledge transfer (Aro et al., 2018). Most of the studies examining education export from a knowledge transfer perspective focus mainly on higher education export. Less attention is drawn on the export of secondary vocational education from the perspective of knowledge transfer. Therefore, there are less studies in the literature that integrate education export and knowledge transfer as well as studies evaluating vocational education export from the perspective of knowledge transfer. A clear gap thus

exists in the understanding of how vocational education export projects have been implemented from a knowledge transfer perspective.

1.2 Research question, objectives and delimitations

The purpose of this study is to analyze the factors and phenomena, affecting education export projects from the perspective of knowledge transfer. In particular, the questions of which knowledge transfer factors prevent or promote the Finnish vocational education export implementation, and how they do it, are addressed.

Research question. How has Finnish vocational college implemented knowledge transfer in their education export projects and what factors have hindered and promoted it?

> **Objective 1**: To understand the education export as a phenomenon and to identify knowledge transfer barriers and drivers and their effects in education export implementations.
> **Objective 2:** To empirically identify what the potential challenges and good practices in a successful education export project from a knowledge transfer perspective in a vocational college in Finland are.

Education export is a new type of activity for many vocational colleges, and they may still lack the necessary skills and routines. Research on education export advances the development and implementation of more efficient education export projects with efficient knowledge transfer. Therefore, the research findings provide better understanding about the knowledge transfer processes in education export projects and recommendations for researchers and managers to improve education export projects.

As mentioned, this study considers education export as one form of knowledge transfer. The focus is primarily on the transfer of knowledge between organizations (interorganizational knowledge transfer) while, individual learning, despite being relevant in

knowledge transfer, is considered to a lesser extent. Knowledge transfer is a broad area of research and covers several different concepts and frameworks. This study utilizes partly Milagres' and Burchart's (2018) model for systemic and dynamic model of knowledge transfer for interorganizational partnerships. This model was chosen because it presents the factors influencing the transfer of knowledge between organizations. Thus, it is suitable for assessing cross-border education export, where the transfer of knowledge also takes place from one organization to another. The focus is on examining the success of an education export project from a knowledge transfer perspective. Thus, little attention is paid to factors related to the knowledge production, productization, planning or preparation of education export.

1.3 The key concepts

Education export. In the literature, education export is defined in different ways. In international education export literature, it may also include the mobility of foreign students from one country to another, and in many Finnish studies it mainly refers to the sale of education from one country to another, where students do not move long-term. Education export has traditionally meant collecting student fees from international students. It can also be defined according to the definition of international higher education, which means the movement of people, programs, providers, information, ideas, projects, and services across national borders (Knight, 2006). Schatz (2015) defines education export in the Finnish context as a transaction between countries that concerns education practices, materials, and services. Finnish education export is a business-based education trade, where the education system or the related transfer of knowledge and skills are purchased by a foreign party (Finnish National Agency for Education, 2020). Kuokkanen and Autere (2019) define education export as profit-seeking activities that develop competence, for example the sale of degrees or parts of degrees, consulting, extensive development services as well as learning materials and related learning environment solutions. Finally, it is mentioned that related terms regarding the phenomenon exist, such as transnational education and cross-border education. In this study,

education export refers to the sale of education abroad, where customers participate in customized trainings in the target country, the exporting country, or virtually.

Knowledge transfer. Knowledge transfer means the creation, acquisition, interpretation, retention, and transfer of knowledge to improve performance (Kess et al., 2007). Knowledge transfer is the foundation of a company sustainable competitive advantage (Argote & Ingram, 2000). The term has been identified as a key component of innovation and competitive advantage in knowledge-based economies (Lockett et al., 2008). It is the process where the receiver of the information is influenced by the experience of the source of the information (Argote & Ingram, 2000). In practice, Mainardes et al. (2010) define knowledge gained from education as a deeper understanding of larger entities or smaller details, stimulating minds, new techniques, techniques and tools, innovation skills, and experiences. **Interorganizational knowledge transfer** is the process by which an organization learns from another organization on purpose (Battistella et al., 2016). Interorganizational knowledge transfer is the transfer of knowledge between partner companies (Beamish & Berdrow, 2003).

1.4 Structure of the thesis

This thesis is divided into six chapters. The first chapter is the introduction of this study, where motivation and purpose of the thesis are explained and the research scope, objectives, delimitations, and the structure of the thesis are presented. In the second chapter, the literature about education export and knowledge transfer are presented. The third chapter presents the research design, methods, limitations, and reliability. The fourth chapter describes the empirical results and findings of the study. The fifth chapter includes the discussion of findings. The last sixth chapter includes conclusions, limitations, and recommendations for future research.

2 Education export as a form of knowledge transfer

In this section, the relevant literature on education export and knowledge transfer are reviewed. The literature review consists of two parts: 1) Education export and 2) Knowledge transfer. The first part considers education export in general, education export in the Finnish vocational colleges and export readiness. The second part explores knowledge transfer frameworks, theories, factors related to knowledge transfer barriers and drivers, as well as knowledge transfer outcomes. Knowledge transfer barriers and drivers are classified as factors related to the characteristics of knowledge, the factors related to the actors of the process and the factors related to the transfer mechanisms. Finally, the conceptual framework created based on the theory presents the barriers and drivers of education export knowledge transfer.

2.1 General characteristics of global and Finnish education export

The purpose of international trade in higher education services is to develop the economy, promote the mobility of knowledge and support intellectual growth (Du Plessis, 2010). Higher education institutions play a significant role in education export because of their export potential and expertise (Altbach & Knight, 2007). In addition to educational institutions, education export services are also provided by several other actors such as IT companies, business-based universities, professional associations, and international groupings. Education export is expected to generate income, gain international visibility, and expand international operations (Knight, 2013). In general, education is imported if the education needs cannot be met in the home country. Other reasons are the creation of cultural and political connections, and the better value of imported education. Internationalization has also raised concerns about the quality and direction of higher education. In addition, the future of universities has caused concern and debate whether college will become a commodity where degrees are offered for money and academic values are forgotten (Knight, 2013).

Providers of international higher education tend to be developed countries, and recipients of services tend to be rich countries in Asia, Latin America, poorer countries, and the Middle East (Altbach & Knight, 2007). The dominant exporters of education have been Australia, Canada, England, New Zealand, and the United States (Karjalainen, 2015; Schatz, 2015). The share of education export in service export has increased in several countries in recent years. For example, in the United States, education export services are ranked sixth among exports of services in 2019 (International Trade Administration, 2021). In the academic years 2018 and 2019, the United States reported $ 44.04 billion spent in education export. However, the International Trade Administration (2021) defines education export more broadly than in this study. Statistics from the International Trade Administration (2021) include, among other things, foreign students who came to the United States to study.

The purpose of **Finnish education export** is to transform the interest in Finland into commercially profitable cooperation, where domestic education services are also developed in international interaction (Finnish National Agency for Education, 2020). Globally, the most economically significant sector of education export is the sale of university degrees and continuing education. Other major education export sectors include development services and products related to school operations, as well as various competence development programs and assessment services related to learning (Finnish National Agency for Education, 2020). Finnish educational expertise has been demanded and ordered for example from Brazil, Colombia, Uruguay, Mexico, United Arab Emirates, Saudi Arabia, Oman, Kuwait, Thailand, Vietnam, Indonesia, Malaysia, China, South Africa and India (Finnish National Agency for Education, 2020). In Finland, education export is carried out by about 300 companies and education organizations (Finnish National Agency for Education, 2020). Education export is foreign trade which consists of various products of education, training and competence services. The most requested services can be found from **Table 1.**

Table 1. The most requested services of education export

Products and services
In-service training for teachers and principals (teaching methods and management)
Services, learning materials and learning environments related to the development of education
Foreign language education leading to a university degree
Expert and camp school visits to Finnish schools
Vocational training and degrees
Curriculum consulting
Educational technologies and digital innovations
Expert services related to education evaluation

Education export is becoming a significant growth sector in Finland. The turnover of companies engaged in education export increased approximately 99 million during 2014 - 2018 (Finnish National Agency for Education, 2020). Finnish education export has grown rapidly in recent years due to the international interest, and by the end of 2019, the turnover of companies engaged in education export has already risen to a total of 385 million euro (Finnish National Agency for Education, 2020). Finnish education providers are presently investing increasingly in education export. Education export creates opportunities for new partnerships and practices to address societal challenges and problems (Finnish National Agency for Education, 2020).

The challenge of education export is to find a balance between product development, new markets, and sustainable profitability (Finnish National Agency for Education, 2020). In recent years, there have been several regional education export projects in Finland, financed with ESF and ERDF funding. According to Finnish National Agency for Education (2020) education export projects should be more self-financed, more specialized, and more cooperative in the future, so they can stand out in the international market and gain a competitive advantage from cooperation. There is already increasing competition in the education market leading to degrees. Finland is currently in a good position in the market because of high-quality education. This needs to be ensured also in the future.

2.2 Education export in the Finnish Vocational education

Today's challenging economic, conditions and competition compel the vocational colleges to find new ways to expand their operations. Education export is one such opportunity for vocational colleges. The vocational education export business is based on long-term partnerships and cooperation agreements with local organizations (Finnish National Agency for Education, 2020). The success factors of vocational education export are identification of the needs of customers, knowing the procurement processes and creating new business models through long-term work. Vocational education degrees and degree components targeted at education exports should be tailored to the client's needs (Finnish National Agency for Education, 2020).

The rapidly growing global youth unemployment shows that traditional forms of education are not enough to boost the economy (Education Finland, 2020). In several countries, there is an increasing number of university graduates, while there is a shortage of professionals. The world around us is constantly changing through technology, globalization, demographics, economic and environmental change. Vocational education responds to these challenges by producing the skilled workforce needed for innovation and development in a changing world (Education Finland, 2020). According to a study commissioned by the Finnish National Agency for Education (2020), about 70 % of vocational education providers have a strategic education export policy. About half of the education providers who responded to the survey are interested in or are already working on education export.

Vocational education export can be carried out by education providers who have a license to organize degree education (Kuokkanen & Autere, 2019). Vocational education can be sold to target countries outside the EU and EEA as custom education (Finnish National Agency for Education, 2020). An entire degree or parts of a degree can be sold as custom education. According to Kuokkanen and Autere (2019), the subscriber or payer of the education can be the state, an international organization, a Finnish or foreign public entity, a foundation, or a private entity such as a company. The organizer of the Finnish

education can carry out the education itself or use the partners of the target country. If partners are used, the education provider needs to ensure that partners are qualified to educate and familiar with Finnish vocational degrees. The Finnish education provider is always responsible for the implementation of the training and the assessment of competence (Finnish National Agency for Education, 2020).

2.3 Export readiness

This section briefly describes export readiness as it affects to the implementation of an education export project. The export readiness of the education provider can promote or hinder the success of the education export project. Export readiness has been studied from different perspectives in the international business and marketing literature. It is defined as a function of marketing orientation (Naidoo, 2010), which means an organization's ability to respond to the needs of customers and other stakeholders, such as competitors and employees. Some Finnish education providers still lack experience in education export, and they may not yet have the needed skills and routines. In addition, their knowledge of the education markets in some countries may be limited. For example, the Chinese education market is large and complex, and their education structure is complex. Thus, education export to China requires special skills and understanding of the target market (Cai, Hölttä & Lindholm, 2013; Yang, 2014).

The education provider's export readiness can be weakened by lack of knowledge and experience, lack of motivation and commitment in marketing, and lack of coordination and clear vision in export (Cai, Hölttä & Kivistö, 2012). Naidoo's (2010) conceptual model presents factors influencing export readiness that education providers should invest in to achieve better outcomes in education export. The conceptual model consists of export competence, management commitment and export coordination. Education providers should invest in project management and gather information in the target market. The support of senior management is also important in human relations and at the financial level. International activities should be valued and invested in the necessary

resources. In addition, export coordination should be improved, and the entire education provider should be involved in the planning of education packages. According to Eksymä et al. (2020) and Vallin (2017), the development of the export readiness of education can be improved by developing cooperation between different actors and national education export structures.

2.4 Knowledge transfer frameworks and theories

This section introduces the knowledge transfer frameworks and theories. First, the knowledge transfer related terms are described. Next, the knowledge transfer frameworks and theories are introduced. **Knowledge** is a broader concept than data or information (Bhagat et al., 2002). Knowledge is a combination of experiences, values, contextual information, and expert interpretations that provide a framework for new knowledge and experience. The term **knowledge transfer** (**KT**) differs from knowledge sharing and knowledge exchange (Wang & Noe, 2010). Knowledge transfer involves the sharing and exchange of knowledge. The term knowledge transfer is commonly used to describe the flow of knowledge between different organizations rather than between individuals (Szulanski et al., 2004). Knowledge transfer refers to the transfer of ideas, research results, expertise or skills between partners, enabling the exploitation of new knowledge (Lockett et al., 2008). In this study, knowledge transfer refers to the export of educational activities such as the export of educational products and services to a foreign party.

Knowledge transfer is the process where the receiver of the information is influenced by the experience of the source of the information (Argote & Ingram, 2000). Knowledge transfer between organizations is the process by which an organization learns from another organization. In addition to structures and processes, knowledge transfer is influenced by relative and cognitive governance factors (Milagres & Burchart, 2018). Relative cognitive factors include trust, management, and fairness. Cognitive factors include cultural differences, collective identity, and the formation of groups between organizations.

There are several models in the literature related to the utilization of **knowledge transfer in education**. Next, some relevant theories related to education and knowledge transfer are elaborated. According to Neville and Warren (1986), classical knowledge transfer related theories in education are divided into categories such as the research, development and diffusion model, the social interaction model, the problem-solving model, and the linkage model. The research, development and diffusion models (RDD) focus mainly on utilizing university research to promote knowledge. The problem-solving models focus on the important role of users in initiating change. The social interaction models focus on knowledge sharing between individuals and systems. The linkage models focus on the mechanisms and functions of knowledge transfer that connect knowledge producers and potential users. **Table 2** summarizes some advantages and disadvantages of these theories (Becheikh et al., 2010).

Table 2. Pros and cons of knowledge transfer and education models (Becheikh et al., 2010)

Theory	Description
Research, development and diffusion models (RDD)	Criticism: • focus on aspects that are too narrowly defined • focus mainly on the information produced by universities and ignores the exchange information between parties
Problem-solving models	Criticism: • focus on aspects that are too narrowly defined • focus on information based on user needs and ignoring a large amount of other information • pay little attention on knowledge transfer mechanisms, can lead to significant barriers
Social interaction models	Recommendation: • provide the dynamic perspective
Linkage models	Criticism: • differentiate and define mechanisms, the source and recipient should be brought closer together

These models could also be applied to the analysis of the implementation of an education export project, as Aro et al. (2018) did in analyzing the implementation of the education export project from Denmark to Saudi Arabia. However, these theories are not described in more detail in this study because they are better suited for the transfer of university research knowledge or for the transfer of knowledge between individuals.

Various models of knowledge transfer stages can be found in the literature. Next, two frameworks are described in more detail, the framework for Collaborative knowledge transfer success (Sherwood et al., 2011) and the process resulting model (Szulanski, 1996). These frameworks are chosen for this work because both models can be utilized in education export projects to identify barriers and drivers in knowledge transfer stages, even though they address knowledge transfer from different perspectives. Sherwood's et al., (2011) framework describes the stages of knowledge transfer from the perspective of the most important decisions related to the partners. The widely applied Szulanski (1996) framework seeks to identify barriers and drivers associated with different stages of knowledge transfer. On the contrary, Sherwood's et al., (2011) model is less well-known and less referred to in the literature.

Sherwood et al., (2011) present **a framework managing and evaluating collaborative relationships in the transfer of knowledge** between industry and universities. The purpose of the framework is to guide decision makers to an efficient and successful knowledge transfer project implementation in stages. The framework includes four stages that are partner assessment and selection, alliance negotiation and governance, alliance management, and assessment and termination, see **Figure 1**.

