ENHANCING THE EMPLOYABILITY OF GRADUATE STUDENTS WITH TRANSVERSAL SKILLS

Abstract

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Abstract
Unemployment has been a persistent issue in Europe for a long time despite several initiatives from policymakers. Unlike previous research, this research sees the problem from a different perspective. Instead of waiting for external changes, this research will show graduate students useful recommendations for actively enhancing their employability with transversal skills.

The theoretical framework of this thesis covers two units of knowledge which are transversal skills and generation Y (also known as Millennials). The purpose of the literature review part is to help readers understand better the necessity of research topic as well as the research question. During the process of reviewing related literature, the author found useful pieces of information for the empirical research and data analysis process.

This thesis predominantly employs a deductive approach using a mixed-research method. The empirical research will use both qualitative and quantitative data in order to harvest the necessary data for answering the research question. In particular, qualitative data is generated from a focus group interview with company representatives while quantitative data is harvested from an Internet questionnaire sent to alumni of Lahti University of Applied Sciences.

Findings from the empirical research lead to the conclusion that graduate students do lack critical transversal skills that can enhance their employability and become useful for their working life. The empirical research also points out that some poor-guesses of graduate students concerning the demand from employers. Based on the findings, recommendations for graduate students are outlined and the thesis finishes with suggestions for future research. |

Keywords
Transversal skills, Employability, HR

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❤

Yours sincerely,

Phuong Nguyen

CONTENTS

1 INTRODUCTION

The introduction provides readers with information on eight key issues: research background, thesis objectives, research questions, limitations, theoretical framework, research methodology including data collection and thesis structure. After reading the introduction, readers are expected to acquire the panorama and the rationale of the research.

1.1 Research Background

The unemployment rate is considered a gauge of a nation's economic health. In Europe, although the unemployment level has decreased slightly from a peak in early 2013, it still remains considerably high, especially in comparison to the rate before the worldwide recession started in 2008. (Statista 2018a.)

Compared to other age groups, youth unemployment rates are generally much higher, even more than double (Eurostat 2018). Youth unemployment in the Europe Union and the Europe area has been on the rise since 2008 (Statista 2018b). From the second quarter of 2008, the youth unemployment has experienced an upward trend, resulting in 23.9% in the first quarter of 2013, before falling to 16.2% at the end of 2017 (Eurostat 2018).

The stagnation in the European markets hit the young more severely than other groups, i.e. youth unemployment is twice as high as general unemployment (Statista 2018a). Based on studies, young job seekers lack experience and the necessary skills (Statista 2018b).

Like any other countries in the EU, unemployment remains a serious problem in Finland. Finland is among the top 10 countries with the highest unemployment rates in the European Union, specifically 6.8% (December 2018) higher than the EU-28 rate which was 6.6% (Eurostat 2018). However, the situation in the young age group is of greater concern. In December 2018, the rate of youth unemployment in Finland reached 17.2%, almost trebling that of general unemployment. And in comparison with other EU countries, the rate is still higher (EU-28 rate: 14.9%). (Statista 2018b.)

On the other hand, although Europe is well-known for its good education, a great number of people in Europe are in need of training for working life. In particular, more than half of the 12 million long-term unemployed are considered low-skilled. Skills gaps and mismatches also arouse a great concern. 40% of European employers have difficulty finding people with desirable skills. Too few people have the entrepreneurial mindsets and skills to set up their own business. (European Commission 2016.) All in all, the situations in Europe generally and in Finland particularly call for action.

With the horizontal objectives of developing relevant and high-quality skills and competencies, Erasmus+ Project, entitled "Strengthening students' employability through enhanced skills formation (abbr. EmploySkills)" was formed. The expected outcome of the project is to develop curricula relevant to the labour market and societal needs. Along with three other universities, namely UCL University College, Fontys University of Applied Sciences and INSEEC, Lahti University of Applied Sciences (abbr. LAMK) is one of the core partners in the project. The whole project consists of five intellectual outputs (see Appendix 1), wherein O1 acts as a foundation for the next steps. This thesis is part of the first output called "O1. State of the art report",

The empirical research of this thesis concentrates only on transversal skills as the main factor to solve skill mismatches and enhance graduates' employability. As a matter of fact, transversal skills are not yet properly concerned and poorly assessed in higher education although transversal skills are highly expected by employers (European Commission 2016; World Economic Forum 2017).

1.2 Thesis Objectives, Research Questions and Limitations

Thesis objectives

The research objectives are clear, specific statements that identify what the researcher wishes to accomplish as a result of conducting the research (Saunders, Lewis & Thornhill 2009, 600). The main thesis objective is (i) to identify skill mismatches in the labour market and (ii) to help graduate students enhance their employability with transversal skills.

Research questions

A research question is one of a number of key questions that the research process will address (Saunders et al. 2009, 600). Defining well-circumscribed research questions is very important at the beginning of the thesis process as the questions aim to bring the reader a better understanding of what the research is about to and what the author wants to answer (Morrell & Carroll 2010, 54). However, a research question is hard to answer at once. That is when investigative questions are formed. An investigative question is one of a number of questions that need to be answered in order to address satisfactorily each research question and meet each objective (Saunders et al. 2009, 594).

The research question (RQ) and investigative questions (IQ) are formed as follows:

RQ: How can graduates improve their employability with transversal skills?

- IQ1: What transversal skills do employers expect from graduates?

- IQ2: What transversal skills do graduates lack after graduation?

- IQ3: What kind of support would graduate students need from higher education?

Limitations

There are a few criteria that will narrow down the scope of this research: geography, data pool and themes. The first crucial limitation of this research is the geographical scope. As the data was collected from Finnish companies and alumni studying at LAMK in Finland, findings in this research are more likely applicable to the Finnish labour market. However, the findings can be used as a reference if other dimensions are similar.

The second limitation of the research is the research theme. To be specific, this research will focus only on transversal skills and leave out hard skills or any other factors that could affect the employability of graduate students. Therefore, this research is of no need if graduates find themselves sufficient of transversal skills or if graduates want to enhance their employability with other factors. As a matter of fact, there are numerous factors that could affect the employability of a graduate student.

1.3 Theoretical Framework

The theoretical framework is used to review all theory in the field of study encompassing or driving the research of interest (Wotela 2016, 89). The theoretical framework of the thesis is built based on the research question. The first purpose of the theoretical part is to assist the author with empirical research formation and analysis. In addition, the theory part facilitates the reading process. Apparently, a reader cannot comprehend fully the purpose and meaning of the research if he/she does not understand the units of knowledge in the research. The theoretical framework is demonstrated in Figure 1.
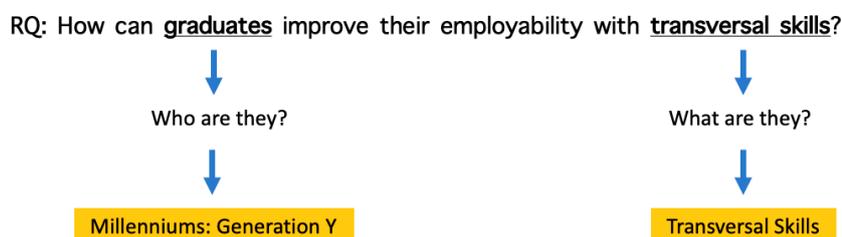

Figure 1 Theoretical Framework

The first question is about transversal skills. What is a transversal skill? Why are they important? All of this will be discussed in the first chapter in the literature review. The second question is about the research objects. Who are they and is there any noticeable feature

between them? In the end, the collected statistics reveal that most of the research objects, or especially alumni of Lahti University of Applied Sciences, are in their twenties or thirties. In other words, they all belong to the same generation. Therefore, it is also necessary to describe this generation in the literature review.