Figure 1. The framework for collaborative knowledge transfer success (Sherwood et al., 2011)

At the first stage, partnerships are assessed from a transferable knowledge attributes perspective, and the experience level of the partner and the level of the trust between the partners are evaluated. The alliance negotiation and governance stage involves the trust development between administrators, the engagement of team members, choosing the right structure for effective transfer and establishing communication processes. The alliance management stage maintains contact and monitors progress, initiates

discussions of future technology transfers and builds efficient exchange channels. Finally, the relationship between managers and channels of communication are evaluated, further contracts for future projects are proposed, and formal transfer teams are terminated. More detailed descriptions of stages can be found in **Table 3.**

Table 3. The framework for Collaborative Knowledge Transfer Success (Sherwood et al., 2011)

Stages and content	
Stage 1: Partner assessment and evaluation	• Knowledge attributes • Evaluation of the partner's experience and mutual trust
Stage 2: Alliance negotiation and governance	• Trust building • Engagement • Creating efficient processes and routines for communication and transfer
Stage 3: Alliance management	• Maintaining and monitoring progress • Building of efficient transfer mechanisms
Stage 4: Assessment and termination	• Evaluation of relationships • Evaluation of processes, practices and mechanisms • Review of the results and efficiency

The framework strongly emphasizes trust and cooperation. In addition, it takes appropriately into account the challenge of tacit knowledge transfer. However, it does not pay particular attention to cross-border knowledge transfer. The framework was originally made for knowledge transfer between a university and a company, but it could also be utilized to manage and evaluate longer education export projects between vocational colleges. However, it is also suitable for shorter projects, leaving out deeper collaboration and trust building. Building a deeper collaboration and trust requires time in knowledge transfer project (Alexopoulos & Buckeley, 2013). On the other hand, trust may already have been built on the good reputation of the education provider. Thus, even short projects can be based on trust.

Szulanski (1996) has created **a process model for analyzing how knowledge stickiness affects the transfer of best practices**. The resulting process model identifies different stages in the knowledge transfer process: initiation, implementation, ramp-up and

integration, see **Figure 2**. The purpose of the model is to gradually identify barriers and drivers of knowledge transfer.

Figure 2. The resulting process model (Szulanski, 1996)

The initiation stage encompasses all events that lead to the completion of knowledge transfer. The transfer begins when the need and knowledge coexist. The implementation stage starts when a decision on the transfer is made. Transfer-specific social ties are established between the partners. The ramp-up stage commences when the recipient begins to use the knowledge gained. At this point, potential problems with the transfer are noticed and identified. The integration stage begins when the recipient achieves the results they need from the transferred knowledge. The use of transferred knowledge becomes routine. More detailed descriptions of stages can be found in **Table 4.**

Table 4. The resulting process model (Szulanski, 1996)

Stages and content	
Initiation	• The need and knowledge exist
Implementation	• Transfer takes place • Social ties exist • Practices are established • Problem solving by source
Ramp-up	• The transferred knowledge is started to use by receiver • Problem solving by source and receiver
Integration	• The transferred knowledge is integrated and is part of routines

Szulanski's (1996) framework does not place much emphasis on cooperation or the importance of trust. It has been criticized because it is for example, old, ignores cultural differences and is narrowly targeted (Koltsova, 2013). However, the model is considered a strong foundation in the literature related to the field. The framework can be utilized in education export projects to identify barriers or drivers related to knowledge transfer.

However, it could be supplemented by the barriers and drivers described in the following paragraphs.

This section introduced a few frameworks and stages related to knowledge transfer. Understanding the theory of knowledge transfer and its different stages will help to identify the factors influencing it. The presented frameworks can be utilized in the analysis of factors influencing knowledge transfer. Factors influencing knowledge transfer can affect in different ways at different stages of a project.

2.5 Knowledge transfer barriers and drivers

This section introduces the factors that promote or hinder the transfer of knowledge in a relationship between organizations. There are various classifications in the literature of factors that promote or hinder knowledge transfer. Milagres and Burchart (2018) divide the factors influencing knowledge transfer into interorganizational, organizational, and individual factors. They also classify the organizational factors to the source and recipient factors. The interorganizational factors and some of the organizational and individual factors are presented below. Only some of the organizational and individual factors are considered in this study due to overlaps and excessive detail. This study seeks to avoid overly detailed classification. In addition, the focus is mainly on interorganizational knowledge transfer factors from an education export perspective. Therefore, this study pays little attention to the combined effects of the factors described below. Becheikh et al. (2010) divide the factors influencing **knowledge transfer in education** into three main groups: 1) factors related to the characteristics of the transferred knowledge, 2) factors related to the actors of the process, and 3) factors related to the transfer mechanism. Each factor is a variable and can affect the efficiency of the knowledge transfer process. This classification is used in the following.

2.5.1 Factors related to the characteristics of the transferred knowledge

Knowledge types and characteristics can act as a barrier or driver for knowledge transfer. There has been a lot of discussion about this in the literature and especially how and why they affect knowledge transfer. In the literature, the terms: attributes, characteristics and types are used interchangeably to describe the nature and type of knowledge. Moreover, some studies limit the types of knowledge only to tacit and explicit knowledge. This study uses Milagres' and Burchart's (2018) classification of knowledge types and knowledge characteristics to describe knowledge dimensions. Their classification has been chosen here because it broadly classifies the factors influencing knowledge transfer related to the type and characteristic of knowledge.

Milagres and Burchart (2018) present **the types of knowledge** as dimensions that are technical transfer and technological transfer, tacit and explicit, individual and collective, simple and complex, independent and systematic, about and from the partner, human, social and structured, and relational and redeployable. The effects of these knowledge types on knowledge transfer are described below, and more information can be found in **Table 5**.

Technical transfer and technological transfer. In technical knowledge transfer, simple knowledge is transferred to solve a problem (Kotabe et al., 2003). Thus, technical transfer is usually simple and does not require much effort. Technological knowledge transfer transfers a more complex and extensive set of knowledge and requires deeper collaboration. Larger technological projects usually involve more complex knowledge and require more effort to transfer knowledge. Thus, they require more resources, and the costs are higher.

Tacit and explicit. The knowledge can be explicit or tacit (Davenport & Prusak, 1998). Explicit knowledge can, while tacit knowledge cannot, be expressed as text, tables, and diagrams (Nonaka & Takeuchi 1995). Tacit knowledge accumulates in individuals and occurs in an organization's culture, values, and routines (Bhagat et al., 2002). The transfer

of tacit knowledge is often difficult to detect while the transfer of explicit knowledge can be easily detected and learned by objective means (Sherwood et al., 2011). The transmission of tacit knowledge requires formal and informal communication systems (Sherwood et al., 2011). Thus, explicit and codified knowledge is easier to transfer than tacit knowledge. The transfer of tacit knowledge requires more diverse methods, support and mechanisms (Bhagat et al., 2002; Reagans & McEvily, 2003; Becheikh et al., 2010).

Individual and collective. Explicit and tacit knowledge can be held by individuals or collectively in groups. Individual knowledge transfer is usually easier than collective knowledge transfer (Zhao & Anand, 2009). However, the relationships between organizations and people affect the success of individual knowledge transfer. Transfer of collective knowledge is more challenging and prone to failure because it is often tacit knowledge and is often transmitted unconsciously (Zhao & Anand, 2009).

Simplicity and complexity. In cross-border knowledge transfer, knowledge simplicity or complexity are important factors (Bhagat et al., 2002). Knowledge should be easy to understand, relevant, interesting, credible, and timely (Becheikh et al., 2010). Thus, simple knowledge is easy to transfer. In contrast, complex knowledge transfer requires more activities and skills as well as it involves greater causal ambiguity.

Independent and systematic. Knowledge can also be classified as independent or systematic (Bhagat et al., 2002). Independent knowledge describes itself while systematic knowledge must be presented in the context of the organization. Thus, independent knowledge is generally easier to transfer. Systematic knowledge combined with complex and tacit features is more difficult to transfer.

About and from the partner. Inkpen and Currall (2004) deal with learning about the partner and learning from the partner. The difference between these is how the knowledge can be utilized. In learning about, the receiver organization may want access to the source organization knowledge, but the goal is not to integrate knowledge directly

into their own organization. In learning from, knowledge of the source organization can be used directly for the benefit of the receiver organization. Understanding of the organizational characteristics of the partner such as culture, values, strategic goals, history, structure and leadership enhances knowledge transfer and collaboration.

Human, social and structured. Human knowledge describes what individuals know and can be both explicit and tacit knowledge (Bhagat et al., 2002). Social knowledge can be within individuals or groups. Social or collective knowledge is mainly tacit knowledge consisting of culture and norms. Structured knowledge is the knowledge within an organization such as systems, processes, rules, and routines. Some combinations of human, social and structured knowledge can be complicated to transfer. For example, if knowledge is also tacit, complex, and systematic, it is even more difficult to transfer.

Relational and redeployable. Redeployable knowledge involves collaborative production of new knowledge that can also be utilized in other contexts (Mesquita et al., 2008). Relational knowledge cannot be utilized in other contexts of organizations because it is based on the informal agreements and codes of conduct. Thus, relational knowledge can prevent the transfer of knowledge.

Table 5. Knowledge types (Milagres & Burchart, 2018)

Knowledge types	Description
Technical transfer and technological transfer	• Technical transfer is simple and solves a specific problem • Technological transfer contains a lot of activities and requires deeper collaboration ○ Knowledge is usually tacit and embedded in context
Explicit and tacit	• Explicit: written languages and symbols • Tacit: embedded in organization's culture, values and routines
Individual and collective	• Individually owned skills • Collective, embedded in the norms and routines and shared by all organization members
Simple and complex	• Simple, easy to understand • Complex, difficult to understand and requires special skills and mechanisms

Knowledge types	Description
Independent and systemic	• Independent, describes itself • Systematic, requires knowledge base
About and from the partner	• About the partner, related to organizational characteristics • From the partner, related to technical know-how
Human, social and structured	• Human, individual knowledge • Social, relationships • Structured, organizational processes
Relational and redeployable	• Relational, may not be used outside partners • Redeployable, may be reproduced by partners

In the education export, the knowledge to be transferred may be in-service training for teachers and principals (teaching methods and management), services, learning materials and learning environments related to the development of education, foreign language education leading to a university degree, expert and camp school visits to Finnish schools, vocational training and degrees, curriculum consulting, educational technologies and digital Innovations and expert services related to education evaluation (Finnish National Agency for Education, 2020). Thus, the knowledge to be transferred in an education export project is most commonly explicit, tacit, independent, systematic and complex.

In addition, factors related to the knowledge characteristics can be a barrier or a driver of knowledge transfer. Milagres and Burchart (2018) classify the **characteristics** of knowledge in knowledge transfer between organizations as similarity, causal ambiguity, context dependence, stickiness, viscosity, sensitivity, analytical, technè cumulativeness and appropriability, see **Table 6**. These characteristics and their effect on knowledge transfer are elaborated below.

Similarity. Similarities in knowledge bases and organizational practices between the source and recipient can contribute to effective knowledge transfer in the early stages of a partnership (Kavusan et al., 2016). Similarities make it easier for individuals to better absorb knowledge and increase the motivation of individuals (Inkpen, 2007). Thus, similarity can facilitate the transfer of knowledge.

Causal ambiguity and context-dependence. Williams (2007) presents two characteristics of organizational knowledge: causal ambiguity and context dependence. Causal ambiguity is characterized by tacit knowledge of complex production processes (Lippman & Rumelt, 1982). Causal ambiguity arises from knowledge contained in an organization's routines that its members do not fully understand (Williams, 2007). A replication mechanism that accurately copies certain activities without the need to understand the causes allows these functions to be transferred. Thus, causal ambiguity complicates the transfer of knowledge. Context-dependence knowledge is more difficult to transfer because it depends on a particular environment and may not be reproducible. Effective context-dependence knowledge transfer requires adapting knowledge to the new environment. Thus, large cultural differences hinder the transfer of context-dependent knowledge.

Stickiness. The three main causes of knowledge stickiness are the lack of absorptive capacity of the recipient, causal ambiguity and arduous relationships between partners (Szulanski, 1996). Absorptive capacity is related to the recipient's ability to take advantage of the knowledge transferred. People learn new things by combining them with previous knowledge (Reagans & McEvily, 2003). People also more easily embrace things in areas they already have an understanding. Thus, the prior knowledge shared by the source and recipient facilitates the transfer of information. Causal ambiguity observes the depth of the recipient's knowledge (Szulanski, 1996). Arduous relationships refer to the effect of quality on partners' ability to receive knowledge. However, conventional wisdom associates stickiness almost exclusively with motivational factors such as inter-divisional jealousy, lack of incentives, lack of confidence, low priority, and lack of buy-in. Thus, sticky knowledge is complex, tacit and systematic knowledge that is difficult to transfer due to cultural differences (Szulanski, 1996; Bhagat et al., 2002).

Viscosity and velocity. Davenport and Prusak (1998) introduce the concepts of velocity and viscosity. Knowledge transfer is an interactive process where all knowledge cannot be transferred in words. **Viscosity** is the richness or stickiness of knowledge (Davenport & Prusak, 1998). Knowledge should include rich sources and context. **Velocity** means the

speed of knowledge transfer through the source and recipient (Davenport & Prusak, 1998). Milagres and Burchart, (2018) do not include velocity in their classification. However, it is presented here because it is an essential factor in the transfer of knowledge and clarifies the meaning of viscosity. Both factors, viscosity and velocity affect the efficiency of knowledge transfer in organizations with different cultural contexts. The richness of knowledge promotes the transfer of knowledge while the stickiness of knowledge hinders it. In addition, knowledge transfer can fail if knowledge is transferred too quickly. Too fast knowledge transfer reduces the richness and diversity of knowledge. On the other hand, stripped and simple knowledge can be transferred faster.

Sensitivity. Knowledge sensitivity refers to knowledge held by organizations that can cause harm to another organization (Jarvenpaa & Majchrzak, 2016). This can bring tension and challenges to the transfer of knowledge between organizations. Sensitive knowledge can cause lack of trust between partners and hinder the transfer of knowledge.

Analytical, technè and appropriability. Herstad et al. (2014) introduce the concepts of analytical knowledge, technè knowledge and appropriability. Analytical knowledge refers to economic activities where the development of knowledge is based on systematic and formal models. The results of the models are usually encoded in electronic files or patent descriptions in professional language. Thus, analytical knowledge can promote knowledge transfer. Technè knowledge corresponds to integrable knowledge, applying or combining existing knowledge from different sources. Technical knowledge is usually tacit knowledge that arises in practical work through experimentation and experience. Thus, the transfer of technè knowledge can be challenging. Appropriability refers to an organization's ability to manage knowledge developed in partnership with a partner and protection of intellectual property rights (Herstad et al., 2014). Thus, with new partners, appropriability can make knowledge transfer more challenging because the partner is not yet trusted.

Table 6. Knowledge characteristic (Milagres & Burchart, 2018)

Knowledge characteristics	Description
Similarity	• The similarity of partners' knowledge bases ○ Culture, values, processes and practices
Causal ambiguity	• Caused by complex processes • Tacit knowledge, difficult to understand, included in routines
Context dependency	• Knowledge depends on a particular environment and may not be reproducible
Stickiness	• Complex, tacit and systematic knowledge
Viscosity	• The richness or stickiness of knowledge
Velocity[1]	• The speed of knowledge transfer
Sensitivity	• Refers to information held by organizations that can cause harm to another organization • Can cause tension between partners
Analytical	• Universal and theoretical knowledge
Technè cumulativeness	• Instrumental, context-specific and practical knowledge
Appropriability	• Organization's ability to develop its own knowledge

The above types and characteristics of knowledge can affect the transfer of knowledge in different ways depending on the combinations in which they occur. For example, tacit, systematic, and structured knowledge is more challenging to transfer than explicit and analytical knowledge. Tacit knowledge requires more mechanisms and interactions than the transfer of explicit knowledge.

2.5.2 Factors related to the actors of the process

The knowledge transfer process may involve several factors related to the actors, which affect the efficiency of the knowledge transfer process. Milagres and Burchart (2018) identify the actors related interorganizational factors as motivation, structural governance, trust and related absorptive capacity. All these factors can be barriers or drivers for the knowledge transfer. In addition, experiences (Juusola & Räihä, 2018), collaboration (Hardy et al., 1998), networks (Reagans & McEvily, 2003), retentive capacity

[1] Velocity is not included in Milagres' and Burchart's (2018) classification

(Szulanski,1996), time (Lockett et al., 2008; Milagres & Burchart, 2018) and cultural differences (Delahunty et al., 2018; Milagres & Burchart, 2018) have also been introduced in the literature related to education as factors influencing the transfer of knowledge. Milagres and Burchart (2018) do not consider collaboration as a separate influencer in their framework but integrate it as a phenomenon into the whole interorganizational partnership. However, in this study it is introduced as one separate factor in the context of the trust building as it is an important factor in cross-border knowledge transfer. The previous literature also supports that (Alexopoulos & Buckley, 2013; Hansen, 1999; Hardy et al., 1998; Reagans & McEvily, 2003; Van Wijk et al., 2008) and begins the treatment of the factors influencing the transfer of knowledge with it. All the above factors are introduced below.

Collaboration and trust. Collaboration requires mutual commitment, which goes beyond mutual knowledge transfer (Herstad et al. 2014). Collaboration evolves over time, along with other factors that affect the transfer of knowledge, such as motivation and the associated resistance, emotions, and individual absorptive capacity. There is also substantial amount of discussion on the construction of collaboration in the literature. For example, Mesquita et al. (2008) emphasize the building of a collective identity with a partner, while Inkpen and Currall (2004) introduce partners learning from each other resulting in trust development. Relationships and collaboration between organizations are built on trust and power (Alexopoulos & Buckeley, 2013; Hardy et al., 1998). Thus, reliable collaboration relationships improve knowledge transfer processes (Alexopoulos & Buckley, 2013; Szulanski, 1996) and enable knowledge transfer (Hansen, 1999; Reagans & McEvily, 2003; Van Wijk et al., 2008).

The literature discusses trust from many different perspectives. Alexopoulos and Buckeley (2013) present two types of trust in interpersonal knowledge transfer: professional and personal trust. Professional trust is important in shorter relationships and personal trust is important in longer relationships. Tacit knowledge requires more interactivity; thus, partners need to interact closely (Sherwood et al., 2011). In technology

transfer, mutual trust between both partners is a key factor (Sherwood et al., 2011). Trust is often based in part in the reputation earned from previous knowledge transfer.

In an education export project, trust is particularly important because it promotes the willingness of both parties to transfer knowledge (Delahunty et al., 2018). Aro et al. (2018) highlight several collaboration and trust related issues that emerged in their education export project as lessons learnt. They identified that knowing partners' work culture and building trust take time. Social gatherings are necessary to build the connection and trust between partners. The education export project must have a common understanding of goals, expertise, learning together, sharing goals, solving problems, and sharing knowledge in teaching. In addition, the shared vision and organizational systems also facilitate knowledge transfer.

Becheikh et al. (2010) present the linking agents to develop an organizational culture for collaboration and information sharing between the university and the company. The linkage agents are individuals whose purpose is to facilitate the knowledge transfer process by connecting partners and ensure that the knowledge to be transferred is easy to understand and adapt. In the field of education, the knowledge to be transferred is diverse and includes pedagogical programs and reforms. Often, the complexity of the knowledge can make it difficult to transfer.

Networks. Social networks promote knowledge transfer and improve knowledge quality (Hansen, 1999; Reagans & McEvily, 2003). Network structure, social cohesion and network range, affect the transfer process (Reagans & McEvily, 2003). The network structure can affect knowledge transfer due to the common knowledge and the binding nature of the network. Social cohesion can facilitate knowledge transfer by reducing competition and barriers to motivation. The network range is the prevalence of connections over institutional, organizational or social boundaries. The network range also promotes knowledge transfer by influencing people's ability convey complex knowledge in different contexts.

Motivation and experiences. The success of knowledge transfer is influenced by the motivation and experience of the recipients. Lack of motivation can also be a barrier (Szulanski, 1996). The parties may be reluctant to spend time and resources on a proper transfer and may even intentionally complicate the transfer. Barriers to knowledge transfer in educational exports include partners' different expectations for knowledge transfer (Aro et al., 2018). The negative attitude of staff towards knowledge transfer is a barrier to knowledge transfer. The previous experience of the partners also affects the transfer of knowledge. The partners need to know at an early stage what is the partners previous level of experience in technology and knowledge transfer. For example, a skilled and experienced partner can help protect trade secrets.

Structural governance. Zollo et al. (2002) present the concept of structural governance, which encompasses interorganizational routines aimed at stability. Longer-term collaboration and experience develop routines and facilitate information sharing, communication, decision-making, and conflict management. Understanding the governance structures needed to support knowledge transfer takes time and effort from partners (Aro et al., 2018). Thus, interorganizational routines can promote as well as hinder knowledge transfer (Milagres & Burchart, 2018). In a short-term partnership, there are many formal structures and controls that can complicate knowledge transfer. Problems may arise when the contract is not sufficiently detailed and precise (Kess et al., 2007). For example, agreements on intellectual property rights can pose challenges, especially in technology transfers (Lockett et al., 2008). The legislation, regulations and economic situation of the target country can also present challenges (Aro et al. 2018). Lack of organizational support such as managerial non-participation can also hinder effective knowledge transfer (Becheikh et al., 2010). In addition, partners may have different expectations for knowledge transfer (Aro et al., 2018). For example, the university culture may focus on long-term results while a company may need technology to solve a particular short-term problem.

Absorptive capacity is an important concept at all levels of organizations such as at the interorganizational, organizational, and individual levels (Milagres & Burchart, 2018). It is an important part of the knowledge transfer process and acts as a driver for collaboration and innovation. The recipient organization may also have lack of absorptive capacity (Szulanski, 1996). The recipient of the knowledge may not be able to receive the knowledge because he or she does not have enough expertise, or the organizations are very different and do not have a common understanding. For example, the language skills of the recipient may be insufficient for receiving knowledge (Delahunty et al., 2018). In addition, legal issues, protocols and bureaucracy can be interpreted in many ways. In education export projects, curriculum knowledge transfer may require the adaptation of teaching levels, pedagogical methods and content with the culture of the target country (Aro et al. 2018).

Relative absorptive capacity refers to the similarity of partners (Ireland et al., 2002). The day-to-day supervision and involvement of managers help to absorb knowledge (Milagres & Burchart, 2018). The efficiency of cross-border knowledge transfer is affected by the ability of the organization to transfer knowledge as well as the ability of the recipient organization to receive and utilize the knowledge to be transferred (Bhagat et al., 2002). The ability of a company to receive knowledge is affected by the prior knowledge and experience of individual members as well as the structure and culture of the company (Zhao & Anand, 2009). Thus, absorptive capacity can hinder or promote the transfer of knowledge. Absorptive capacity is one of the factors influencing knowledge transfer that produces different findings in different studies. In addition, there is not yet enough information in the literature on this relationship to other factors.

Retentive capacity. Knowledge transfer is only effective if the recipient organization is able to retain and utilize the knowledge. Lack of retentive capacity, in other words the recipient's inability to utilize and integrate knowledge is a barrier to the transfer of knowledge (Szulanski, 1996). For example, the risk of education export projects is that the pedagogical approach is not adapted to the local situation (Lönnqvist et al., 2018).

Time. Sufficient time should be allocated for all necessary activities such as preparation, confidence building, knowledge transfer, knowledge reception, data integration and project completion (Milagres & Burchart, 2018). The duration of the contract should be determined according to these activities. Lack of time in the education industry is often caused by work plans are made ahead for a year or two, which renders their adjustment challenging (Lockett et al., 2008). Thus, the academic calendar affects how teaching staff are available. Knowledge transfer of an education export project may take longer than planned, and teaching staff need to be given more time to complete the project (Aro et al. 2018). Different perceptions of time scales between an education provider and a recipient are common (Lockett et al., 2008). For example, universities often have projects lasting several years and companies want fast results. Thus, the barriers in the education sector are the lack of time, rigid timetables and the pre-defined content of the curriculum (Ben-Peretz, 1994).

Cultural differences. Knowledge transfer is usually challenging when knowledge is transferred between different countries. Understanding about cultural differences in knowledge transfer is essential (Delahunty et al., 2018; Aro et al., 2018). Knowledge transfer is easier the less cultural difference there is between partners (Bhagat et al., 2002). Although the transfer of sticky knowledge is more complex regardless of cultural differences, the global context brings additional challenges (Bhagat et al., 2002). Partners from different cultures should work deeply together in the preparation of a knowledge transfer (Aro et al., 2018). Thus, cultural differences can be opportunities or barriers to learning in international higher education (Rytivaara et al., 2019).

Table 7. Factors related to the actors of knowledge transfer

Factors influencing knowledge transfer	Description
Reliable collaboration relationship	• A deep relationship helps to understand the recipient's expectations
Trust	• Professional and personal trust • Important in the transfer of tacit knowledge • Protecting intellectual property rights
Networks	• Network structure, social cohesion and network range

Factors influencing knowledge transfer	Description
Motivation and experiences	• Motivation to transfer and receive • Experience and skills to transfer and receive
Structural governance	• Features that determine partnership: structural, procedural, relational and cognitive • Contractual form and scope
Absorptive capacity	• Ability to receive knowledge • Similarity of partners
Retentive capacity	• Ability to integrate and utilize knowledge
Time	• Length of contract • Academic calendar
Cultural differences	• Knowledge transfer between countries

2.5.3 Factors related to the transfer mechanism

In the knowledge transfer literature, the term mechanism is used in various contexts. For example, in some studies it focuses on assessing an individual's ability to transfer and absorb knowledge. In this study, the mechanism of knowledge transfer refers to Becheikh's et al. (2010) definition that knowledge transfer mechanisms consist of all the methods by which knowledge is transferred in the knowledge transfer process. Knowledge can be transferred by transferring people or through tools and techniques, and through routines and networks that combine people, tools, and routines (Inkpen, 2007). The type of knowledge influences the choice of knowledge transfer mechanism. Explicit knowledge can be transmitted using digital channels, but tacit knowledge transfer requires personal contacts (Davenport & Prusak, 1998). In systematic knowledge transfer, learning mechanisms, consensus, and network building lead to efficient knowledge transfer (Inkpen, 2007). Therefore, choosing the right mechanism affects the efficiency of knowledge transfer (Becheikh et al., 2010; Inkpen, 2007; Kess et al., 2007).

Two categories are distinguished in the literature: the information mechanisms and the interaction mechanisms (Becheikh et al., 2010). The information mechanism includes methods of obtaining and sharing information without personal interaction. The interaction mechanism includes personal knowledge transfer. More information can be found in **Table 8**. The information mechanisms are suitable for explicit knowledge transfer. The interaction mechanisms are particularly suitable for tacit knowledge transfer (Becheikh

et al., 2010). For example, pedagogical changes in education reforms includes tacit knowledge and require deeper discussion (Omar El-Sheikh, 2000).

In education export projects, teaching activities are an essential knowledge transfer mechanism, and it is thus described in more detail here. Knowledge transfer includes **teaching activities** of the source organization and learning efforts of the receiving organization (Zhao & Anand, 2009). Teaching can be individual or collective teaching. In individual teaching, teaching is performed by a single source, and collective teaching is the process by which a source organization collectively shares its knowledge. Zhao & Anand (2009) identify two forms of collective teaching: in the first form, the recipient organization sends its members to work in the source organization and in the second form, the source organization sends its members to work in the recipient organization. Collective teaching is suitable for sharing collective knowledge because recipients can observe and learn about communication between members of the source organization. Zhao and Anand (2009) also state that collective knowledge transfer mechanisms, such as collective teaching and collective reception are more effective than those at the individual level. This also applies to the transfer of individual knowledge.

Table 8. Information and interaction mechanisms (Becheikh et al., 2010)

Mechanism	Description	Examples
Information mechanisms	• obtaining and sharing information without personal interaction • explicit knowledge	• contracts • research reports • scientific articles • trade journals • bulletins • guides • training tools • e-mails • phone calls • etc.
Interaction mechanisms	• personal knowledge transfer • tacit knowledge	• oral presentations • academic conferences • seminars • professional meetings • workshops • training sessions • formal meetings

Mechanism	Description	Examples
		• discussions • social activities • employees changed the employer • Teaching (individual, collective) • co-teaching • daily contacts • coaching • advising • documentation • communication by phone and e-mail • etc.

The knowledge transfer mechanisms can also be divided into **replication** and **adaptation** (Williams, 2007). These mechanisms refer to knowledge transfer practices rather than knowledge transfer channels. The purpose of replication is to create similar practices in the target organization as in the source organization. Replication is the exact copying of knowledge without the need to understand its causes, consequences, and interdependence. The purpose of adaptation is to modify or integrate the practices of the source organization. Replication and adaptation are separate transfer mechanisms that can be used simultaneously to transfer knowledge.

The choice of knowledge transfer mechanism depends on the type and characteristics of knowledge and the actors in the process. It is essential to choose a mechanism to ensure the efficient transfer of knowledge. As mentioned earlier, education export projects usually include tacit knowledge. Thus, diverse mechanisms, and in particular interaction mechanisms, are needed to facilitate knowledge transfer.

2.6 Outcomes of knowledge transfer

In this section, the outcomes of knowledge transfer are introduced. Outcomes refers to the results achieved during knowledge transfer (Milagres & Burchart, 2018). The success of knowledge transfer should be measured and evaluated. Knowledge transfer

evaluation should ask for example the questions of how complex the process was, how it can work properly and how the process works at different levels of society. Evaluating the effectiveness of knowledge transfer is important for the partnership (Milagres & Burchart, 2018). Often the efficiency of knowledge transfer is not measured, only whether knowledge transfer took place. The effects of other factors are also not often measured. However, in recent years more attention has been paid to the results of knowledge transfer and, in particular to innovation. Measuring performance involves many conflicting observations due to complex causal relationships and variables. Both partners, source and recipient, should also review the results of the knowledge transfer process and determine the effectiveness of the process (Sherwood et al., 2011). The factors described in the previous sections facilitate or prevent the achievement of the expected outcome.

Milgres and Burchart's (2018) framework, the systemic and dynamic model of knowledge transfer in interorganizational partnerships, includes dimensions related to the outcomes of knowledge transfer as effectiveness and performance. In addition, the quality of the knowledge transfer process determines the outcome. However, in several studies, the terms efficiency, performance, and quality address the same issue. Lockett et al. (2008) state that there is uncertainty associated with measuring and evaluating the success of knowledge transfer. To a lesser extent, the **effectiveness, performance** and **quality** of outcomes have been reported in the literature related to education export. The education export literature introduces more factors that influence knowledge transfer than the results or effectiveness of knowledge transfer projects. These concepts are described in more detail below.

Effectiveness. The effects of knowledge transfer should be measured in knowledge transfer projects and, how it has affected the performance of the organization (Milagres & Burchart, 2018). Bozeman et al. (2014) introduce seven parameters and indicators for assessing knowledge transfer: "out-the-door", opportunity cost, scientific and technical human capital, political, public value, market impact and economic development. The parameters are described in more detail in **Table 9.**

Table 9. Parameters for knowledge transfer effectiveness assessment (Bozeman et al., 2014)

Criterion	Description
Out-the-door	• measures whether the knowledge transfer has taken place or not, without measuring its effects • the most used in the technology transfer • has critical limitation • realistic and useful even when causes and effects are difficult to document
Opportunity cost	• measures the impact of the resources used for knowledge transfer on other tasks in the organization • difficult to measure
Scientific and technical human capital	• measures the impact of knowledge transfer on human and institutional capacity building and how scientific research was utilized • measures how the people involved in the process evolved • challenge to define incomes and outcomes
Public value	• measures the impact of knowledge transfer on public value, how it increases responsibility and innovation socially and globally • provoked much debate, especially in the transfer of knowledge between universities and companies • difficult to measure systematically
Political value	• measures the effects of knowledge transfer on political expectations • has received little attention in the literature, but political results are also expected
Market impact	• measures what commercial impact the transferred knowledge or technology has brought to the organization • focuses on the key features of technology transfer
Economic development	• measures the impact of knowledge transfer on regional and national economic growth

The “out-the-door”, public value, political value and economic development criterions could be used to assess the effectiveness of an education export project. The "out-the-door" criterion, i.e. whether the transfer of knowledge has taken place, is simple and easy to verify even in an education export project. Public and political values would be important indicators from education export perspective, but their effectiveness will only become apparent over a longer period. However, most of the criterions are difficult to measure systematically (Bozeman et al., 2014) and usually education providers do not have sufficient resources to measure their impacts.

Performance. The impact of knowledge transfer on organization performance has brought widespread debate. The goal of knowledge transfer is to increase performance; thus it needs to be managed, monitored, and communicated about its outcomes

(Lombardi, 2019). In addition, target knowledge must be shared, so different models and concepts for evaluating performance are important for organizational development. Mesquita et al. (2008) introduce the differences between redeployable and relational performance (Milagres & Burchart, 2018). These perspectives are intended to compare the impact of knowledge transfer on performance of an organization. According to Mesquita et al. (2008) redeployable performance involves improving performance by leveraging information that can be used regardless of context. Relational performance involves the development of performance through knowledge that cannot be utilized as such by outside organizations. In education export projects, it is also important to assess how the project was successful from a knowledge transfer perspective, how the knowledge has been utilized, and how the transfer affected the performance of the organization. However, less literature on these can be found yet.

The success of a knowledge transfer project can also be assessed from a **quality** perspective. Rytivaara et al. (2019) highlight the client experiences in education export: does the pedagogical content meet expectations, how do students experience it, and how does the project shape a teacher's professional learning and long-term development. Similarly, Juusola and Räihä (2020) argue that the quality of an education export project can be assessed from the perspective of customers, i.e. the students and the staff. The quality is related to the customer needs, expectations, collaboration and interaction. In addition, the recipient should achieve something more and the education provider should be able to balance the training traditions without losing national principles. Lönnqvist et al. (2018) present the Intellectual capital concept as an analytical tool that can be used to develop education export and solve its challenges. The purpose of the concept is to provide an analytical tool that can be used to better understand the nature of education export and its challenges, especially in Finnish universities. The quality of education export has been addressed in the literature, but less is described about what quality means in that context and how it is measured.