1.4 Research Methodology and Data Collection

Research methodology and data collection are indispensable tools for researchers in order to systematically unravel the research questions (Kothari 2004, 8). According to the "Research Onion'', there are six elements formulating the methodology: philosophies, approaches, strategies, choices, time horizons and techniques and procedures (Saunders et al. 2009, 108). Research onion of this research is illustrated in Figure 2.
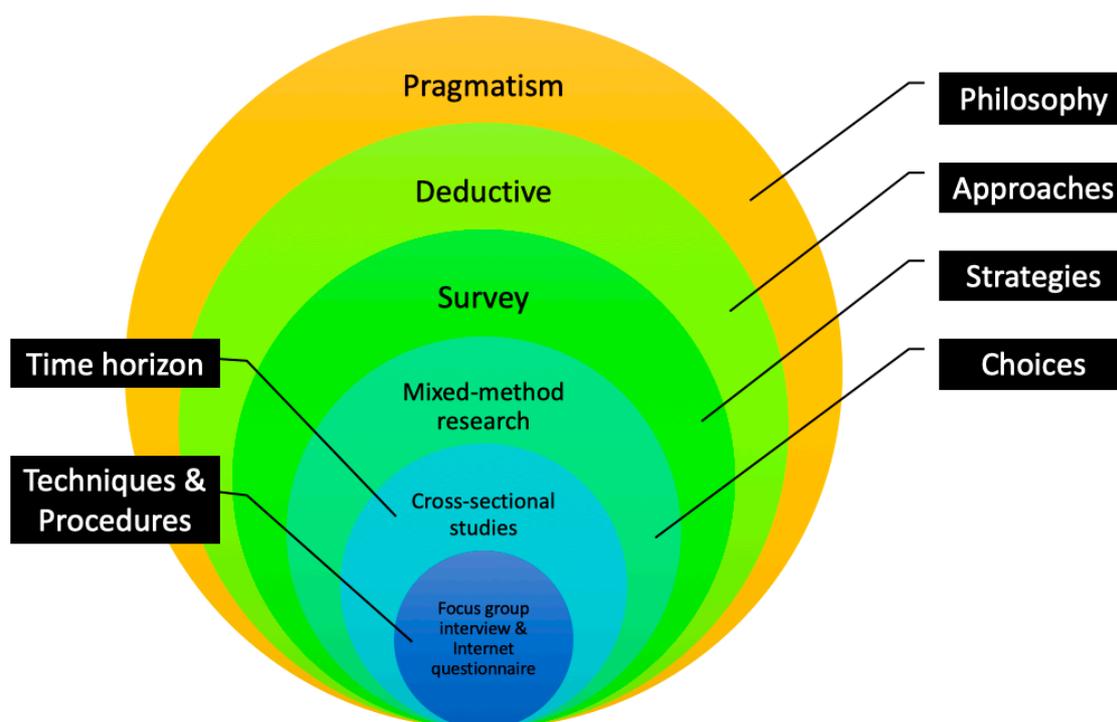
Figure 2 Thesis's Research Methodology (Research Onion)

Philosophy: Pragmatism

There are four philosophies, i.e. positivism, realism, interpretivism and pragmatism. Suitable philosophy should be selected in the consideration of practical considerations. Amongst these, pragmatism emphasized the importance of research question and researchers should "study what interests you and is of value to you" (Tashakkori and Teddie 1998, as cited in Saunders et al. 2009, 109). This research adopts pragmatism philosophy as the research aims to "study the

details of the situation to understand the reality of perhaps a reality working behind them"
(Ramenyi 1998, as cited in Saunders et al. 2009, 111).

Research Approach: Deductive

It is well-known that there are two opposing research approaches originating from the reasoning
behind the empiricist and rationalist: inductive and deductive respectively (Walliman 2011, 17-
19). In the inductive approach, researchers explore data first and subsequently develop theories
from them that they will later relate to the literature. Whereas, in the deductive approach,
researchers develop a theoretical or conceptual framework in advance of testing by using data.
(Saunders et al. 2009, 61.) The differences between inductive and deductive are summarized in
Table 1.

Table 1 Two Research Approaches (Tavory & Timmermans 2014, 36-37, as cited in Mason
2002, 180-181)

	INDUCTIVE	DEDUCTIVE
Process	Rule → Case → Result	Case → Result → Rule
Proposition	The proposition is assumed before the fact.	The proposition is observed.
Conclusions	Generalization	Corroboration or falsification

This research will adopt the deductive approach because findings will be drawn on the grounds
of literature reviews and data collection.

Choice: Mixed-research Method

Basically, quantitative and qualitative methods are widely mentioned as two paradigms of
research methods (Jonker, Pennink & Bartjan 2009, 38). Mixed methods appear as the general
terms for the combination of both quantitative and qualitative methods in a research design,
which potentially give a more thorough and multifaceted grasp of the research content
(Saunders, Lewis & Thornhill 2007, 145-146). Possible research choices are summarised in
Figure 3.
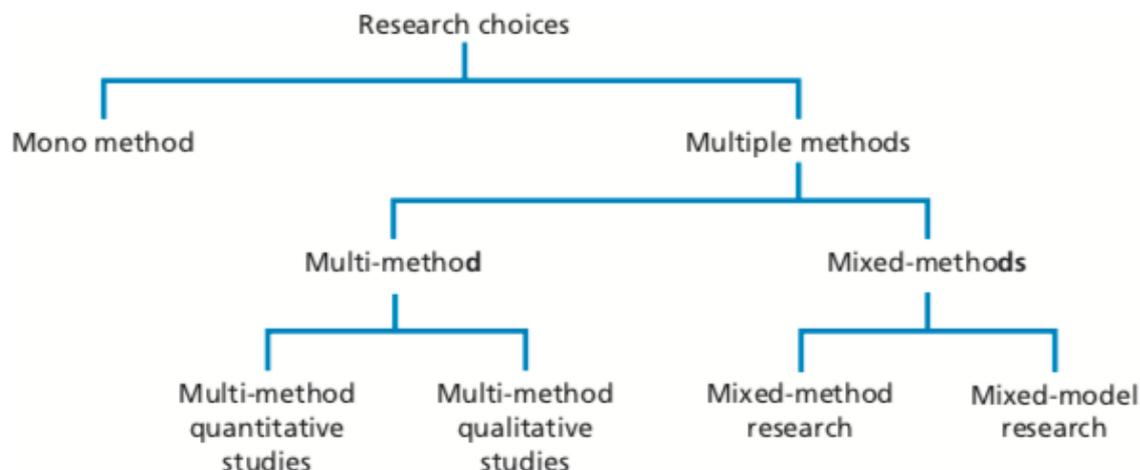
Figure 3 Research Choices (Saunders et al. 2009, 152)

In this research, mixed-method research, meaning a combination of quantitative and qualitative data collection techniques and analysis procedures, will be used. The purpose is to better evaluate and understand the problem. Qualitative data will be examined first to get an overview of the main issues before using questionnaires to collect descriptive data in order to compare and generalise the answer.