2.7 Summary of the conceptual framework

Education export is expected to bring more growth, revenue, and visibility to education providers at every level of education. Further discussion is needed on whether education export activities are profitable in all institutions and whether revenues and expenditures can be allocated correctly due to the internal cost structure. Export of higher education has also raised a lot of concern about the direction in which academic education is evolving and whether it will only become a funding instrument. Export education also involves a lot of challenges and requires expertise from the education provider. The good export readiness of the education provider contributes to the success of the education export project. On the other hand, the success of an education export project can be hampered if the education provider does not have sufficient experience, abilities, and routines to carry out export activities.

The knowledge transfer process is a multi-level phenomenon. Milagres and Burchart (2018) state that it is important to understand its causal relationships and context dependencies. However, there is conflicting information in the literature about these. Michailova and Mustaffa (2012) hypothesize that this is due to the increased subsidiary knowledge flow literature and the fact that the phenomenon under study may not be sufficiently understood. However, in the knowledge transfer of an education export project, it is more important to understand the effects of the most frequently recurring factors than to have an in-depth multi-factor interaction in different contexts.

In an education export project, knowledge is transferred from the source of the knowledge, in this case the vocational college, to the recipient, such as the education provider or the company in the target country. Knowledge transfer can be facilitated or hindered by the factors related to knowledge characteristics, the factors related to process actors, and the factors related to transfer mechanisms. The success of the knowledge transfer process can be evaluated in terms of efficiency, performance, and quality. In addition, the export readiness of the education provider is a basic

precondition for successful implementation. **Figure 3** brings together the education export project concept from a knowledge transfer perspective.

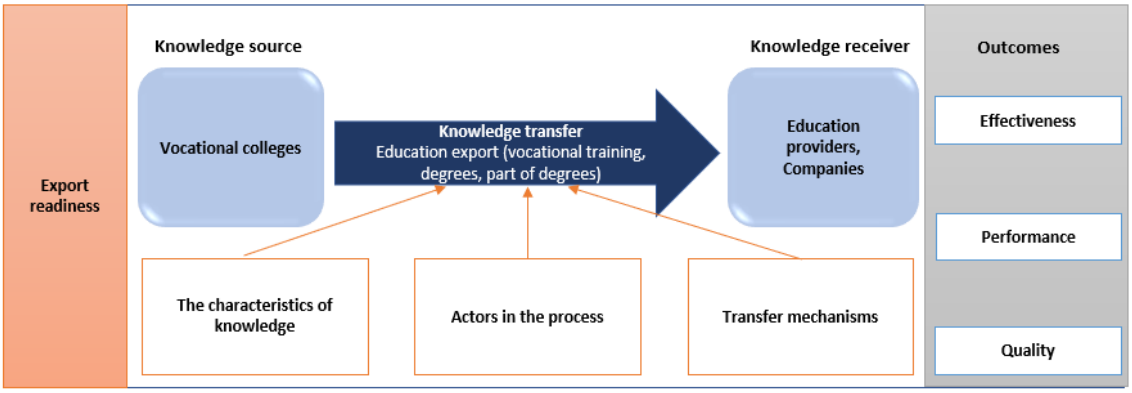

Figure 3. Education export barriers and drivers; a conceptual framework

3 Methodology

In this section, the research design and the selected methods are presented and explained. First, the research approach and strategy are presented. Then, the case selection, the methods of data collection and data analysis are described. Finally, the limitations, reliability and validity are provided.

3.1 Research design

In this section, a research approach and strategy of this study are presented. The literature presents three main research approaches: deductive, inductive and abductive approaches. The research approach in this study is **an abductive research approach**. Abductive research can explain, develop, or change the theoretical framework before, during, or after the research process (Yin, 2003). The purpose of the abductive approach is to be able to move between theory and empiricism and to accept imperfections that can deepen understanding (Dubois & Gadde, 2002). An abductive strategy can produce new insights and explanations for observed events (Simpson, 2018). Abductive logic is needed when looking for explanations for unexpected events. The abductive approach is appropriate for this study because education export is examined from the knowledge transfer perspective and the effects of factors influencing the phenomenon may be surprising or unexpected factors may arise in the middle of the process.

The purpose of this study is to find an answer to the research question: *How has Finnish vocational college implemented knowledge transfer in their education export projects and what factors has hindered and promoted it?* Therefore, this study is intended to provide **explanatory answers**. Explanatory studies investigate situations or problems determining the relationships between variables (Saunders et al., 2007). The purpose of explanatory research is to explain a phenomenon and not just to describe it (Given, 2008). This study aims to explain knowledge transfer factors, which lead to effective education export projects.

The case study strategy was chosen for this study because the boundaries between the phenomenon under study and the context are not obvious. In addition, the case study strategy uses various sources of information to study the phenomenon, in which theory is placed in the empirical world (Piekkari & Welch, 2018). The case study strategy makes it possible to gain a broad understanding about the context of the study and the process to be implemented (Yin, 2003). The case study strategy also makes possible to challenge an existing theory and also provides an opportunity for new research questions (Saunders et al., 2007). Moreover, the case study strategy provides answers to the questions of “why”, “what”, and “how” (Saunders et al., 2007). The case study strategy is suitable for this research question because it includes “how” education export projects are implemented and “why” the certain factors have been barriers or drivers.

The case study strategy can be a single-case study or a multiple case study (Allen, 2018; Saunders et al., 200). A single-case strategy is applied, for example, when the focus is on a critical case that allows the theory to be extended, or an extreme case in which unique circumstances can be brought out (Allen, 2018). The multiple case strategy is used when there is a need to compare across cases (Allen, 2018; Saunders et al., 2007). A single-case strategy is adopted in this study because this is a typical case and provides a less frequently viewed perspective on the phenomenon. That is, education export is viewed from the perspective of knowledge transfer. In addition, the purpose of this study is to find out what barriers and drivers of knowledge transfer have occurred in the implemented education export projects and how they have affected.

Explanatory studies can be quantitative or qualitative (Saunders et al., 2007). Quantitative and qualitative terms are used for data collection techniques as well as data analysis procedures. Quantitative research produces numerical information (Saunders et al., 2007). Qualitative research focuses on understanding the phenomenon, and particularly on the experiences and ways in which interviewees express themselves (Adams et al., 2013; Eriksson & Kovalainen, 2015). The qualitative research method was selected in this study because the purpose is to examine which factors influence the implementation of

the education export project in the Finnish vocational college and what effects they have on the success of the project. In addition, this research should be conducted in a natural environment, that gains trust and leads to a deeper understanding of the phenomenon.

3.2 Case selection, methods of data collection and data analysis

This study has a single-case study strategy; thus, the education export team of one Finnish vocational college is chosen as the case. The ideal case for this study would be a Finnish vocational education team that would have been exporting education for several years. This vocational college would have experience in different types of education export, such as the export of degrees, the export of partial degrees and other short-term education. The ideal vocational college has involved in management at different levels, teachers, and other staff in the planning and implementation of an education export project. More information can be found in **Table 10.**

Table 10. The case selection criteria

Case	Finnish vocational education export team	Experience over 3 years	Exported degree education	Exported partial degree education	Exported short-term education	Customers can also be interviewed	Target countries from different cultures
The ideal case	x	x	x	x	x	x	x
Tredu, education export team	x			x	x	x	x

The case selection process first included the mapping of potential vocational colleges in Finland from Institutions providing vocational education and training 2018 -statistics provided by Vipunen Education Statistics Finland (2021). Four institutions were selected according to size and geographical location. Next, the websites of the four mapped vocational colleges were checked whether they export education and who are the contact people. According to Education Finland (2020), 70% of vocational colleges have an education export strategy in place. However, this does not mean that all these

colleges have already implemented the strategy, as some vocational colleges are still in the early stages. Two of these were selected; the first was meant to be a case and the second a backup. The first choice of vocational education export team promised to participate, but when the time for the interview came, they did not have time to attend. Thus, the second case was chosen instead. The second case does not meet all the criteria of an ideal case from the knowledge transfer perspective. The description can be found in **Table 10.** The chosen case is Tampere vocational college and its education export team, whose educational export activities are being studied for three projects. This study examines the implementation of these three projects and the barriers and drivers of knowledge transfer.

The data collection methods in case study research can be interviews, direct or participant observations, and artifacts such as documents or records (Allen, 2017). Interviews can be formal and structured or informal and semi-structured (Saunders et al., 2007). Semi-structured interviews provide an opportunity for broader and more explanatory answers and are used for identifying the behaviour and patterns. In addition, they provide opportunity for the open-ended questions and define the topic under investigation. Thus, **the semi-structured interviews** were chosen as the primary data collection method for this study, and they have been conducted in face-to-face online meetings. In this study, it is also important to discuss some topics in more detail. The secondary data was also used for triangulation purposes. The secondary data consisted of bulletins on education export team website.

Interviewees were selected based on membership in the education export team and participation in education export projects. In addition, an agent company that cooperates with the selected education export team, which also represents the recipient organization and an expert whose organization has experience in education exports for several years were selected for interview. Expert comments have been used in the analysis of the findings. More information about interviewees can be found in **Appendix 3**.

The interviews were held as an online meeting through Teams. The interviews were recorded because semi-structured interviews often contain open-ended questions and discussions may diverge from the interview guide and the records are used also for analysis. The length of the interviews varied from 30 min to 60 min. More information about interviews can be found in **Appendix 3**. The interview questions were sent in advance to the interviewees that they could prepare for the interview. The interview guides were conducted for representatives of the source organization and representatives of the recipient organization and can be found in **Appendixes 1 and 2**.

Qualitative data analysis is a complex process (Saunders et al., 2007). When analyzing qualitative non-standardized data, it is advisable to create a conceptual framework and to group the data into categories. In this study, interview data analysis began as early as the interview stage. At the time of the interview, the data were already classified as barriers or drivers. After the interviews, the recorded data was transcribed and divided into subcategories. Next, key topics, patterns, and relationships were searched for in the data. After that, the collected data were analyzed based on the theoretical background. Finally, the conclusions of these findings were compiled.

3.3 Limitations, reliability and validity

The purpose of this study is to provide broader information on education export to current literature from knowledge transfer perspective. There is already some information in the literature on the topic of the study, but less from the knowledge transfer perspective. The researcher should also be able to give some generalizations about an external phenomenon outside of their own research (Adams et al, 2013). It is important for a deeper understanding of the nature of research. The aim of this study is to provide better understanding about the knowledge transfer barriers and drivers in education export projects and present facts for researchers and managers in order to improve education export projects. This study also has limitations, and it could have been improved in various ways. This is the single case study related to projects of the vocational education

export team of a Finnish vocational school. Therefore, the results of the study may not be generalized to all education export projects. However, the results can be generalized to other education providers of the same type and to those at the same stage in their education export activities. Moreover, some of the results can be generalized to all education providers. The other limitations are that, when using the interview method, the interviewees may understand the questions differently or they may give a colored picture of the situation. Particularly in this study, the interviewees had no previous experience of considering the education export project from the knowledge transfer perspective.

Researchers have an ethical responsibility to perform their work honestly and responsibly (Adams et al., 2013). Reliability refers to the consistent results produced by data collection techniques and analysis methods (Adams et al., 2013; Saunders et al., 2007). This study has sought to select the most appropriate methods for conducting and analyzing the study. Reliability can be assessed by the reproducibility of the measures, similar observations by other observers, and the transparency of the raw data. The core of generalizability is the ability to explain the same or a similar phenomenon at all times, in all places without new research (Adams et al., 2013). Thus, the choice of research design, strategy and the methods are documented so that other researchers can understand the processes used and are able to re-analyze the data collected. Information about the interviewees and the course of the interview is also documented and can be found in **Appendix 3**.

Validity reports the accuracy of research findings, conclusions, and suggestions (Adams et al, 2013). It refers to whether the results are based on facts for example, whether the relationship between the variables is causal (Saunders et al., 2007). In this study, previous literature has been used as a basis, the collection of data has been done objectively and accurately, and the evidence of the findings have been provided. The results of this study can be generalized to the education export activities of public actors and in particular to the vocational education export.

4 Findings

In this section, the case, interviewees, and findings are presented. The introduction of the case and findings are based on personal interviews and information obtained from the websites. First, the case and interviewees are introduced. Next, the findings are presented in the following parts: 1) factors related to the characteristics of the transferred knowledge, 2) factors related to the actors of the process, 3) factors related to the transfer mechanism, 4) outcomes and 5) export readiness. The findings include a summary of the interviews and direct quotations from the interviewees' statements have been used to describe some points in more detail. To facilitate the summary of the findings, abbreviations in **Table 11** are used for the names of the interviewees.

Table 11. Abbreviations of the names of the interviewees

Name	Abbreviation
Tredu, Outi Kallioinen	O.K.
Tredu, Helena Koskinen	H.K.
Tredu, Teemu Kalliomäki	T.K.
Tredu, Ina Jantunen	I.J.
Tredu, Inga Pöntiö	I.P.
Tredu, Sami Hasila	S.H.
Tredu, Seppo Pylvänäinen	S.P.
PINO Network, Expert	Expert
Sumino Ltd., Zheng Xu	Z.X.

4.1 Case Education export team of Tampere Vocational college

The case is the education export team of Tampere Vocational College, whose education export activities are being studied for three projects. Tampere Vocational College (Tredu) is the second largest vocational school in Finland. Tredu is established in 2013 with the institutional background since 1890 (Tredu, 2021). It consists of 15 campuses around the Tampere region with some 16,000 students and 1,000 staff members. Moreover, about 1,700 students participate in short courses each year. There are several fields of

education in Tredu such as Culture, Humanities and Education, Natural Resources and the Environment, Natural Sciences, Social Sciences, Business and Administration, Social Services, Health and Sports, Technology, Transport, Tourism, and Catering and Domestic Services.

Tredu Education export team. Tredu launched its education export operations in August 2018 while the team and the Director of Education Export started working. Additional members of the education export team have been gradually added since then. However, there have been many changes in team members. "*For example, one knowledgeable person left, which strongly influenced the team's performance*", (H.K., 2021). The purpose of the team is to offer Finnish vocational education expertise globally (Tredu, 2021). They provide tailored products and services according to customer needs. More information on products and services can be found in **Figure 4**.

The education export team includes two permanent members and other members work on education export matters on a project basis. In general, the mapping and contract negotiations of the education export team's clients are taken care by the permanent members of the education export team and the products and content of the projects are designed and produced by teachers in the education field related to the project. Once the negotiations and agreements have been made, representatives of the education fields will be involved, and content planning and production will start. The experience of education export activities varied greatly among the members of the team. Some team members have more than ten years of experience in previous positions, and some have started in 2019.

The education export team meets regularly, and its director informs the director of vocational education about the ongoing projects. Potential customers and projects as well as potential risks and workloads are also presented to the Vitality and Competence Board of the city of Tampere. The Director of vocational education is also involved in education export negotiations when needed. Especially in large and strategically

important projects, the organization culture and hierarchy of some countries require the presence of senior management.

Education export is a strategically important issue for Tredu. It brings a lot of added value to the organization. However, education export business is a long-term activity requiring time before revenue. In Tredu, education export is still partly understood as a separate activity, although it is part of the normal international activities in vocational colleges. "*Export of education should be seen as a common goal, in which participants increase their skills and gain added value"* (H.K., 2021).

The development of Tredu education export team has been affected by the change of team members and the Covid-19 pandemic. The Covid-19 pandemic has had a significant impact on education export activities of Tredu. The operations had to be seen from a new perspective as existing customer contacts disappeared, and some projects stopped. "*Some preliminary negotiations started for example, with representatives from India and Namibia and suddenly activities were stopped"* (S.P., 2021). Tredu has also made changes to its organizational structure in the recent past and education export has been transferred to international operations.

Mapping the market and acquiring customers demand a lot of time and resources. Often negotiations do not lead to an agreement. For education providers of public administration with limited resources, this is strongly reflected in the operation. "*The education export team has had a lot of start-up customer relationships and projects and several plans have come a long way, but surprising factors have stopped the projects*", (O.K, 2021).

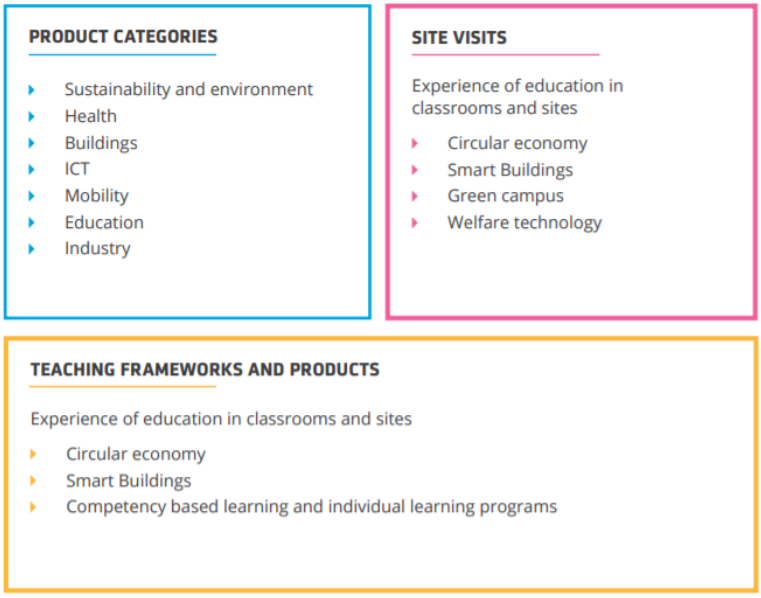

Figure 4. Tredu education export products and services (Tredu, 2021)

4.1.1 Interviewees

The interviewees consisted of Tredu Director of vocational education, Director of education export team, members of the Tredu education export team and teachers involved in three case projects. To get different perspectives, an external expert from PINO Network and an agent from Sumino Ltd working on the China project of Tredu were also interviewed. More information on the interviewees and interviews can be found in **Appendix 3.** An external expert was interviewed from PINO Network because there was a need to get findings also from the perspective of an education export expert. The purpose of the PINO Network is to help and support its members in education export activities such as networking and finding global education-related business opportunities (PINO Network, 2021). A representative of Sumino Ltd. was interviewed because they are acting as an agent in the China project, and they bring the customer perspective of the project. Sumino Ltd is a Finnish company providing education services to the Chinese education market and other countries (Sumino, 2021). "*Sumino Ltd is familiar with the Chinese market and ways of operating*" (Z.X., 2021).

4.2 Education export projects

The activities of Tredu education export team were examined for three projects in order to obtain a sufficient view of the implementation from the perspective of knowledge transfer. So far, Tredu education export team has had a few short education export projects, two completed education export projects and two larger projects are underway. Two of the selected projects have been implemented and completed and one large-scale project is underway. The first project is the Smart City project for Russian customers, and the second is the Shadow project for Italian customers. The third project is a social and health care project for China customers.

The Smart City project was one of the first education export projects launched in Tredu. The purpose of the project was to produce and sell the training package that presents the practical implementation of the Smart City concept in Tampere City. The Smart City concept includes a sustainable and smart city area, where housing and mobility are in line with sustainable development and services are digital, flexible, and user-oriented (Tampere, 2021). The project included a four-day Smart City training package, which consisted of information about the Smart City development program and a tool for designing the Smart City concept. "*The training included complex concepts that needed to be opened up more to the participants*" (T.K., 2021). The training materials were translated into Russian, and an interpreter was used in the trainings and visits. The clients of the trainings were education representatives from Moscow and St. Petersburg. Considerable amount of work was done in the project to map the Russian market and acquire customers. The project was also implemented with limited resources. More information about the project can be found in **Table 12**.

The aim of **the Shadow project** was to create a training package that introduces Finnish vocational education to Italian representatives of the education sector. The training package consisted of a two-week visit to Finland, during which Finnish vocational education was introduced using the Shadowing method. The training includes company visits and company presentations from an education perspective. "*The training package*

included pedagogical knowledge" (S.P., 2021). More information about the project can be found in **Table 12**.

The China project is a social and health care project designed to provide social and health education to China. The project was launched a couple of years ago, but the operations were temporarily interrupted by the Covid-19 pandemic. The project will use Sumino Ltd as an agent to assist Tredu education export team in the Chinese market. "*There is little English spoken in China, so finding a reliable partner is important*" (Z.X, 2021). Tredu has entered into a cooperation agreement with Sumino Ltd. Sumino Ltd carry out negotiations with subscribers and end customers. Marketing and end customer acquisition are carried out together. The first education product of the China project was nursing assistant partial degree training for teachers in the field. Vocational degree education is regulated by laws and regulations by the National Board of Education in Finland. In particular, social and health vocational education is tightly regulated. "*The training package includes contact and online teaching as well as other pedagogical methods"* (I.P. 2021). The training materials were translated into Chinese, and an interpreter was used in the trainings and visits. More information about the project can be found in **Table 12**.

Table 12. Education export projects

Project	Purpose	Education package	Customers	Date Status
Smart city project	To produce and sell a training package that presents the practical implementation of the Smart City concept in Tampere	Presentations of the Smart City activities - Trainings, visits, company tours including company presentation and Smart City activities - First training held 5.-8.3.2019	Education representatives from Moscow and St. Petersburg	From 11/2018 to 03/2019 Ready
Shadow project	To produce and sell a training package that presents Finnish vocational education in practice	Presentations of Finnish vocational education - Shading the practical work of vocational education in different Tredu's offices - Trainings held during 05/2019	Italian teachers of the education sector	From 03/2019 to 06/2019 Ready

Project	Purpose	Education package	Customers	Date Status
		- Two-week training sessions for multiple groups		
China social and health project	To produce and sell a training package which includes a nursing assistant partial degree education for social and health care teachers	Nursing assistant training for social and health care teachers - Lectures, visits, learning environment platform	Chinese social and health care teachers	Discussions started 2018, project started autumn 2019 Ongoing, implementation phase

4.3 Factors related to the characteristics of the transferred knowledge

The interviewees explained that in the Smart City, Shadow and China projects, different types of knowledge were transferred at different stages of the project. The initial phase of the project included market research, customer acquisition, drafting complex contracts, and contract negotiations. The content of the training package was initially designed together with the clients or agent, not with the end customers. Contract negotiation and content design also includes complex knowledge that emerges from organizations processes, rules and routines. At the implementation stage, the training packages included pedagogical knowledge, which is usually tacit, explicit, systematic, structured and complex knowledge. "*The knowledge transferred in education export projects is pedagogical competence, digital competence, values, ethics and work community norms*" (Expert, 2021). The systematic knowledge such as the education field related knowledge can only be presented in the context of a particular field of education. Part of the vocabulary of vocational education and the fields related terms can be classified as complex knowledge.

The interviews also highlighted that, the training packages included simple and independent knowledge, which was easy to understand and can be used directly by the receiver organization. The training packages also included human, social, collective and technè knowledge. In the China project, it was important that participants had a basic knowledge of the topic to be able to participate in the trainings. The China project included also social and health care related knowledge consisting of norms and culture.

The technè knowledge was combined from different sources and it has also emerged through practical teaching work. "*Training packages include many types of material related to everyday situations*" (Expert, 2021). "*Knowledge transfer also required participants to reflect, process and manage knowledge* (Expert, 2021). The Smart City project also included redeployable knowledge. It was intended to provide a tool for participants in smart city planning.

Based on interviews, in all these projects, source and recipients were similar because they were both representatives of the public administration and education sectors. In the Shadow and China projects, knowledge of training packages was also context-dependent. Shadow project information can be widely used in vocational education but in the China project, knowledge can be used best in teacher care assistant education. In addition, at the end of the project, project completion negotiations and collection of customer feedback included tacit, explicit, simple knowledge.

4.4 Factors related to the actors of the process

Collaboration, trust and networks. According to the interviewees, longer-term cooperation and a relationship of trust began to be built in all projects already at the customer acquisition stage. "F*rom the beginning, longer-term cooperation should be emphasized and justified to the customer*" (Expert, 2021). In all projects, the aim was to build trust that progress could be made in concluding the agreement. "*The building of education export projects are long processes, but when you get a foot in the door, long partnerships are formed*" (S.P., 2021). Cooperation was also made with customers during the design and implementation phase. *"Project planning and implementation requires collaboration meetings with the customer as well as internal meetings between the education export team"* (I.J., 2021). At the beginning of the negotiations, "*it must be clear what is being done, what the product contains and what is not being done*". (Expert, 2021). Although the Shadow project was short, it included also building cooperation and trust. "*It is important to build cooperation and trust with all partners"* (S.P., 2021). When potential

customers were found and a partnership built, the collaboration functions well, "*well-managed customer relationships are the foundation of everything*" (T.K., 2021). Building collaboration and trust usually required visiting the site, sending a message, organizing social events, "*without being present, things cannot be taken forward, digital messages are not enough*" (S.H., 2021). Face-to-face meetings were easy to arrange in the Smart City project because Finland and Russia are border neighbors. "*It was easy to co-operate face-to-face in this project because it was easy to travel from Finland to Russia to negotiate*". (S.H., 2021) The face-to-face meetings are especially important in complex contract matters. In the China project, face-to-face meetings were prevented due to the Covid-19 pandemic.

The timing, content and all other details of the Shadow and China projects were negotiated with agents. This saved time and travel costs. However, the end customers were not involved in agreeing on the details and requirements of the project, which caused different expectations and lack of trust in the Shadow project. The end customer should also be involved in some way already in the negotiation phase in order to find out their requirements and wishes at the beginning of the project. The China project negotiations were held with Sumino Ltd who knows the Chinese market. "*This is usually the case in China because agents know the market and know how to operate there*" (Z.X., 2021). It was also important to build a cooperative relationship and trust with an agent i.e., Sumino Ltd, so that the agent can find the right customers and things are understood in the same way.

Based on interviews, networks were important because they provided information about customers. *"The most important factors in finding customers are marketing research and the utilization of networks"* (Expert, 2021). Tredu is a part of several education networks that help build collaboration and trust. "*Networks facilitate the transfer of information because they provide information about partners*" (H.K., 2021). However, at the start of the Smart City project, Tredu did not yet have networks in Russia, which made acquiring customers time-consuming and laborious. "*Acquiring customers and*

building cooperation and trust started from scratch, which was time-consuming and expensive" (T.K., 2021). The importance of cooperation and networking need to be understood from the financial planning perspective as well. "*It is important to invest in representation, networking and negotiation"* (T.K., 2021). These costs should have been budgeted for marketing costs already at the budgeting stage.

Motivation and experiences. The interviews also highlighted that customers of these projects were mainly motivated to participate in trainings and receive knowledge. **"***Customers are generally well motivated to participate in trainings and receive information*" (Expert, 2021). In the China project, customers were highly motivated to participate in trainings and receive information because the Chinese appreciate the Finnish education. "*Finnish education is valued and favored in China*" (Z.X., 2021).

Moreover, in all these cases, participants were representatives of the education sector, so they have an experience and understanding about the basics. However, cultural differences in education systems, complex concepts and vocabularies needed to be explored and opened for customers. "*It took time to open them up for the client and translate them into Russian*" (I.J., 2021). For example, *"knowledge-based can mean many different things in different countrie*s" (Expert, 2021). Several discussions were needed regarding the evaluation criteria and the demonstration of competence, especially how competence is created and where it can be demonstrated. According to the interviewees Tredu education export team had no previous experience in acquiring customers from Russia, Italy and China. Concluding an agreement with Russian customers, with Italian and Chinese agents took a lot of time.

Structural governance. The interviews also highlighted that all the customers and the projects were new. Thus, common knowledge transfer practices did not yet exist, and the governance structures of customers or agents were not known. "*There have been differences in contractual practices because different countries have different bureaucracies and practices"* (Expert, 2021). The first projects did not yet include all the necessary

details in the contracts, but its importance was later understood, and all relevant details were documented such as the language of the trainings and material, GDPR and IPR matter. "*Partners should also have expertise in GDPR and IPR issues*" (H.K., 2021).

The Smart City and Shadow projects did not require in-depth knowledge of the routines or processes of the source organization because they were short projects. In contrast, the China project requires knowledge of the processes and routines because it includes degree-based training. The degree based vocational education includes certain practices and criteria, and its implementation in the target country will be closely monitored. The education provider must ensure that the teaching will be carried out according to degree criteria by the source organization. Thus, the contracting stage is important. Problems appeared also with the copyright of training packages. For example, the teaching material of Edita is widely used in Finnish education, but it cannot be included in the education export products. Figuring out copyright issues and creating new practices took time.

Absorptive, relative and retentive capacity. The interviews highlighted that participant of the trainings had a basic knowledge of the topic. Thus, it was easier for them to absorb the new knowledge and combine it with the previous knowledge. However, the different meaning of the terms in different cultures, language problems, use of an interpreter and a complex professional vocabulary brought challenges. In addition, using an interpreter always takes multiple times. In the Shadow project, some participants lacked motivation because they did not understand the lessons taught in Finnish. In the Smart City project, all negotiations and trainings were interpreted into Russian. Before interpreting, it was also necessary to make sure that the interpreter understands the terms correctly and is thus able to interpret them correctly. The Russian interpreter was a member of Tredu education export team. However, she first had to find out for herself what Smart City means and how it relates to vocational education in Russia. "*I first had to figure out for myself what the red thread of the Smart City project is*" (I.J., 2021). In the China project, trainings were interpreted into Chinese. Also in this case, the interpreter had to understand what the terms mean before she or he could interpret them for the participants.

Opening the concepts for the interpreter was time-consuming and required additional meetings. In any case, it was ensured that pedagogical approach was adapted to the local situation.

The China project also highlighted that education is viewed from different perspectives in Finland and China. "*In Finland, education is thought to improve the quality of life and the purpose is to acquire skills. In China, the focus of education is more on what benefits education brings, the certificate is the most important thing, and who issues the certificate, what the certificate is, and what benefits it will bring in the future. They do not care about much the content of education; the certificate is the most essential." (Z.X., 2021).*

All customers of the projects were representatives of the education organizations, and they understand the ways in which public administration operates, despite cultural differences. If the recipient would have been a company, the knowledge should have been modified according to the recipient's understanding. It is more difficult for companies to understand the operating models of public administration.

Tredu education team collected feedback from the customers of the Smart City project on how they can use the Smart City concept as a tool in their own work or organization. There is no more detailed information on how the participants have utilized the transferred information in their own organization. In the China project, it will be closely monitored how the receiver organization organizes the degree-based training locally.

Time. The interviews also highlighted that in all projects, it took a lot of time to map the market, acquire customers, negotiate contracts, and clarify practical issues. They reduce the time from the design and content production. Obtaining the necessary resources from the fields of education is difficult in the middle of the Academic year. Teachers' work plans have been drawn up for a year and have not yet taken sufficient account of education export. In addition, in the Smart City project, too much time was spent on the planning phase, so there was not enough time left for the project implementation phase.

"*The organization was not ready for the implementation phase"* (T.K., 2021). In the China project, there were not enough teachers involved and, consequently, the research work took a lot of time, which in turn resulted in reduced time left to produce the content. "*The project also involves too few representatives of the education field in relation to the potential and scope of the project*" (I.P., 2021). Currently, only four social and health teachers are involved in making content for the training package. In addition, unlocking the meaning of the terms required some time because an interpreter had to be used and it had to be ensured that the terms were correctly translated into Russian. *"Often the workload of projects is incorrectly sized, the customer should be able to sell more hours or reduce content"* (Expert, 2021). There were also too few resources to map the market and sell the product. "*There was too much work and responsibility for one person to map the market and sell the product*" (I.J., 2021). "*The right people should be booked for projects in time*" (T.K., 2021).

Cultural differences. The interviews also highlighted that cultural differences have been felt to occur a lot because all projects have had to acquire knowledge and expertise about the markets, customers and practices of the new target country. "*Things do not progress as in Finland, it takes more time to get anything sold, things stay in the air….*" (S.P., 2021). Many countries have different contract practices than Finland, and the difference became even more pronounced because Tredu education export team and the Tampere city legal department did not yet have sufficient experience of international agreements. Cultural differences, the organizational hierarchy and their effects on education export activities had to be taken into account according to the target country. "*You must be aware of who is the decision maker, how money is discussed, how the customer is presented, and how trust is built*" (T.K., 2021). The aim was to increase the cultural competence of the project actors during the projects. However, there will be an even greater focus on this in the future and efforts will be made to train and familiarize the actors involved in the project with the practices of the target country from the very beginning of the project.

In addition, language problems also present challenges. All negotiations, agreements, and trainings had to be interpreted and translated into Chinese. Many countries do not get along with English and an interpreter was needed. "*It is necessary to work with some countries all the time through an interpreter because English language skills are not sufficient in the target country*" (T.K., 2021). In addition, trading in China is different from in Finland, and business negotiations took a lot of time. "*Asian countries are challenging trading partners due to cultural differences"* (I.P., 2021).
Furthermore, there are other cultural differences such as a different understanding of the structures of education. However, even when the structure of education is similar, there are many cultural differences.