Technique and Procedures: Focus Group Interview & Internet Questionnaire

After clearly defining research choice, it comes to choosing suitable data collection techniques in order to collect wanted data. Qualitative data is usually collected from interviews but there are several modified versions to choose (see Figure 4 for forms of an interview). Among these versions, a focus group interview concentrates on a particular topic encompasses the need for interactive discussion amongst participants (Carson, Gilmore, Perry & Gronhaug 2001, as cited in Saunders et al. 2009, 347).
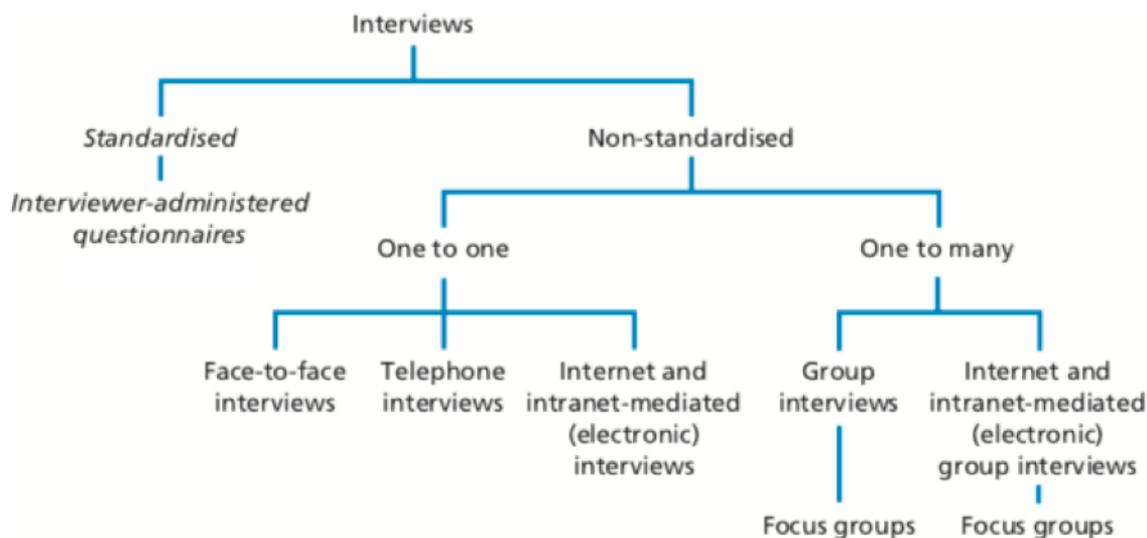
Figure 4 Forms of Interview (Saunders et al. 2009, 321)

With the similar research purpose which is to understand the opinions of employers on the market demand of transversal skills, this research will adopt a face-to-face focus group interview (also known as group interview). The focus group will interview representatives of five companies closely co-operating with Lahti University of Applied Sciences. The interview will be organized in a way that encourages participants to discuss and share their points of view regarding designed questions. There will be no pressure to reach a consensus.

On the other hand, one of the most common methods for collecting quantitative data is through questionnaires. Like interviews, there are many forms of questionnaires (see Figure 5 for types of questionnaires).

Figure 5 Types of Questionnaires (Saunders et al. 2009, 363)

This research will adopt Internet questionnaires because of the sample size, ease in data input and time taken to complete collection. The Internet questionnaire is designed online and distributed via email to alumni at LAMK. For secondary data, material books, articles, studies

and statistics from governments or international organization will be reviewed for the information.

1.5 Thesis Structure

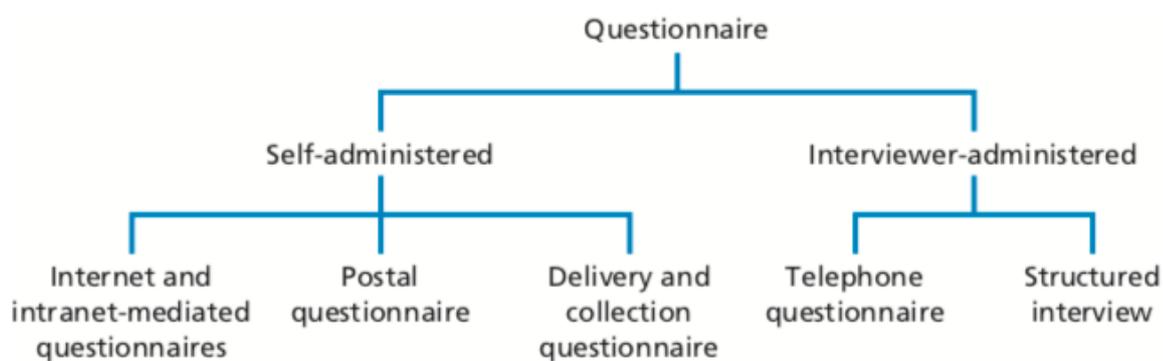This thesis is organised in the following way (see Figure 6). As illustrated in Figure 6, there are two critical components, namely literature reviews and empirical research. Critically reviewing the literature will provide the foundation for forming empirical research. In other words, researchers will develop a good understanding and insight into relevant previous research and trends that emerge (Saunders et al. 2007, 61).
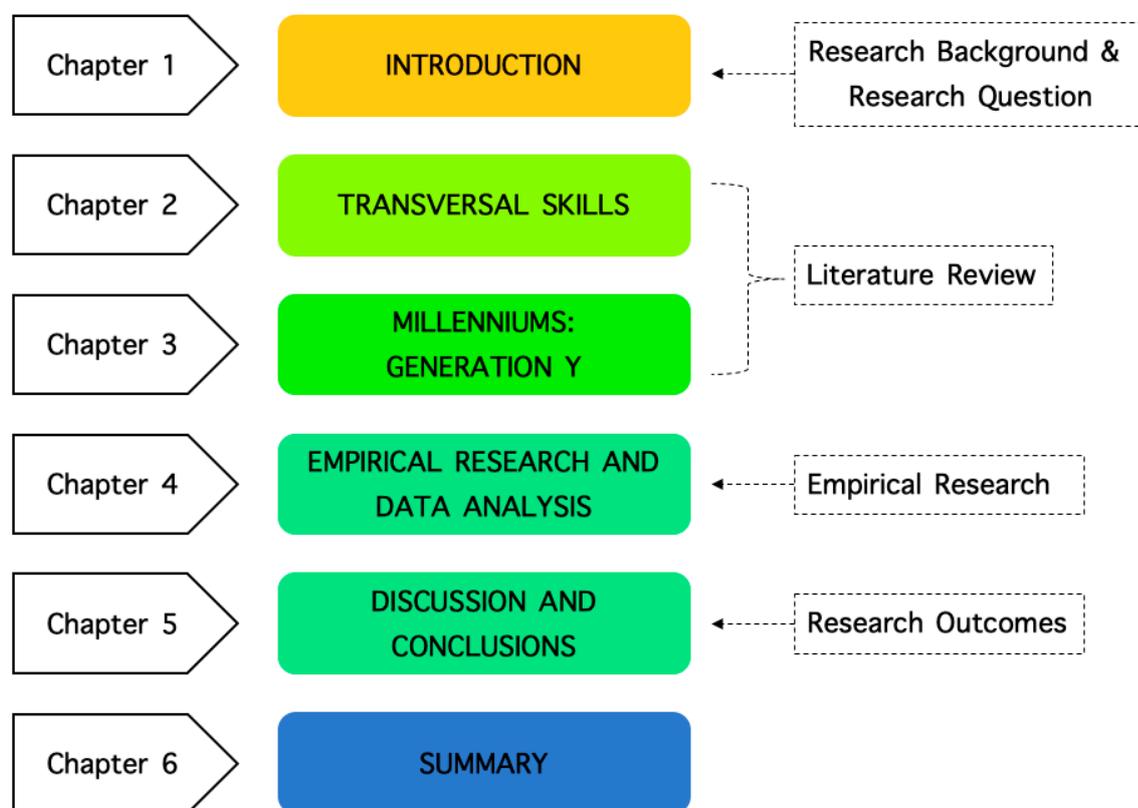
Figure 6 Thesis Structure

Chapter 1 provides readers with background information related to the research and addresses the research objectives and RQ. Chapter 2 and Chapter 3 will review literature related to the research. Chapter 2 is written to assist you in the comprehension of transversal skills. Meanwhile, Chapter 3 provides an insight into research objects, which are alumni of Lahti University of Applied Sciences. Based on statistics from the university, a great number of alumni are in their twenties or thirties. Thus, it is necessary to review the literature about Generation Y (also known as Millenniums) to grab the fundamental characteristics of the research objects. After reading the literature part, readers are expected to understand the core

knowledge units related to the research as well as realize the importance and necessity of the research.