4.5 Factors related to the transfer mechanism

The interviews also highlighted that the transferred knowledge was mostly tacit and complex in these projects. Thus, different mechanisms were used to transfer the knowledge. In the education export projects, different knowledge is transferred at different stages of the project. Both interactive mechanisms and information mechanisms were used for knowledge transfer. In these projects, explicit knowledge included contract templates, design and contract-related files, and training materials that were transferred via e-mail, cloud services, and learning platforms. The transfer of tacit knowledge related to contracts, planning, trainings, and project completion took place in face-to-face or online meetings and events.

The Covid-19 pandemic brought challenges to knowledge transfer and influenced the choice of knowledge transfer mechanism. "*The primary option for the training sessions was face-to-face trainings but other options had to be planned during the Covid-19 pandemic*" (T.K., 2021). The Covid-19 pandemic forced the planning of new ways of working and for example, virtual training was introduced more widely. The pandemic affected the Chinese project the most and face-to-face meetings could not be held. In addition, it also had an impact on the conduct of training and the best practical pedagogical

methods could not be used. In vocational training, internships in a real work environment are important. "*The intention was that teachers would come to Finland to see how teaching takes place in Finland and due to the Covid-19 pandemic, a lot of practical information was not transferred*" (H.K., 221). The choice of knowledge transfer mechanism also affected the quality of education. "*This degrades the quality of education as it is not possible to choose suitable training methods*." (H.K., 2021).

The Smart City project trainings were contact instructions and visits to various companies in Tampere area in Finland. "*The goal of the education export team was to design the Smart City training package so that the functions, facilities and equipment already existing in the organization could be utilized*. *However, the product must almost always be tailored to the customer's needs*" (T.K., 2021). The Shadow project trainings included the shadowing of vocational lessons, company visits and company presentations from an education perspective in Finland. Customers toured various offices at Tredu campuses and followed vocational training in lessons in various fields. Company visits took place at the premises of various companies. Customers also received paper brochures and other material during the company visits.

The China project was the largest project from the perspective of knowledge transfer mechanisms. It was a degree-based training for teachers and the transfer requires several pedagogical methods. The mechanisms for explicit knowledge were contract files, meeting minutes, reports, training tools as learning platforms, videos, phone calls and e-mails. The mechanisms for tacit knowledge were for example face-to-face meetings, contact instructions and online trainings. Online trainings were held via Zoom, and the Moodle learning environment was used. Not all the same media used in Finland can be used in China, which also brought challenges to the project. New different solutions for knowledge transfer had to be considered. "*There were challenges in different media because of all normal platforms like Youtube did not work in China*" (I.P., 2021). Existing videos were converted to MP3 format and firewall problems occurred. They also needed to use a common web integration platform working in China.

4.6 Outcomes

Interviewees stated that quality of the outcome was evaluated through customer feedback. Moreover, the efficiency of the project was evaluated, and the effectiveness of the project was assessed using the spent work hours and cost calculations. "*The hours spent are recorded to see how much time has been spent for the project*" (Expert, 2021). Feedback related to the quality is collected from participants after the trainings and feedback discussions are held also with other project customers. Project successes were also discussed internally in the education export team. "*The head of the education export team informed the needed parties about the success of the project*" (S.H., 2021). Calculating direct project cost was difficult. "*Tracking cost in our organization is difficult because it is not known how they are granulated due to different financing methods such as investment financing and VOS financing*" (T.K., 2021).

According to the interviewees, in the early and final stages of projects, knowledge transfer was slow due to lack of processes and routines. The interviewees stated that developing export readiness of Tredu affected the performance and effectiveness of the projects. Practices and processes for exporting international education were premature. Too much time was spent on the investigation work, which reduced the implementation time. The knowledge of the training packages was transferred efficiently according to the customer feedback and the length of the trainings was appropriate.

Some of the interviewees also pointed out that internal communication posed challenges. "*Internal communication has also been challenging and needs to be further improved*" (T.K., 2021). The education export team does not yet have clear methods for evaluating and measuring the success of the project and separate metrics from projects were not collected. These projects have not assessed the longer-term or regional effects of the export of education on the target organization or the target country. "*Longer collaborations usually bring added value to the receiver organization, then local impacts can also be caused, it is difficult to say what impacts projects will bring and when they will occur*" (Expert, 2021).

Feedback of the Smart City project customers was collected directly from customers after the trainings. "*Customers were asked to make a PowerPoint presentation about what things they incorporate into the content of the training and how they can utilize it in their own work*" (I.P., 2021). Tredu education export team wanted to find out what kind of cooperation they could have with Tredu in the future. The content of the Smart City training package was high quality and the transfer of knowledge during the training was successful. However, the processes, practices and knowledge of international agreements needed to be developed. In the Shadow project the training did not fully meet the expectations of end customers. It had been agreed with the subscriber of the project that the lessons to be shaded would be in Finnish, but the end clients would have to wait for interpretation.

The quality of the China project was not yet measurable during the interviews. However, feedback on the progress and quality of the outcome is collected all the time and based on the feedback, the training will be developed. As the China project includes degree-based vocational education, the exporter of the degree is obliged to ensure that the teaching related to the degree is carried out in the target country according to the criteria of the degree. Once education organizations in China have adapted the nursing assistant training, its implementation is regularly monitored and evaluated. Monitoring and evaluation ensure that training is taught and implemented in accordance with the Finnish degree criteria. In addition, the competence demonstrations in China will be also monitored and evaluated. For example, competence demonstrations are videotaped and inspected, and audits are held regularly. In addition, degree-related materials are stored on a learning platform and Tredu education export team can verify that the specified criteria are being met. Thus, the quality of the training can be ensured. In addition, Sumino Ltd evaluates the outcome and its suitability for the Chinese market. They also gather feedback from Chinese teachers on whether the product is suitable for the Chinese market. The first product of Tredu was a pilot and can be used to verify product quality. "*With the pilot, Tredu can learn what the requirements really are in China*" (Z.X., 2021).

4.7 Export readiness

Interviewees stated that Tredu started its education export business without ready-made processes and practices. "*Tredu has expertise in exporting education, but processes and practices still need to be improved*" (S.H., 2021). There were shortcomings, especially in resources and know-how, and the role of City of Tampere as owner of Tredu made it difficult to set prices and conclude contracts. The aim was to utilize the know-how and processes of other education institutions that have started exporting education. At the same time, a nationwide education export project was underway. "*The ongoing nationwide education export pilot project was expected to yield good practices, contract and pricing models*" (O.K., 2021). The results of the nationwide education export project could only be used marginally by Tredu education export team. Education export activities were a good start before Covid-19 pandemic but during the first wave of the pandemic, education export activities stopped. "*For example, the Kazakhstan project was in its infancy, and it was completely cancelled*" (O.K., 2021).

Tredu education export team did not have sufficient resources on its own, but it depends on teachers in the education fields. The activities of the education export team are project-type activities and getting teachers from the fields of education to implement projects is challenging. Teachers' work plans have been made for one year at a time and changes in the middle of the year are difficult. "*The challenge has been that there has not been enough common will to make the resource issue work*" (S.H., 2021). In addition, the members of the education export team have changed all the time, which has slowed down operations. Education export is part of the international activity in the regulations of vocational education. This is not yet fully understood in the organization and affects the ability to export. However, some of the operations were flowing smoothly and it was thus easy for new members to come in the team. "*It was easy to go to Tredu education export team because it had a knowledgeable leader with the ability to take things forward. Projects were handled well, and routines and processes were in place*." (S.P., 2021).

Interviewees stated that exporting education requires long-term research because cultures, goals and starting points are different with the different customers. In the early stages of the education export team, more demanding projects did not start at all due to the problems. Some projects were invested for a year, after which it was found that the projects were too demanding. "*For this reason, launching operations in a large organization was not successful and some projects had to be canceled*" (T.K., 2021). The education export team must understand which of its resources are sufficient and which activities are too large and complex. "*Project planning is based on identifying customer needs and whether we are able to meet customer needs*" (T.K., 2021). In addition, education export projects must also include expertise in General Data Protection Regulation (GDPR) and intellectual property rights (IPR) issues. Furthermore, the education export team should have the understanding and expertise to avoid questionable customers and abandon projects that are too demanding a small player such as tightly regulated industries. "*In some markets, in some cases, opening the door may cost money*" (S.P., 2021).

Interviewees stated that export readiness includes knowledge of markets, "*identifying where education is needed, what is the economy of the target country, whether they have the potential to develop an education system*" (Expert, 2021). In addition, knowledge of international agreements is important. *"The conclusion of the agreement is part of the export readiness"* (Expert, 2021). When concluding a contract, there must be ready-made contract templates that do not include the content of the training. It is especially important to record the hours in detail. All contracts must be submitted to a lawyer for review. Different countries have different interests in the contracts, for example the EU versus Asia. Taxation, and in particular VAT, is challenging. Products may have parts that are subject to different VAT. In addition, marketing and sales are important factors. *"Export readiness was not born in the short term, it is continuous learning" (*Expert, 2021).

At the start of all projects, considerable amount of time was spent on market mapping, customer acquisition and contract negotiations. All target countries were new and

required market mapping and international agreement expertise was lacking. In addition, the education export team had no existing processes and routines for the Chinese market. The Chinese education market is large, and complex requiring special skills. Entering the Chinese market requires a partnership with an agent who understands the market. "*Exporting to the Chinese market requires finding the right and reliable partner who can localize and find the right customers* "(Z.X., 2021). Tredu entered a partnership with Sumino Ltd, which has knowledge of the Chinese market and the necessary language skills. Although the Chinese education system is of the same type as the Finnish one, there are many cultural differences. "*…, for example, a different understanding of the structures of education* (Z.X., 2021).

Interviewees stated that Tredu education export team is still developing their export readiness. Tredu as other vocational colleges, have a shortage of the necessary resources and expertise. Vocational colleges should collaborate for nationwide projects. Thus, they can serve larger clients and work on larger projects. "*It should be possible to sell the vocational education system at the state level, in which case Tredu would be involved as one of the producers of education export*" (O.K., 2021). A large nationwide education export project would be easier to manage and even smaller players would have better opportunities.

5 Discussion

In this section, the author discusses the case study findings in relation to the literature presented in section 2. The discussion is presented according to the identified stages of the education export project and the factors influencing knowledge transfer. In addition, the outcome evaluation and effect of export readiness on knowledge transfer are discussed. First, the stages of an education export project are discussed. Second, the identified stages of the education export project and the factors influencing knowledge transfer are discussed, including the evaluation of the project and the outcome. Third, the effect of export readiness on knowledge transfer is discussed. Finally, a framework for knowledge transfer of vocational education export and a summary of the main points of the discussion are presented.

5.1 Education export project stages

The findings showed that the following stages can be identified from the implementation of the vocational education export projects: **1) customer acquisition and contract negotiation**, **2) content planning and production**, **3) implementation**, and **4) evaluation and termination**. The identified stages are described in more detail in **Figure 5** and **Table 13**. The identified stages slightly follow Sherwood et al. (2011) model i.e., the framework for Collaborative Knowledge Transfer Success. However, their model focuses on knowledge transfer between universities and companies as well as emphasizing the relationship between the partners. It does not take sufficient account of the commercial perspective, customer acquisition, content planning with a customer and content production. Education export is a commercial activity that also includes market mapping, customer acquisition, content planning and production activities.

The identified implementation stages follow also to some extent of Szulanski's (1996) resulting process model. However, Szulanski (1996) model does not consider the commercial perspective, customer acquisition, content planning with customer and content

production activities. In addition, Szulanski model considers knowledge ramp-up and integration which, on the basis of the findings, cannot be usually assessed in education export projects. The findings supporting the Sherwood et al. (2011) and Szulanski (1996) models are discussed further below.

Figure 5. The stages of a vocational education export project

Based on the findings, it can be identified that in education export projects, the transfer of knowledge starts from the first contacts with customers and ends with a closing meeting. However, the aim is to build a long-term customer relationship and the closing meeting only concerns the completion of one project, and cooperation will continue in the spirit of new projects. This finding supports the existing literature presented by Sherwood et al. (2011) that at the completion stage of knowledge transfer, new plans are proposed to the customer. In addition, the findings showed that the factors influencing knowledge transfer identified by Becheikh et al. (2010) present an appropriate breakdown also in this study. The factors are related to 1) the characteristics of the transferred knowledge, 2) the actors of the process, and 3) the transfer mechanisms. The barriers and drivers associated with these factors are discussed below. **Table 13** summarizes the discussed factors affecting knowledge transfer in education export projects as a framework.

5.2 Stage 1: Customer acquisition and contract negotiation

Based on the findings, it can be stated that at the first stage of an education export project, the market is mapped, customers are acquired, cooperation with a potential agent is built, a contract is negotiated, and a contract is drawn up. These two stages can be

separated into two stages, but the present author combines them in an education export project. The purpose of education export projects is often to enter into long-term cooperation agreements, in which case it is not necessary to acquire customers for every project. In addition, combining the stages condenses the framework and makes it easier to interpret. This finding is supported in part by Sherwood et al. (2011) model where the partner is evaluated at the first stage and the details are negotiated at the second stage. However, their model does not highlight customer acquisition from the commercial perspective.

5.2.1 Factors related to the characteristics of the transferred knowledge

The findings showed that the customer acquisition and contract negotiation stage included mainly tacit, explicit, complex and structured knowledge. Explicit knowledge related to customer acquisition and contract negotiations such as various reports, marketing material, contract and other files in digital format was easy to transfer to the customer. Tacit knowledge, such as sales and contract conversations, required more diverse knowledge transfer mechanisms. Therefore, these findings support previous research that explicit knowledge promotes knowledge transfer and tacit knowledge slows down knowledge transfer because tacit knowledge requires more transfer mechanisms and support (Bhagat et al., 2002; Reagans & McEvily, 2003; Becheikh et al., 2010). International contracts are also complex documents and include structured knowledge which requires a cross-cultural opening of key concepts and understanding of different practices and processes between the parties. Thus, the finding that combinations such as tacit, complex and structured knowledge are complex to transfer supports the existing theory presented by Bhagat et al., (2002). In addition, the findings showed that both parties were representatives of the education sector. It was easier to understand each other than if the other partner had been a representative of the company. Thus, it can be stated that this supports the existing literature that the similar knowledge bases of both promote knowledge transfer especially in the early stages of the project (Kavusan et al., 2016) and make easier for individuals to better absorb knowledge (Inkpen, 2007).

5.2.2 Factors related to the actors of the process

Collaboration, trust and networks. All case team members underlined the importance of building cooperation and trust between partners. The confidence building already began at the customer acquisition stage. Therefore, this finding supports the existing literature presented by Aro et al. (2018) and Sherwood et al. (2011). Customer acquisition was also promoted by the good reputation of Finnish education. A good reputation promotes cooperation and confidence building. Therefore, it can be stated that building trust is particularly important because it promotes the willingness of both parties to transfer knowledge (Delahunty et al., 2018; Jarvenpaa & Majchrzak, 2016). However, the importance of good reputation in building trust is not sufficiently emphasized in the interorganizational literature.

The findings showed that cooperation and confidence building were important factors also in the contract negotiations. The case team members underlined that both partners must trust each other to be able to move forward with the conclusion of the agreement. Thus, this finding supports the existing theory that the partners' common understanding of the project goal promotes knowledge transfer and social gatherings are needed to build trust (Aro et al., 2018). The findings also showed the importance of a longer cooperation relationship in education export projects. A longer-term cooperation plan should be drawn up at the beginning of the education export project and customers should be committed to it. However, this has not been emphasized enough in the previous education export literature.

The findings also showed that in the Smart City and Shadow projects, face-to-face negotiations contributed to building cooperation and trust. In the China project, this was not possible at the early stage due to the Covid-19 pandemic. Thus, the progress of the China project slowed down. In addition, all case team members underlined that the face-to-face meeting is an important way to cooperate and discuss the details of the contract. The existing literature presents that collaboration (Alexopoulos & Buckeley, 2013; Hardy et al., 1998) and social gatherings are needed to build trust (Aro et al., 2018). However,

it does not emphasize the importance of face-to-face meetings enough. Therefore, a new perspective which was acknowledged from the case study is the need of the face-to-face meetings in contract negotiations. The travel restrictions brought by the Covid-19 pandemic highlighted the need for face-to-face meetings to facilitate knowledge transfer, especially during the contract stage and in complex matters.

Experiences. The findings showed that on education export projects, it is important to find out the customer's basic understanding of the product being sold and its requirements at an early stage. Particularly, in regulated degree-based education prior experience and knowledge promotes knowledge transfer especially in the early stages of a project when discussing details. Thus, it can be stated according to the previous literature presented by Aro et al. (2018) that partners should know at the beginning of the project what is the recipient's understanding about the knowledge to be transferred.