With the understanding generated from the literature review, Chapter 4 describes the empirical research in details. In particular, this chapter covers the information about research design, data analysis and results. Moving to the end of the thesis, Chapter 5 will give answers to IQs and RQ as well as proposal suggestions for future research. The last chapter - Chapter 6 recapitulates the whole thesis work.

2   THEORY ABOUT TRANSVERSAL SKILLS

It causes a lot of confusion for many people when it comes to differentiating skills types. Many people also find the word "transversal skills" unfamiliar and have a vague idea about them. All of these problems will be issued in this chapter. The chapter is organised in the following order: (i) overview of skill types and (ii) transversal skills in depth.

2.1   Overview of Skills Types

When referring to skills, two terms "soft skills" and "hard skills" are often mentioned. In this sub-section, we will find out what they are and whether there are other ways to categorize skills. But first of all, what is a skill?

A skill is "the ability to translate knowledge into an action that results in an outcome at the desired level of performance." It refers to "one's ability to do things involved in the job or activity". (Routledge 2017 as cited in Eurodoc 2018, 6.)

At present, there is no standard division of skills. Skills can be grouped based on their characteristics or their functions. Two most popular groups of skills are hard skills and soft skills. Hard skills are specific, teachable abilities that can be defined and measured. By contrast, soft skills are more personality-oriented interpersonal skills and harder to quantify. (Investopedia 2017.) According to the definition, transversal skills belong to soft skills group (see Figure 7).
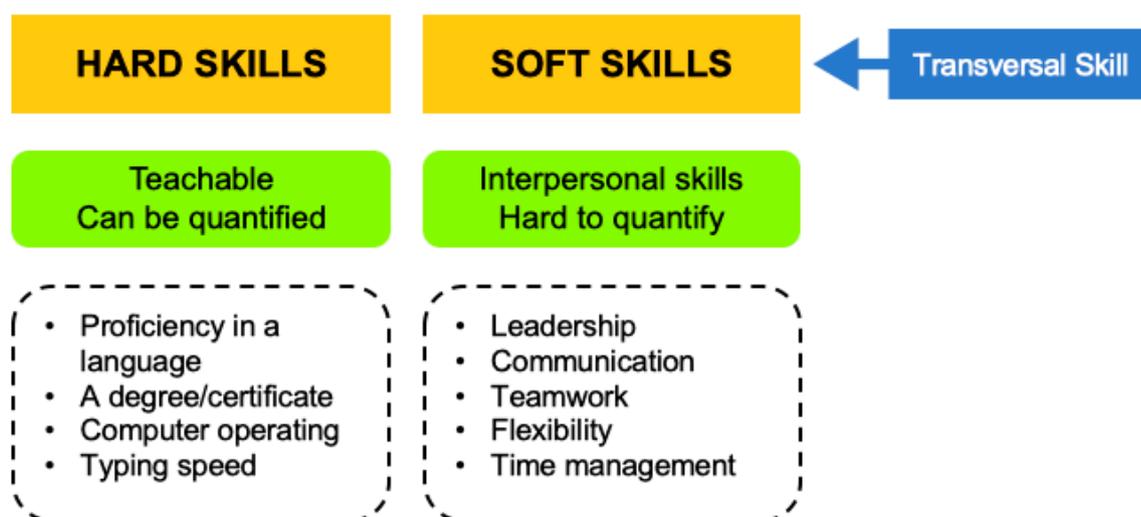

Figure 7 Category of Skills (Investopedia 2017)

However, there are other ways of categorizing skills. For example, skills can be divided into three groups as in Table 2.

Table 2 Category of Skills (SkillScan 2018)

	Transversal Skills	Personal Traits/ Attitudes	Knowledge-based Skills
Description	Skills that can be transferable to different work or industries.	Traits or personal characteristics that contribute to performing work.	Knowledge of specific subjects to perform particular tasks.
Examples	Organize, analyse or write	Result-oriented, patient or diplomatic	Accounting, personnel administration or contract management

In the second methods, we can see that soft skills in the first method are divided into two separate groups: transversal skills and personal traits/attitudes. Despite different names, it can be concluded that skills knowledge-based (also known as hard skills) and soft (also known as transversal skills) are clearly separated. This research only pays attention to transversal skills. In this text, if the word "skill" is mentioned alone, it also means transversal skills.

2.2 Transversal Skills in Depth

This chapter will cover the following information: definition of transversal skills, the importance of transversal skills and the current awareness of transversal skills in Finland. This section plays a critical role in forming the theoretical foundation for the whole research.

2.2.1 Definition

According to UNESCO IBE 2013, transversal skills are "skills related to a particular job, task, academic discipline or area of knowledge and that can be used in a wide variety of situations and work settings" (UNEVOC 2018). In other words, these skills which have been learned in one context can be transferred to another context (European Training Thesaurus 2018, as cited in ELGPN 2018). For instance, transversal skills are communication, collaboration, creative thinking or self-initiative. "Transversal skills" have the same meaning as the term "transferable skills", which has been used commonly nowadays (European Training Thesaurus 2018, as cited in ELGPN 2018).

It is said that "Transversal knowledge, skills and competencies are the building blocks for the development of the "hard" skills and competencies required to succeed on the labour market." (ESCOpedia 2019). Next sub-section will explain the significance of transversal skills.

2.2.2 Importance of Transversal Skills

Transversal skills, knowledge and competencies are relevant to a broad range of occupations and sectors. They can be seen as the cornerstone for the personal development of a person. (ESCOpedia 2019.) Because of the high level of reusability, transversal skills are of paramount importance in work.

As a matter of fact, our working life and working environment will change dramatically in the next 20 years (Ministry of Social Affairs and Health 2015). In the 4.0 industry, with the combination of robotics, artificial intelligence, human cloud and 3D printing, these changes are about to take a leap and inevitably have an impact on employment (Hogarth 2018, 13). With a good set of transversal skills, a person is expected to handle with transformations at the workplace with ease.

Automation is another concern for future employment. In 2013, Frey and Osborne found 47% of jobs in the United States were at high risk of being automated. In 2017, the result was reconfirmed by a report published by McKinsey. The report figured out that 49% of the activities that people are paid to do in the global economy have the potential to be automated. In 2018, Nedelkoska and Quintini increased the coverage of research to 32 countries and found that about 14% of jobs in those OECD countries which participated in PIAAC were highly automatable (i.e., with a probability of automation of over 70%). Nevertheless, the only bottlenecks to automation are social intelligence, cognitive intelligence, perception and manipulation that only human possess. (Hogarth 2018, 19-20.) From section 2.1, it is clear that transversal skills are interpersonal, hard to teach and hard to quantify. If robots will take over our jobs in the future, what stops them and differentiates us are our transversal skills. Therefore, if a person acquires a set of wanted transversal skills, his/her chance of getting employed and securing the job will increase.

To illustrate the importance of transversal skills in the working, examples of some highly appreciated transversal skills are shown in Table 3. Table 3 is made based on the results of Cedefop's European skills and jobs survey.

Table 3 Importance of transversal skills (Skills Panorama 2019)

TRANSVERSAL SKILLS	IMPORTANCE		
	Across Occupations	Across Sectors	By Age Group
Communication	Managers; professionals; service & sales workers,	Non-marketed services; business services; distribution & transport	All (24-65)

	associate professionals; clerks		
Problem-solving	Managers; professionals; associate professionals; trade workers; service & sales workers; farm and related workers	Manufacturing; business services; non-marketed services; primary sector & utilities	All (24-65)
Team working	Managers; service & sales workers; professionals; traders workers; farm and related workers	Non-marketed services; primary sector & utilities; distribution & transport; business services	All (24-65)

Three conclusions can be drawn from Table 3. Firstly, high positions like managers or professionals require fine transversal skills. Secondly, with the same transversal skills, a person is able to work in different sectors, and sometimes these sectors are not highly related such as manufacturing versus business services. Last but not least, transversal skills are expected for all people ranging from 24 to 65 years old. According to the survey, there is no tremendous difference in the importance of transversal skills in the EU in 2014 by age groups.

Table 4 List of 21st Transversal Skills

1. Critical thinking
2. Creativity/ Creative thinking
3. Collaboration
4. Communication
5. Information literacy
6. Media literacy
7. Technology literacy
8. Flexibility
9. Leadership
10. Initiative
11. Productivity
12. Social skill
13. Teamwork/ Independent working
14. Autonomy
15. Problem-solving
16. Curiosity/ Taking initiative
17. Adaptability
18. Intercultural skill
19. Context awareness
20. Solution oriented thinking

This chapter ends with a list of twenty transversal skills for the 21st century (see Table 4). The list was created based on several EU sources and was finally condensed at the kick-off meeting discussion in the EmploySkills project. The list will be reused in the interview with companies' representatives and the Internet questions with alumni in Chapter 4.

2.2.3 Transversal Skills in Finland

Education

In Finland, policymakers have realized the increasing demanding of transversal skills and competencies in our society nowadays. As a result, the new national core curriculum for basic education (see Figure 8) which implements transversal skills was introduced on 1st August 2016.
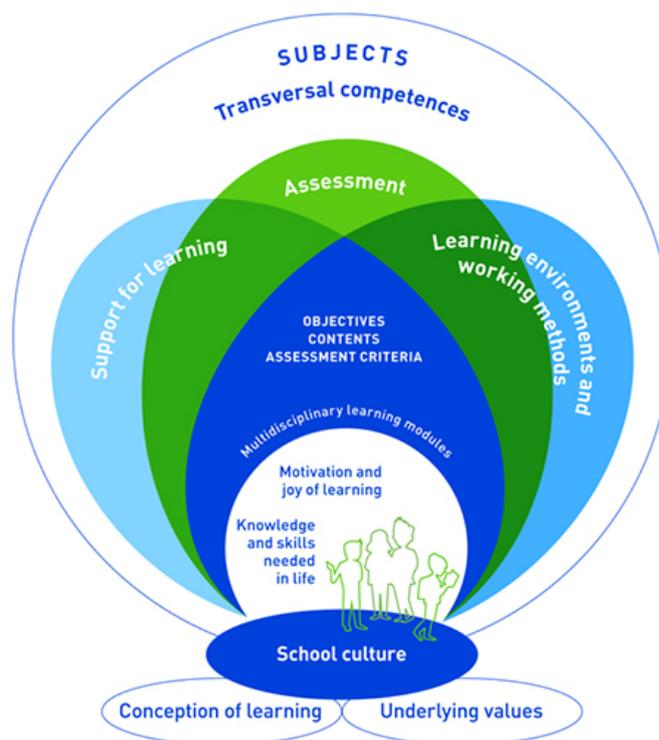
Figure 8 National Core Curriculum for Basic Education in Finland (Finnish National Agency for Education 2016)

Basic education ranges from grade 1 to grade 6 and local curricula must be created based on the national core curriculum. In 2019, the framework will be adapted in grade 9. It can be seen from Figure 8 that transversal competencies are part of every subject. The purpose is to enhance the following skills:

- thinking and learning to learn

- cultural competence, interaction and self-expression

- taking care of oneself and managing daily life

- multi-literacy

- ICT competence

- working life competence and entrepreneurship

- participation, involvement and building a sustainable future

(Finnish National Agency for Education 2016.)

Transversal skills also account for a crucial portion in the higher education curriculum in Finland. To be specific, practical training becomes a compulsory part in the learning process at polytechnics (also known as the University of Applied Sciences). There are more and more learning-by-doing courses or programmes organized by universities and organisations or companies in curricula. Educators also provide more online study possibilities for students. The final goal is to get students ready for the working life at minimized cost and time. (Szafranski, Golinski & Simi 2017, 24-25.)

Labour Market

On the other hand, Finnish outstanding education system unintentionally creates disadvantages for some minor groups, especially international job seekers in Finland. According to Statistics Finland, Finland's migration gain consisted of almost people outside the EU in 2016 (Statistics Finland 2017). As can be seen from Figure 9, applicants are all from developing countries, including Russia and China. Although Russia is borderline on the most developed-country matrix, its HDI is only .79 and the figure drops to .71 when it comes to inequality (Investopedia 2018). "In the developing world, most people now get some secondary education, but most people don't even complete it.", said Nicholas Burnett – managing director of the Results for Development Institute (The Washington Post 2018).
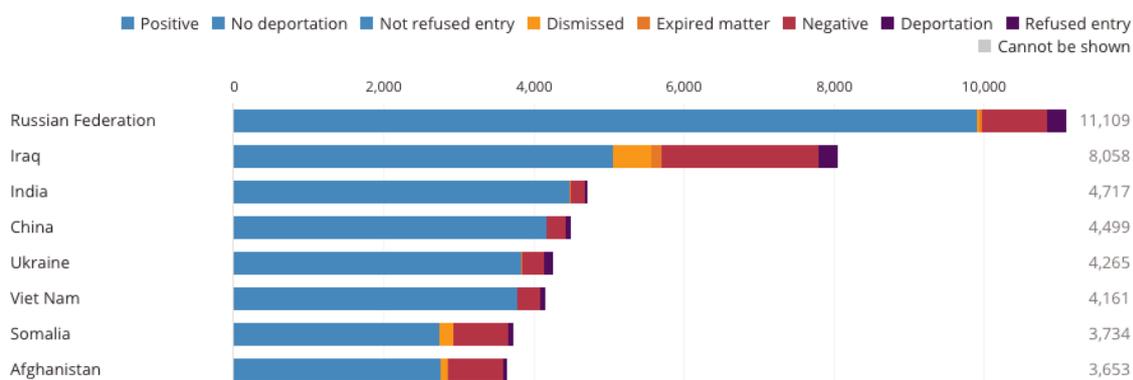
Figure 9 Citizenship Decisions in Finland by Country (Finnish Immigration Service 2018)

However, the case could be vice versa if applicants are skilled and completed higher education in Finland. Their transversal skills, like intercultural skill, may be more developed than domestic

people. All in all, the situation should be well examined by employers during the recruitment process.

2.3   Summary

The purpose of this chapter is to assist the comprehension of the research topic and the research question. Some takeaway points of this chapter are:

- Transversal skills are interpersonal, hard to teach and hard to quantify. Transversal skills have an intimate relationship with hard skills.

- Transversal skills play a crucial role in a person's working life and ladder of promotion. In the future, what differentiates us from robots are our cognitive intelligence and transversal skills.

- Transversal skills are implemented in the national core curriculum in Finland. With the same educational background, the winner will be the one with a better set of transversal skills.

In addition to the above main ideas, it is important to remember the list of 21st-century transversal skills because it will be later used in empirical research. The next chapter will elaborate on the term 'Millennials' or 'Generation Y'.