Structural governance. The findings showed that all matters related to the project must be accurately recorded in the contract. Most of the case team members underlined the fact that the agreement should include all possible matters in detail, such as project duration, working hours, the content of training package, training language, GDPR and IPR matters and the language of the materials, lectures and visits. Thus, findings support the existing literature that problems arise if detailed agreements are not included in the contract (Kess, Torkko & Phusavat, 2007). The findings also showed that both partners were representatives of the education industry. Thus, they understood each other's processes and practices more easily than if the other partner had been a company representative. However, for example, in the China project, Finland and China have a similar education system, but they have different cultural values in terms of education. In Finland, education is thought to improve the quality of life and bring competence, while in China greater emphasis is placed on obtaining a certificate and on the benefits the certificate brings. These points support the existing literature that the similarity of partners promotes knowledge transfer (Milagres & Burchart, 2018). In addition, the findings showed that each project had a new customer from a new target country. Thus, negotiations

were started with each customer from the beginning, and it required negotiations and clarifications. Therefore, it can be stated that according to the previous literature, a short-term partnership includes many formal structures and controls, which complicate knowledge transfer (Milagres & Burchart, 2018).

Cultural differences. The findings showed that the contract related practices were different in different countries and clarifying issues related to the contracts were challenging because the education export team has not yet expertise in international contracts. In addition, the use of an interpreter in all situations slowed down and complicated the transfer of knowledge. Thus, this finding supports the existing theory presented by Bhagat et al. (2020) that knowledge transfer is easier when fewer cultural differences occur.

5.2.3 Factors related to the transfer mechanism

The findings showed that information and interaction mechanisms were used in customer acquisition and contracting stages. Tacit knowledge such as schedule, project content, and other resources were agreed using more interactive mechanisms such as face-to-face meetings and online meetings. Informative mechanisms such as e-mail were used to transfer explicit knowledge such as contract templates and other documents. Thus, this finding supports the existing theory presented by Davenport and Prusak (1998) that explicit knowledge can be transferred using digital channels, but tacit knowledge transfer requires personal contacts and several different methods.

5.3 Stage 2: Content planning and production

The findings showed that in education export projects, customers are often provided a finished product that is tailored to the customer's needs. More specific contents and the transfer process of the training are planned together with the customer, and it is ensured that there is a common understanding about the used vocational terms. In addition, in

the case of degree-based education, it is ensured that the customer has the prerequisites and understanding to receive the knowledge. These findings partially support the existing literature presented by Sherwood et al. (2011). Their model also presents this stage as a knowledge transfer process design stage together with the partner. However, their model does not consider content design with the customer and the production of customized content.

5.3.1 Factors related to the characteristics of the transferred knowledge

The findings showed that the content planning and production stage included mainly tacit, explicit, structured, and complex knowledge. Explicit knowledge related to content planning and production, such as simple education material suggestions, were easy to transfer for the customer. Tacit, structured and complex knowledge such as content planning with customer required multiple knowledge transfer mechanisms. Different terms related to vocational education are understood differently in different countries, it is important that the recipient understands exactly the terms used. Thus, this finding supports the existing literature that complex knowledge transfer requires more activities and ensuring that content is understood correctly (Becheikh et al., 2010).

5.3.2 Factors related to the actors of the process

Collaboration and trust. The findings showed that in the Shadow and China projects, content planning was done in collaboration with an agent. It was important to get information about the local needs and customize the training packages according to the needs. Thus, it can be stated as the existing research suggests that tacit knowledge transfer requires more interactivity and collaboration from partners (Sherwood et al., 2011). In addition, the case team members underlined the importance of building trust at this stage as well. Therefore, this finding supports the existing literature presented by Sherwood et al. (2011) that building trust at every stage of the project is important.

Experiences, absorptive capacity and cultural differences. The findings showed that the diversity of vocational education vocabulary in different countries and the cultural view of teaching is challenging. In Finland, the competence-based learning is highlighted, and it includes many ways of acquiring competence. In China, it is thought that a teacher teaches in a classroom while a student listens and learns. In addition, Finnish vocational degree-based vocabulary was challenging for the new agents and clients involved in project content design. They had not yet knowledge about Finnish terms and the terms were to be opened and made sure they understood them. Thus, it can be stated, in accordance with the existing literature that a skilled and experienced customer promotes knowledge transfer (Aro et al., 2018) and the lack of absorptive capacity slows down knowledge transfer (Szulanski, 1996). Moreover, it can be stated, as suggested in the existing literature, that partners from different cultures should collaborate closely (Aro et al., 2018) and understanding cultural differences promotes knowledge transfer (Delahunty et al., 2018; Aro et al., 2018).

Time. The findings showed that Tredu teachers did not have enough time to participate in content design and produce the training material. Too much time was spent figuring out practical issues related to the target country, which reduced time from planning and producing materials. This was not considered in the schedules. Thus, these findings support the existing literature presented by Ben-Peretz (1994) that lack of time and rigid timetables are knowledge transfer barriers.

5.3.3 Factors related to the transfer mechanism

The findings showed that tacit knowledge transfer, such as opening professional vocabulary terms to the customer and ensuring that the interpreter also understands the vocabulary and is able to translate it correctly for clients, required many face-to-face and online meetings. Thus, these findings also support existing literature that explicit knowledge can be transmitted using digital channels, but tacit knowledge transfer requires personal contacts and several other methods (Davenport & Prusak, 1998). In

addition, the particularly complex pedagogical vocabulary requires interactive mechanisms to open terminology related to Finnish vocational qualification-based education. This has not been sufficiently emphasized in the current literature.

5.4 Stage 3: Implementation

The findings showed that in the implementation stage, knowledge transfer is prepared and executed. Thus, this stage follows the models presented in the existing literature (Sherwood et al., 2011; Szulanski, 1996). However, knowledge transfer in an education export project involves more activities than the knowledge transfer literature presents. Education export products usually contain pedagogical knowledge that requires more specialized teaching methods, and the educator must also have pedagogical skills. This has not been adequately addressed in the previous knowledge transfer literature. In addition, the findings showed that in the education export projects, the customers in the implementation stage are usually end customers who have not been involved in the earlier stages. Thus, building cooperation and trust with end customer is also important and is usually built through knowledgeable and high-quality knowledge transfer. This finding supports the existing literature presented by Sherwood et al. (2011).

5.4.1 Factors related to the characteristics of the transferred knowledge

The findings showed that the implementation stage included the transfer of knowledge from the training packages to end customers. The content of the training packages was mainly pedagogical knowledge, which included many types of knowledge such as tacit, explicit, structured, and complex knowledge. Thus, knowledge transfer required several different pedagogical methods. Therefore, it can be stated, as presented in the existing literature, that the transfer of such knowledge combinations is complex and time-consuming (Bhagat et al., 2002). However, education export organizations usually have strong experience and routine in the transfer of pedagogical knowledge and skilled

trainers and the complexity of teaching is desirable. This is not sufficiently emphasized in the knowledge transfer literature.

The findings showed that the training packages also included technical, collective, simple, independent and systematic knowledge. Technical, explicit and simple knowledge such as the transfer of lecture materials, reports and other files using digital channels and platforms were easy to transfer. This finding supports the existing literature that explicit knowledge (Sherwood et al., 2011), technical knowledge (Kotabe et al., 2003) and simple knowledge (Becheikh et al., 2010) transfer is usually simple and does not require much effort. In the Shadow and China projects, the transfer of collective and systematic knowledge was slower because more time had to be set aside for discussions and practical exercises in training situations that knowledge of norms and culture can be also transferred. Thus, in accordance with the existing literature collective knowledge is more challenging to transfer than independent knowledge because it is tacit knowledge and is often also transferred unconsciously (Zhao & Anand, 2009). However, education organizations tend to have strong expertise in pedagogical knowledge transfer, but different norms in different cultures present an additional challenge.

In addition, the findings showed that the training package of China project included context-dependent and systematic knowledge such as social and health related degree-based rules and criteria that should be repeated in the target country according to the degree criteria. Transferring these to customers from different cultures was time-consuming. Thus, this finding supports the existing literature saying that context-dependent knowledge is more difficult to transfer because it depends on a particular environment and large cultural differences make transfer difficult (Williams, 2007). In addition, systematic knowledge that incorporates complex and tacit properties are more challenging to transfer (Bhagat et al., 2002). However, the challenges can be mitigated by good design and versatile inspiring teaching methods. This has not been sufficiently highlighted in the current literature.

The findings showed that the content of the training packages also included the characteristics of human and social knowledge. In all these projects, the end customer had a basic knowledge of the topic to be trained. In the Shadow and China project, it was important to understand the Finnish vocational degree-based education and its terminology that the knowledge could be transferred successfully. Thus, it can be stated, as the existing literature suggests, (Bhagat et al., 2002), that human and social knowledge combined with structured knowledge is complex to transfer. However, this could be developed in longer customer relationships as the understanding of Finnish vocational degree-based education grows.

The findings showed that language problems appeared. Thus, for recipients who did not understand the language knowledge was also sticky. This finding supports the existing literature showing that sticky knowledge impairs knowledge transfer (Szulanski, 1996; Bhagat et al., 2002). In addition, the pedagogical knowledge of the training packages was rich and it was enriched by diverse sources and pedagogical practices that promote knowledge transfer. Thus, in accordance with the existing literature (Davenport & Prusak, 1998) richness of knowledge promotes knowledge transfer.

An additional finding showed that the China project included technè knowledge that tended to be transferred to end customers in Finnish nursing homes through practical work. This would have required bringing customers to Finland and many arrangements would have been needed. However, this would have increased the pragmatism of the trainings and the richness of knowledge. The implementation of this was postponed due to the Covid-19 pandemic. Thus, this finding supports the existing literature (Herstad et al., 2014) that technè knowledge is usually tacit knowledge that emerges in practical work through experience and its transfer is challenging.

5.4.2 Factors related to the actors of the process

Motivation. The findings showed that the participants of the trainings were all representatives of the education sector. Thus, most of them were motivated to acquire new knowledge. In addition, as representatives of a certain education field, they had a basic understanding about the topic. In the Shadow project, participants expected to receive knowledge interpreted in Italian, and they were disappointed because the education was in Finnish. The agent had not taken into account the wishes of the end customers. Thus, it can be stated as the existing literature presents that knowledge transfer is hindered by customers' different expectations (Aro et al., 2018) and lack of motivation (Szulanski, 1996).

Time. The education export team members underlined that the biggest problems were lack of time and insufficient resources. In Tredu, education export activities are still small-scale, and the education fields have not yet sufficiently identified and allocated sufficient resources for its needs. Each project had a problem accessing resources because teachers' work plans did not include sufficient planned working hours for education export projects. These experiences are in line with what can be found in the existing literature (Lockett et al., 2008), i.e. the lack of time in the education industry is often due to work plans are made ahead for a year and making changes to them can be challenging. It was also found that it is important to allocate sufficient resources to teachers for educational export projects due to the possible delay of the project as also reflected in Aro et al. (2018). However, insufficient resources are not sufficiently highlighted in the current literature.

Cultural differences. It was found that Chinese students should be convinced of the importance of various practical pedagogical methods because there are many cultural differences in Finnish and Chinese education. The Finnish vocational education is largely based on on-the-job learning, and Chinese teaching is based on the traditional teacher teaching and student listening -method. Thus, it is important to understand the cultural differences in knowledge transfer (Delahunty et al., 2018; Aro et al., 2018).

5.4.3 Factors related to the transfer mechanism

The findings showed that in education export projects, pedagogical knowledge was transferred using already existing training methods and new methods were developed. For education actors, the transfer of tacit and complex knowledge is usually routine work and is carried out using different pedagogical methods. Pedagogical knowledge required more interactive mechanisms such as contact instructions, online lessons, independent studying and practical learning situations. Informative mechanisms such as digital learning environments are used to transfer explicit knowledge such as videos and documents. The Covid-19 pandemic called for education export projects to consider new alternative knowledge transfer mechanisms and online training has become more common. However, this has not yet been much presented in the knowledge transfer literature. The findings also showed that the knowledge transfer mechanism should be chosen according to the requirements of the customer and the target country. Furthermore, translation of training packages into the language of the target country is often needed. This agrees with the literature saying that choosing the right mechanism affects the efficiency of knowledge transfer (Becheikh et al., 2010; Inkpen, 2007; Kess, Torkko & Phusavat, 2007).

5.5 Stage 4: Evaluation and termination

The evaluation and termination phase is the last stage of the education export projects. The relationships, processes and outcomes are evaluated, and the project is terminated. Both parties should evaluate the outcome with the aim to reach a follow-up agreement for future cooperation. Thus, this stage follows the models presented in the existing literature (Sherwood et al., 2011). However, partnerships and processes were not particularly prominently evaluated in these education export projects. However, based on the existing literature and findings, the present author considers it important to include them in this framework. In addition, Szulanski (1996) model also includes ramp-up and integration stages that were not involved in these education export projects. In the

ramp-up stage, the recipient has started to use the received knowledge as well as in the integration phase the knowledge can already be utilized. Based on the findings, present author states that these are difficult to assess in short-term partnerships and that the limited resources of the education export team are not yet worth using. In the future, as the operation develops, it may be reassessed whether the related stage will be added.

5.5.1 Factors related to the characteristics of the transferred knowledge

The findings showed that the assessment and termination stage included mainly tacit and explicit knowledge. Explicit knowledge related to evaluation and termination such as customer feedback reports and other files in digital format were easy to transfer to the customer. Tacit knowledge such as reviews and inspections required more diverse knowledge transfer mechanisms. Thus, these findings agree with the existing literature that tacit knowledge slows down because it requires more transfer mechanisms and support (Bhagat et al., 2002; Reagans & McEvily, 2003; Becheikh et al., 2010).

5.5.2 Factors related to the actors of the process

Collaboration and trust. The cooperation between the Smart City and Shadow projects ended, and no further cooperation has not agreed yet. The China project involved a longer cooperation relationship as it includes monitoring and the evaluation of degree-based education practices also after knowledge transfer. The vocational degree-based education, which the target country implements in its own organization requires monitoring and control. However, this finding has not been adequately presented in the existing literature. In addition, the findings showed that the aim of the education export project is to build long-term customer relationships and the closing meeting only concerns the completion of one project, and cooperation will continue in the spirit of new projects. This finding agrees with Sherwood et al. (2011), i.e. existing partnerships need to be developed and maintained in a variety of ways.

5.5.3 Factors related to the transfer mechanism

The findings showed that informative mechanisms such as e-mails were used to transfer explicit knowledge such as project documents. Tacit knowledge such as project feedback collection, project monitoring and agreeing on future cooperation were transferred by using interactive mechanisms such as face-to-face and online meetings. Thus, this also supports the existing literature that explicit knowledge can be transmitted using digital channels, but tacit knowledge transfer requires personal contacts and several methods (Davenport & Prusak, 1998).

5.5.4 Outcomes

The findings showed that the effectiveness of education export projects is evaluated based on project costs and working hours. In addition, quality of the outcome is measured based on customer feedback and internal discussions. Thus, this is in line with the existing literature, which suggests for measuring the quality of the outcome based on the customer feedback (Rytivaara et al, 2019; Juusola & Räihä, 2020). However, other indicators assessing the efficiency, performance and quality of the project presented in the literature have not yet been used. This means that the effectiveness of knowledge transfer is not usually properly measured, only assessing whether knowledge has been transferred, regardless of its applicability or other factors (Milagres & Burchart, 2018). However, the case team showed interest in evaluating in the future whether measuring process efficiency is beneficial to them.

The findings also showed that the impact of transferred knowledge on the recipient organization is not currently measured or evaluated at all. This agrees with the existing literature, (Milagres & Burchart, 2018), which suggests measuring also how knowledge transfer has affected the performance of the recipient organization. However, it is challenging to measure this in education export projects and using scarce resources for this would not be reasonable. In addition, in short-term partnerships, the education provider

usually does not become aware of how the recipient has utilized the transferred knowledge. This finding is not sufficiently emphasized in the existing literature.

5.6 Export readiness

The findings showed that, upon launching its operations, Tredu education export team had no common processes and experience in working as an education export team. The lack of processes, routines and international contract expertise incurred additional work and slowed down the implementation of projects. This is mainly reflected in customer acquisition, contracting and project completion stages. In addition, operations were hampered by the Covid-19 pandemic. Thus, this finding supports the existing literature in that the export readiness of an organization affects the operation of an education export project and export readiness can be weakened by lack of experience and routines (Cai, Hölttä & Kivistö, 2012; Naidoo, 2010). In addition, this finding agrees with Aro et al. (2018) that a successful education export project with sustainable knowledge transfer requires appropriate and collaborative preparation as well as implementation based on customer needs. Moreover, it was found that building education export activities in a public vocational college is a slow and time-consuming process. However, this has not been sufficiently emphasized in the existing literature.