3 MILLENNIUMS: GENERATION Y

A generation is "all of the people born and living at about the same time, regarded collectively" (Cambridge Dictionary 2019). However, the generational theory is not common knowledge. This chapter aims to bring an overview of the generational theory under psychological and sociological dimensions and bring insight into generation Y which is one of the main units of knowledge in this research.

3.1 Generational Theory

The word 'generation' was developed from the Latin word 'generāre', meaning to "produce". (Dictionary.com 2019). There are different perspectives of generations, like a family generation or social generation. However, 'generation' in this research only locates "particular birth cohorts in specific historical and cultural circumstances" (Biggs 2007, 695 – 711).

At present, there are five primary generations that make up our society (The Centre for Generational Kinetics 2019). Each of them has an active role in the marketplace. The five generations are summarized in Table 5 with the birth years for each generation.

Table 5 Types of Generation (The Centre for Generational Kinetics 2019)

Generations	Birth years
Traditionalists or Silent Generation	1945 and before
Baby Boomers	1946 - 1964
Generation X	1965 – 1976
Millennials or Generation Y	1977 – 1995
Generation Z, iGen or Centennials	1996 – TBD

It is worth mentioning that people sometimes see different birth years in different places. There are two main reasons behind that. The first one is because of geography. There may be some big events that affect the characteristics of the same generation in different regions. For example, being a millennial in Athens, Greece during the unemployment period can have different behaviours than being a millennial in Austin, Texas at the exact same time. (The Centre for Generational Kinetics 2019.)

3.2 Millennials: Generation Y

This section will bring a closer look at Millennials (also known as Generation Y). Generation Y consists of the segment of the population born between 1978 and 1994. According to Sheahan 2005, while generation Y are creative and ambitious, they are difficult to manage. (Sheahan 2005, 2.) Table 6 will summarize the noticeable characteristics of millenniums generated from previous research that is related to this research.

Table 6 Characteristics of Millenniums (Timothy & Rajesh 2009)

Major Characteristics	Indications
Tech-savvy	• Using email, instant message and cell phones since childhood
	• Being more comfortable with technology
	• Using collaboration tools to solve problems or shorten the learning curve
Work Orientation	• Paying attention to practical issues, e.g. salary, healthcare, retirement, etc.
	• Being more flexible, multi-tasking and collaborative
	• Being less loyal to their employers
	• Being less independent and wanting mentoring
Risk Aversion	• Being risk-averse and self-assured

Based on previous research, one important feature of millennials is that they are comfortable with technology (Auby 2008 as cited in Timothy et al. 2009, 93) and know how to make use of technology to solve problems with ease (Bradley 2007 as cited in Timothy et al. 2009, 93). It also takes less time for them to learn about software or new technology. Exceptionally, they are the first generation that uses the Internet more than television (Barnikel 2005 as cited in Timothy & Rajesh 2009, 93) and uses a home computer on a regulation basis.

Regarding work orientation, millennials are more flexible, multi-tasking and collaborative than the previous generation X ("How millennial staff" 2009 as cited in Timothy et al. 2009, 94). However, they may be less loyal to employers if they do not feel fully engaged with the job or the company. In short, millennials are ambitious and creative people.

It is also worth note taking that generation Y employees are not as independent as Xers. They tend to follow directions, prefer clear structure at workplace and guidance from their supervisors (Dolezalek 2007; Kehrli and Sopp 2006; Orrell 2009 as cited in Timothy et al. 2009, 94). According to Orrell 2009, over 60 per cent of Millennials wants to hear from their managers at

least once a day (Timothy & Rajesh 2009, 95). This characteristic has both advantage and disadvantage. On the bright side, employers do not need to worry about the mess at the workplace or any traumatic incidents with customers. On the dark side, employers may find it time-consuming or unproductive when Y employees keep asking for instructions.

Lastly, generation Y is similar to generation X in terms of risk aversion. They have an attitude of risk avoidance and low capacity for risk. They are sceptical about social security benefits upon retirement. (Beaton 2007/2008 as cited in Timothy et al. 2009, 95.) Despite that, unlike Xers, Yers are more self-assured.

3.3   Summary

Like Chapter 2, Chapter 3 aims to assist the understanding of the research topic and research question. The literature review will also act as a theoretical foundation for the data analysis process. Some of the main ideas covered in this chapter are:

- A generation is "all of the people born and living at about the same time, regarded collectively". In the context of this research, a generation only signifies "particular birth cohorts in specific historical and cultural circumstances".

- Millennials are people born between 1977 and 1995. Yers are ambitious, tech-savvy, flexible, multi-tasking and collaborative. At the same time, Yers are less independent and expect mentoring.

This is the end of Chapter 3. It also closes the literature review process. The next chapter will examine the primary data and focus on finding answers to the investigative questions and the research question.

4   EMPIRICAL RESEARCH AND DATA ANALYSIS

This chapter aims to explain empirical research in details. First of all, section 4.1 depicts an overview of empirical research. After that, section 4.2 and 4.3 explicates the interview and the questionnaire respectively by covering three core areas: (i) design and formulation of the empirical research, (ii) data analysis and (iii) results.

4.1   Overview of Empirical Research

Figure 10 dictates the whole picture of the research. Therein, elements like research design, research methods and literature reviews are already discussed in Chapter 1, 2 and 3.

Figure 10 Research Design
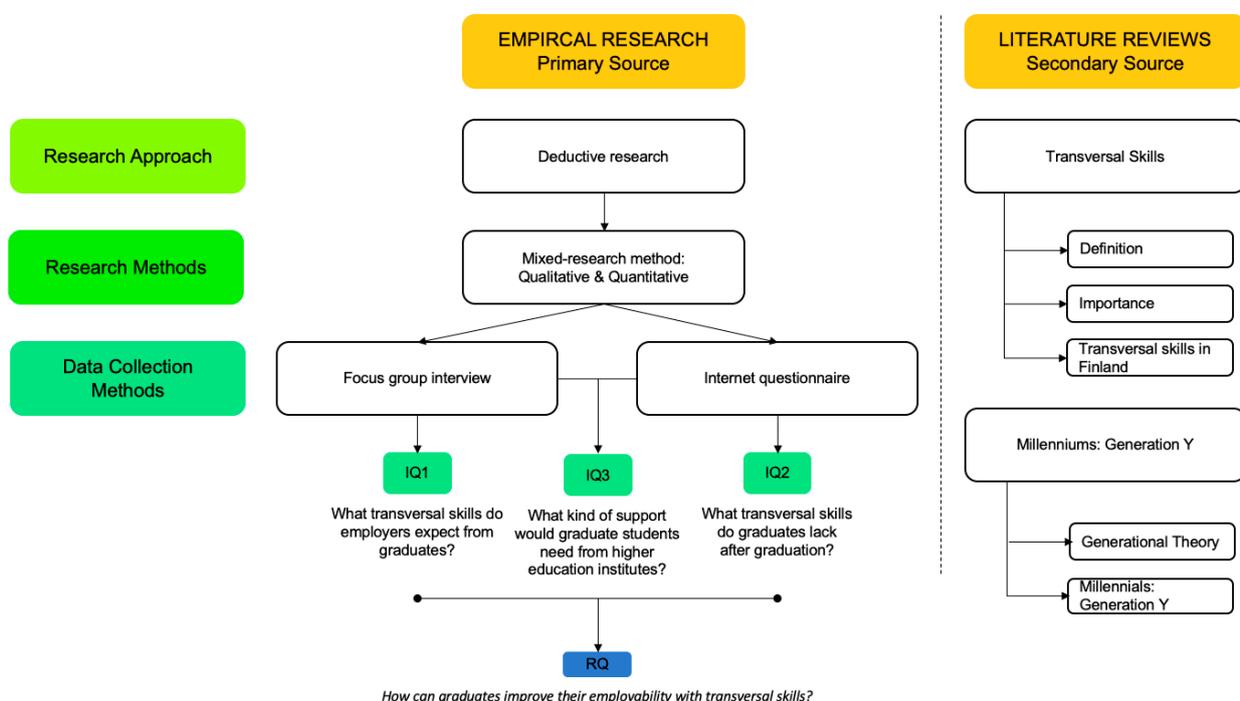
The whole thesis work which starts from January 2019 to March 2019 is illustrated in Figure 11. There are two parallel processes, which are (i) writing process and (ii) empirical research. The empirical research includes designing, collecting and analysing data. As can be seen from Figure 11, the writing process started in the middle of February and finished at the beginning of April.
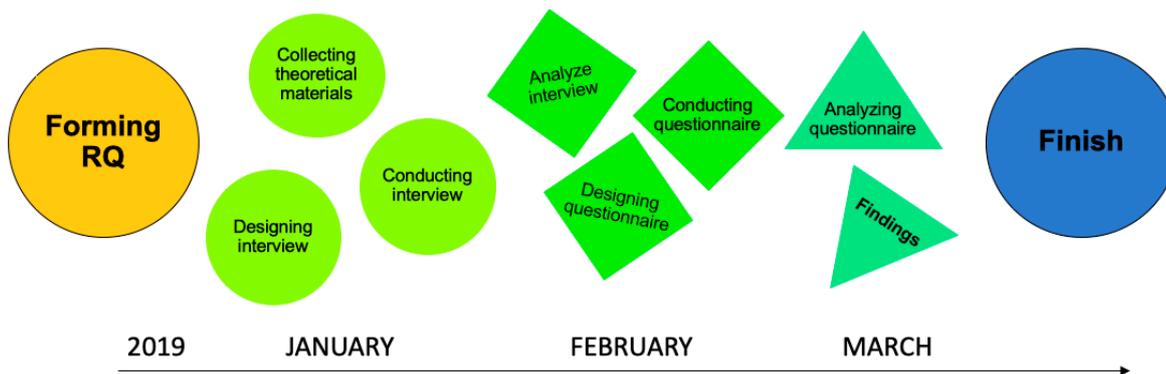
Figure 11 Data Collection Process

Time taken to complete the focus group interview is approximately one month (in January). Next, the process of collecting quantitative data from the Internet questionnaire takes about another month. For the Internet interview, there were 70 responses in total, none of which are considered invalid for further analysis step.

4.2 Interview Analysis

This section discusses the focus group interview in depth. Firstly, this section introduces the design and formation of the interview. After that, this section summarizes the collected data by using the network module, examines the categorized data and explains the findings of the focus group interview.

4.2.1 Design and Formation of the Interview

The first part of this empirical research is a focus group interview with five companies' representatives. As mentioned in section 1.4, the interview was designed in the form of a round table discussion in order to encourage discuss and share points of view, accordingly collecting a rich and detailed set of data, to explore and understand opinions of participants (Saunders et al. 2009, 324).

To be particular, the purpose of the interview is to understand the opinions of experts in the market about transversal skills graduate students should have. The interviewees were selected based on their working experience and expertise in their own field. More importantly, they come from companies which recruit a great number of LAMK students and closely co-operating with Lahti University of Applied Sciences.

To protect the identity of all participants, only the industry related to participants are shown in the text. No names or job titles are used in data analysis. Participants represent the following industries:

- Participant 1. representing the retailing industry

- Participant 2. representing construction material industry

- Participant 3. representing the welding industry

- Participant 4. representing the furniture industry

- Participant 5. representing the insurance industry

Questions of the focus group interview can be found in Appendix 2.

4.2.2 Data Analysis

This section aims to analyse the harvested data from the interview. Because of the nature of the qualitative data, data after collection needs to be summarized, categorized and restructured (if needed) in order to support a meaning analysis. In addition, diagrams and statistics like the frequencies of occurrence of certain category data can be used to assist the analysis process. (Saunders, Lewis and Thornhill 2007, 482.)

Data Display & Analysis

Data reduction is a necessary preparatory step in the analysis process of qualitative data. Data reduction includes summarizing and simplifying the data collected. The purpose of this step is to transform and condense data into a more descriptive and reader-friendly version. (Saunders et al. 2009, 503.) Among a number of ways of displaying data, the author chose a method of organising and assembling data into networks as a way of summarizing data and revealing hidden relationships between categories.

The focus group interview plot is summarised and visualised using a network (see Figure 12). Located at the centre of the network are transversal skills mentioned during the discussion. Skills with (*) are not included in the handout list and added by the participants. Red colour represents the missing skills of graduate students (Question 2). Yellow colour stands for future trends that could affect the required set of transversal skills (Question 3) and lastly green colour shows suggestions from participants on how graduate students can improve their transversal skills (Question 6). Personality component is formed during the discussion and later seen as a critical attribute to a person's working life.
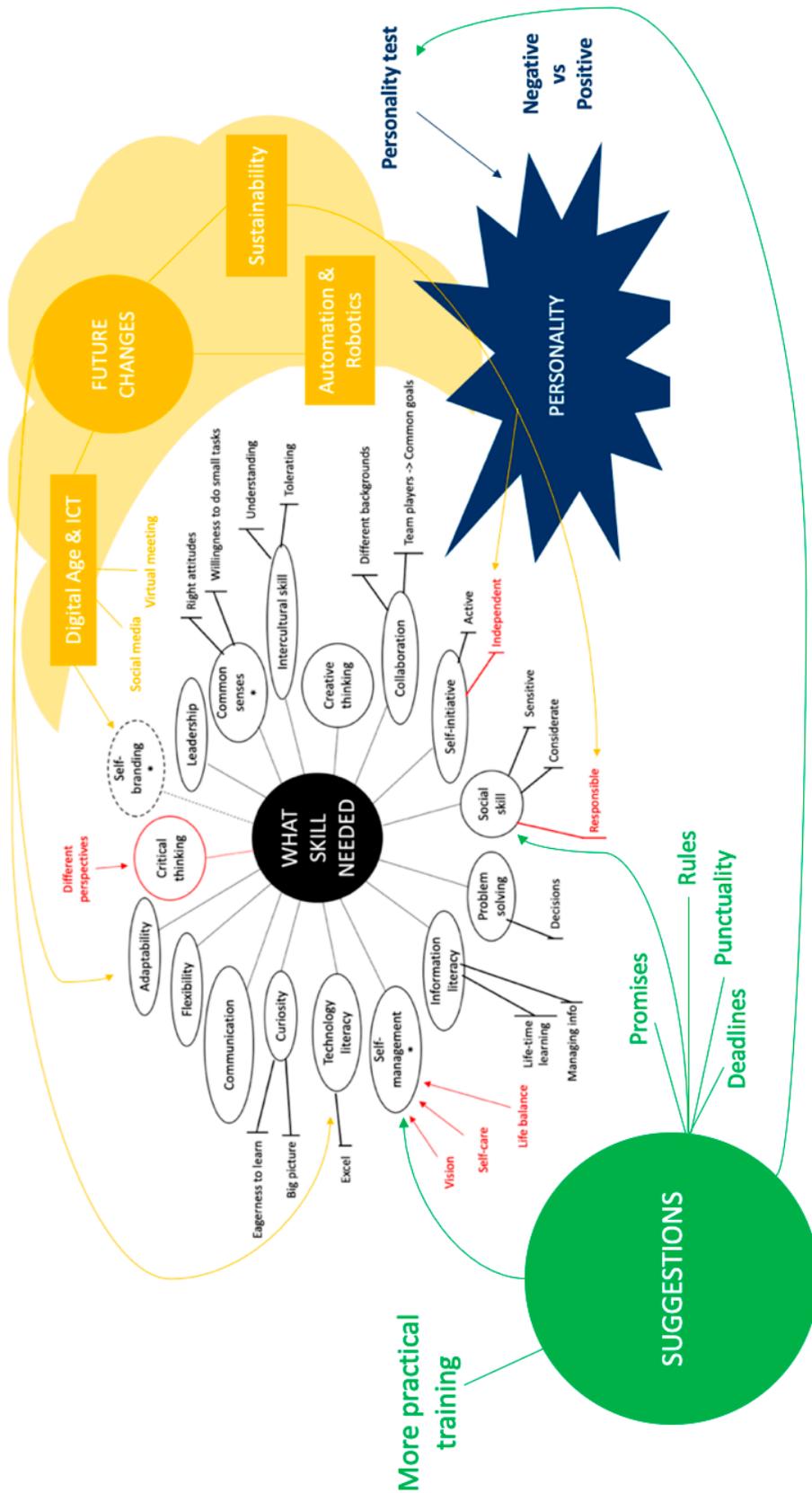
Figure 12 Interview Summary Network