The findings showed that at vocational colleges, education export activities are still understood as a separate function within the organization and activities are not yet thought of as a business throughout the organization. Resources and other organizational support were limited, and the members of the education export team have frequently changed. Education export should be seen as part of the international activities of the institution as a value-added activity. In addition, it should be seen as an opportunity to increase personal skills and broaden personal understanding of the international education field. Therefore, this is in line with the existing literature that export readiness is influenced by the knowledge, experience, and commitment of the education provider, as stated also by Cai, Hölttä and Kivistö (2012).

Tredu education export team has carried out all the projects in different countries thus far. Thus, the experience gained is not very extensive yet. The lacking knowledge about the target country's market may reduce export readiness (Cai, Hölttä & Kivistö, 2012). However, the findings showed that with complex markets, an agent familiar with the market of the target country is useful and increases export readiness. This finding has not been sufficiently emphasized in the existing knowledge transfer and education export literature. The findings also showed that the lack of clear processes and experience cause additional work for education export projects. Clearing things up takes time from the implementation itself and affects the outcome of the project. Therefore, it can be stated that export readiness also affects knowledge transfer. However, this finding has not been sufficiently emphasized in the existing knowledge transfer and education export literature.

5.7 Framework for knowledge transfer

To conclude the discussion, the present author suggests the following findings and a framework described in **Table 13**, which has been formed based on the findings from the case study. *Fir*st, the findings suggest that the education export project includes the following stages: 1) Customer acquisition and contract negotiation, 2) Content planning and production, 3) Implementation and 4) Evaluation and termination. *Second*, the findings suggest that the factors related to characteristics of the transferred knowledge, the actors of the process and the transfer mechanisms prevent or promote knowledge transfer (**Table 13**). *Third*, the success of the knowledge transfer process and the outcome should be measured and evaluated more systematically, see more information in **Table 13**. *Fourth,* the export readiness of the source organization prevents or promotes knowledge transfer (**Table 13**).

Table 13. Framework for knowledge transfer of vocational education export

Stages	Factors	Barriers	Drivers
Stage 1: Customer acquisition and contract negotiation - Market mapping - Customer acquisition - Cooperation with agent - Building cooperation and trust - Contract negotiations - Conclusion of the contract - Knowledge attributes	Characteristics of knowledge	- Tacit, complex and structured knowledge	- Explicit knowledge - Similarity
	Actors of the process	- Structural governance: shortcomings in the agreements, differences in organizational cultures and short-term partnership - Cultural differences	- Collaboration - Trust - Good reputation - Experience - Structural governance: similarity of partners and longer-term partnership
	Transfer mechanism	- Wrong mechanisms	- Versatile mechanisms
Stage 2: Content planning and production - Knowledge attributes - Trust building - Engagement - Content planning with customer - Production of customized material - Creating processes and routines for communication and transfer	Characteristics of knowledge	- Tacit, complex and structured knowledge	- Explicit knowledge - Similarities of knowledge bases
	Actors of the process	- Lack of absorptive capacity - Lack of time and rigid timetables - Cultural differences: the need for an interpreter, the meaning of terms in different cultures	- Collaboration - Trust - Skills and experience
	Transfer mechanism		- Versatile mechanisms
Stage 3: Implementation - Knowledge attributes - Building cooperation and trust - Building transfer mechanisms - Knowledge transfer - Maintaining and monitoring progress	Characteristics transferred knowledge	- Tacit, complex, systematic and structured knowledge - Collective, human and social knowledge - Context dependent knowledge - Sticky and techne knowledge	- Technical, explicit and simple knowledge - Knowledge richness - Independent knowledge
	Actors of the process	- Lack of motivation - Absorptive capacity - Lack of time - Cultural differences	- Collaboration - Trust - Skills and experience - Absorptive capacity
	Transfer mechanism	- Wrong mechanisms	- Versatile mechanisms
Stage 4: Evaluation and termination - Evaluation of relationships, processes, practices and mechanisms - Review of the outcome - Project termination - Proposal for future cooperation	Characteristics of knowledge	- Tacit knowledge	- Explicit knowledge
	Actors of the process	- Lack of trust - Lack of collaboration	- Collaboration - Trust
	Transfer mechanism		- Versatile mechanisms
	Outcome	- Knowledge transfer process effectiveness - Quality of the outcome - Project effectiveness	
Export readiness		- Lack of practices, routines and skills - Lack of time and resources - Lack of organizational support	- Processes, routines and competence exist - Understanding of international contracts

6 Conclusions, limitations and future research

In this section, the results of this study are concluded, the limitations of this study are underlined and suggestions for future research are introduced. The purpose of this study was to analyze the factors and phenomena, affecting education export projects from the perspective of knowledge transfer. In particular, the questions of which knowledge transfer factors prevent or promote the Finnish vocational education export implementation, and how they do it, are addressed. The purpose was also to answer the research question "*How has Finnish vocational college implemented knowledge transfer in their education export projects and what factors have hindered and promoted it?*". Two objectives were formed in order to answer that question: 1) To understand the education export as a phenomenon and to identify knowledge transfer barriers and drivers and their effects in education export implementations; 2) To empirically identify what the potential challenges and good practices in a successful education export project from a knowledge transfer perspective in a vocational college in Finland are.

6.1 Theoretical contributions

This study provides several important contributions and insights. *First*, the findings support partly knowledge transfer frameworks that identify barriers and drivers for different stages (Sherwood et al., 2011; Szulanski, 1996). However, the findings also suggest that the stages of knowledge transfer in a vocational education export project differ from the stages presented in the interorganizational literature. Education export is a business that also focuses on mapping the target country, customer acquisition and the design of customized content together with the customer. In addition, this study contributes to education export research from the perspective of knowledge transfer by providing a framework for the factors influencing knowledge transfer at different stages of the education export project.

Second, the findings support the view that the factors related to characteristics of the transferred knowledge, the actors of the knowledge transfer process and the transfer

mechanisms affect knowledge transfer by providing findings on factors that hinder or promote knowledge transfer (Becheikh et al., 2010; Milagres & Burchart, 2018). Especially, tacit, complex and systematic knowledge is complicate to transfer and requires different mechanisms for transfer (Bhagat et al., 2002; Reagans & McEvily, 2003; Becheikh et al., 2010). However, the findings suggest that in the field of vocational education, tacit and complex knowledge transfer is part of normal teaching methods, and the type and characteristics of knowledge are not emphasized in education export projects. In addition, vocational teachers have the pedagogical skills and routines to transfer tacit and complex knowledge during the trainings. Therefore, this study offers insights, which have not been presented before by researching vocational education export knowledge transfer.

Moreover, it was found that vocational degree-based education export glossary contained terms that were difficult for customers from different cultures to understand and opening the terminology was time-consuming. Thus, the findings support the view that lack of absorptive capacity of the recipient organization slow down knowledge transfer (Milagres & Burchart, 2018; Szulanski, 1996). However, the opening of the terminology is not highlighted in the existing literature. Therefore, this study offers insight by highlighting the importance of explaining vocational education terminology in education export projects. In addition, the findings support the view that, the lack of time for teachers attached to the education export project is a common problem due to work plans are made ahead for a year (Lockett et al., 2008). Furthermore, it was found that in vocational education export, the problem importance is emphasized. In addition, the Covid-19 pandemic affected the choice of knowledge transfer mechanism and impeded knowledge transfer. However, Finland has strong expertise in licensing digital learning solutions, digital learning materials and strong backgrounds in lower and upper secondary education (Finnish National Agency for Education, 2020). This can be significant benefit in the global market in the future.

Third, the findings support that the success of the knowledge transfer process, and the outcome of the project should be measured and evaluated (Milagres & Burchart, 2018). The findings also support that measuring knowledge transfer in education export projects is still too limited and needs to be developed (Lockett et al., 2008). The literature also presents several indicators for measuring efficiency and effectiveness by Milagres and Burchart (2018). However, measuring efficiency and performance using complex metrics with scarce resources and time is challenging in the vocational education export projects. Therefore, this study offers insights, which have not been presented before that the indicators, which describe the knowledge transfer of an education export project appropriately are process efficiency, the quality of the outcome and project effectiveness.

Fourth, the findings support the view that the export readiness of the education provider influences the implementation of the education export project. The lack of processes and practices slows down the education export project implementation and degrades the quality of the outcome (Cai, Hölttä & Kivistö, 2012). However, the impact of export readiness on knowledge transfer is not highlighted in the current literature. Therefore, this study offers insights, which have not been presented before.

6.2 Managerial implications

This study includes several important implications for managers. The main managerial implication of this study is to provide a framework for the implementation of a vocational education export project from a knowledge transfer perspective. It provides information on the factors influencing knowledge transfer at different stages of projects. Thus, knowledge transfer barriers can be removed, and drivers promoted.

Second, the findings showed that vocational education export is a positive activity that brings visibility to the organization and strengthens its organizational image internationally. Management support is needed for a successful education export project and effective knowledge transfer (Becheikh et al., 2010). In addition, Finnish vocational education

institutions are often internationally small players for large international companies and training organizations. Thus, cooperation should be established with appropriate partners (Eksymä et al., 2020).

Third, the findings showed that achieving export readiness also requires management investment. The education industry is adapted to transferring pedagogical knowledge and producing pedagogical content. Thus, the transfer of knowledge usually itself takes place through experience and routines. However, export readiness, which includes knowledge and experience of doing business, contracting, and mapping markets, has less knowledge in the education sector and this may slow down the knowledge transfer process of even a skilled education provider (Cai, Hölttä & Kivistö, 2012).

Fourth, the findings support that sufficient time should be allocated for all necessary activities such as preparation, the confidence building, knowledge transfer, knowledge reception, knowledge integration and project completion (Milagres & Burchart, 2018). In education export projects, it is important to include education export activities in teachers' work plans in a timely manner and to allow sufficient time for their implementation (Lockett et al., 2008).

Fifth, the findings support also that cooperation and confidence building must be invested in every phase of the project (Aro et al., 2018; Delahunty et al., 2018; Sherwood, Robinson & Butts, 2011). Thus, the existing education export literature should place more emphasis on the importance of building further collaboration. In the early stages of education export projects, efforts should be made to establish a longer cooperation relationship (Sherwood et al., 2011).

Sixth, according to the findings, the cost, work hours and the quality of the outcome are measured but the effectiveness of knowledge transfer and project is not measured. This finding supports the current literature which states that it is often measured whether knowledge transfer has taken place but not the efficiency of knowledge transfer

(Milagres & Burchart, 2018). However, the findings showed that this is not sufficient, both partners should evaluate the efficiency of the process, the effectiveness of the project (Milagres & Burchart, 2018) and the quality of the outcome (Juusola & Räihä, 2020).

In addition, this study provides lessons learned and good practices for implementing education export projects and understanding the barriers and drivers that affect knowledge transfer.

6.3 Limitations and future research

There are also some limitations to this study. *First*, the study was conducted for the education export team, whose activities were still under development during the first projects. The lack of export readiness influenced some findings and highlighted challenges that are not usually encountered in longer-term education export teams. However, this was prevented by interviewing an education export expert as well. *Secon*d, this was a single case study and examined the activities of only one education export team. However, most of the findings related to knowledge transfer can be generalized to public vocational education export, because the main operating principles are similar. *Third*, vocational education export has not yet been sufficiently studied from the perspective of knowledge transfer. Thus, comparing the findings with education export literature was challenging due to the scarcity of the theoretical background and some conclusions may need more justification.

This study also presents the potential directions for future research. *Firs*t, as mentioned earlier, the implementation of education export projects from the perspective of knowledge transfer has been less studied. Thus, it should be studied further and compare how education export teams at different stages influence the findings. *Second*, the findings showed that the efficiency and quality of knowledge transfer in vocational education export projects are still poorly measured. Thus, it could be further investigated and developed indicators suitable for education exports. *Third,* the findings showed that

cultural differences may prevent knowledge transfer (Bhagat et al., 2002) or they may offer new opportunities (Rytivaara et al., 2019). Thus, it should be studied in depth what cultural differences slow down the transfer of knowledge and what new opportunities it brings to the export of vocational education. *Fourth*, the findings showed that the Covid-19 pandemic disrupted the vocational education export. The effects of the Covid-19 pandemic on education export are still in part hidden at the time of publication of this thesis. However, it can already be estimated that the effects are of long-term nature, and this will have significant influence on many key areas of Finnish education export (Finnish National Agency for Education, 2020). Thus, it should be studied more as to what effects and opportunities it brought to education export and what effects are short-term and which are long-term.

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Appendixes

Appendix 1. Interview Guide for source organization

Semi-structured interview guide for source organization		
Part 1 Introduction	Introducing the subject of the interview briefly to the interviewee	2 min
Part 2 Background	1. Name, the current role, and tasks 2. Education export experience (what projects and what tasks)	3 min
Part 3 Export Readiness and planning	1. How was the planning of education export projects and products/services started? a. Contract negotiations 2. Did you have the education export processes and practices in place before you started the project? Did you think your organization was ready for export education? a. Processes, practices, resources etc. 3. What things went well and what challenges did you face and how did you solve them?	10 min
Part 4 Knowledge type and characteristics	1. What kind of education did the education export projects include (degree, partial degree, short training)? 2. What kind of information did the project contain? a. Contracts, trainings etc.	5 min
Part 5 Actors of the process	1. How did you cooperate and build trust with customer? What challenges did you face and how did you solve them? 2. Were the customers motivated? 3. Did the clients have previous experience of Finnish vocational training? 4. How cultural differences were reflected in the projects? 5. How was the customer able to absorb the information and integrate it into practice? 6. Did you have enough time to complete the project?	10 min
Part 6 Transfer mechanisms	1. How was knowledge transferred at different stages of the project? a. Meetings, contact instructions, documents etc. 2. What mechanisms did you use? What factors influenced the choice of mechanism?	5 min
Part 7 Outcomes	1. How did you measure the quality of the project outcome and the effectiveness of the project? 2. How the customer utilized the transferred knowledge in their own organization? 3. What were the biggest challenges of the projects? 4. What good practices emerged?	10 min
Part 8 Ending the interview		3 min

Appendix 2. Interview Guide for receiver organization

Semi-structured interview guide for receiver organization		
Part 1 Introduction	Introducing the subject of the interview briefly to the interviewee	5 min
Part 2 Background	1. Name, the current role, and tasks 2. Education import/export experience (what projects and what tasks)	3 min
Part 3 Export Readiness and planning	1. How do you think the project started and the contract was drafted? What went well and what could have been improved?	5 min
Part 4 Knowledge type, actors of the process, mechanism	1. What kind of information did the product/service contain (documents, contact training)? 2. How did you use the training / product, are you able to implement it independently? 3. Did you collaborate enough?	10 min
Part 5 Outcomes	1. How do you evaluate the project and outcome? Was the project carried out efficiently and with high quality? 2. What added value does the product / training bring to your organization now and in the future?	7 min
Part 6 Ending the interview		3 min

Appendix 3. Information of the interviewees

Name	Role	Organization	Role in the education export project	Education export experience	Project	Date and duration
Outi Kallioinen	Director of vocational education	Tredu	Senior management, involved in strategically important projects, keynote speaker	From 2007	All	15.4.2021 40 min
Helena Koskinen	Director of Education export	Tredu	Team leadership, involved in all stages	Several years	All	15.4.2021 45 min
Teemu Kalliomäki	Development Manager	Tredu until 2021, Tampere University of Applied Sciences	Planning, customer acquisition, contract negotiations, project management, creating material etc.	From 2019	All	15.4.2021 60 min
Hasila Sami	Business coordinator	Tredu	Involved in the early stages: customer acquisition, planning and contract negotiations	A few years	All	15.4.2021 30 min
Jantunen Ina	Lecturer (teacher)	Tredu	Project Manager, Planning, contract negotiations, customer acquisition and building relationships, Russian language interpretation	From 2018	Smart City project	15.4.2021 40 min
Seppo Pylvänäinen	Lecturer (teacher) and member of Team education team	Tredu	Planning, customer acquisition, contract negotiations etc.	From 09/2019	All	12.4.2021 35 min
Pöntinen Inga	Lecturer (teacher)	Tredu	Planning and creating content of social and health care project, training, implementation	From 2019	China project	16.4.2021 40 min
Expert	Head of Global Education Services and partner of Tredu	Pino Network	Planning and management	A few years		14.4.2021 70 min
Zheng Xu	Project Manager	Sumino Ltd	Agent responsibilities	From 2016	China project	16.4.2021 30 min