Figure 12 comprises four key components: (1) needed skills, (2) personality, (3) future trends and (4) suggestions. The first remarkable finding is that four components are intimately interrelated and a change in one group can lead to a formation/disappearance of elements in other groups. In particular, the popularity of social media results in the need for technology literacy and self-branding skill while the trend of remote working and virtual meeting makes the ability to work independently more appreciated. According to participant 1, in case we cannot predict future trends, we should develop our adaptability skill.

Although a number of transversal skills were mentioned in the first question, the list narrowed down to only five skills that graduates are missing when they start working at the companies. Therein, self-management skill was most mentioned.

Participant 5 said,

> "Students don't set the goals for themselves. Students can't point out what they want to be in the next five to ten years. Career life is like a ladder. Students should think about how this is going to help them go further."

Participant 4 added,

> "Young people today are unable to balance life and work, consequently a lot of young people get burnt out because of overworking."

In addition, many young people are unable to think critically from different perspectives and therefore find it challenging to work in a team.

Secondly, it is also worth noting that depending on external factors (e.g. society, technology, economy) during a specific time, some transversal skills will take priority over other else. For example, at the moment self-initiative and technology literacy is highly expected from employers.

Besides that, personality is considered as a critical element in employers' opinions. In this research, one company practices a personality test on their employers. And participants said that a person's attitudes do matter in working life, whether you see the cup half full or half empty. Knowing your strengths and weaknesses is helpful for your work.

Quantifying Data & Analysis

With the purpose of understanding the extent to which each transversal skill is needed and correlations between transversal skills and business sectors, the author decided to count the frequency of certain events. Results were counted and displayed in Table 7.

Table 7 Necessary Transversal Skills (Frequency-Of-Mention)

Transversal Skills	Frequency-Of-Mention (FOM)
Self-initiative	3
Social skill	3
Self-management	3
Technology literacy	3
Curiosity	3
Leadership	2
Common sense	2
Intercultural skill	2
Creative thinking	2
Collaboration	2
Problem-solving	2
Information literacy	2
Communication	1
Flexibility	1
Critical thinking	1
Self-branding	1
Adaptability	1
Media literacy	0
Productivity	0
Autonomy	0
Context awareness	0
Solution oriented thinking	0

The most wanted transversal skills (set variable 'type-1') are self-initiative, social skill, self-management, technology literacy and curiosity. Three out of five participants agreed that it is necessary to acquire those skills. As our participants working in different industries, ranging from heavy industry to light industry, the figure (i.e. 3/5) implies that mentioned transversal skills are vastly applicable and beneficial to most of the jobs.

For the second group of transversal skills (set variable 'type-2'), of which FOM is 2, our participants stated that it is an advantage for graduates to acquire them. These skills will become critical for work process and career ladder. For example, participant 1 said that "When the business structure changes, people who are good at purchasing are promoted to be team leaders. Unfortunately, they do not know how to do it.".

The last group (set variable 'type-3'), of which FOM is 1, includes skills that are slightly applicable. They can be considered as so-called value-added. However, it does not necessarily mean they are less essential than other skills. In particular, communication is must-have for salespeople but dispensable for workers in production sites.

Next, the participants were asked to rank the five most important transversal skills in their opinions. The results are summarized in Table 8. I1, I2, … I5 stand for five interviewees. On the scale from 1 – 5, 1 is the most important and 5 is the least important.

Table 8 Ranking Importance of Transversal Skills

Transversal Skills	I1	I2	I3	I4	I5
Collaboration	1		5	1	1
Adaptability	2		2	2	2
Self-management*	3	3			
Technology literacy	4	1	4		
Social skill	5	2	1	4	4
Critical thinking		4			
Intercultural skill		5			
Curiosity/Self-initiative			3	5	3
Flexibility				3	
Communication					5
Common senses*			X		1'

* The skill was added by participants.

* Missing information

It is clear that all type-1 skills appear in Table 8. The result confirms the consistency in results from different questions and reaffirms the significance of type-1 transversal skills.

Overall, collaboration skill takes priority over others while social skills are the most popular skill. The table also presents variables in the need of transversal skills among different industries. Therefore, it is worth considering your interested jobs/positions and preparing for it before graduation.

4.2.3 Results

On grounds of the data analysis, this section will encapsulate the main findings from the company side. First and foremost, the need for particular transversal skills relies heavily on

external factors such as economic situations, industry characteristics and technology development. This interrelation can be seen as "an ecosystem", wherein a change in the external factor can lead to a formation or disappearance of a transversal skill. In addition, the significance of a transversal skill can increase or decrease during a period of time.

The second finding relates to personality. Most of the participants believe that personality is as important as any transversal skills and graduates should know their strengths and weaknesses.

Lastly, quantifying the data enables us to categorize transversal skills into three groups (type 1-3) according to the level of application. Among those skills, collaboration is considered to be the most important skill according to three out of five participants. Whereas, social skill is listed in top-5 most important skills in the opinion of five participants.

4.3   Questionnaire Analysis

This section will discuss the Internet questionnaire in depth. Firstly, this section will introduce the design and formation of the questionnaire. After that, this section will examine the collected data in three layers, from the background data to the main data and the underlying data. In the end, this section will clarify the questionnaire's findings in short.

4.3.1   Design and Formulation of the Empirical Research

The second part of this empirical research is a questionnaire sent via the Internet to LAMK alumni. The questionnaire was designed with the aim of further understanding of skill gaps graduate students face after graduation. Respondents should have studied within the faculty of business and graduated no longer than two years ago.

The questionnaire was written in English because the questionnaire targets both domestic alumni (Finnish) and international alumni at LAMK. The questionnaire can be found in Appendix 3.

The questionnaire was designed with two main parts. The first part aimed at collecting background information about respondents in terms of gender, age and job titles. The second part focuses on understanding the skill gaps from perspectives of graduate students, e.g. what skills they miss after graduation.

For the second part, all questions are designed in the form of a four-point Likert style scale, ranging from very dissatisfied (scale 1) to very satisfied (scale 4). The role of Likert scale measurement is to measure the extent to which transversal skills are taught and acquired.

4.3.2 Data Analysis

This section aims to analyse the harvested data from the questionnaire. Data will be analysed through four steps: (i) background analysis, (ii) analysis on transversal skills (iii) comparison and (iv) possible correlation between factors and transversal skills (see Figure 13 for the visualized process). IBM SPSS Statistics 23 and Excel Data Analysis are used to analyse the data generated from the questionnaire. Figure visualizes the process of analysing quantitative data in this research.
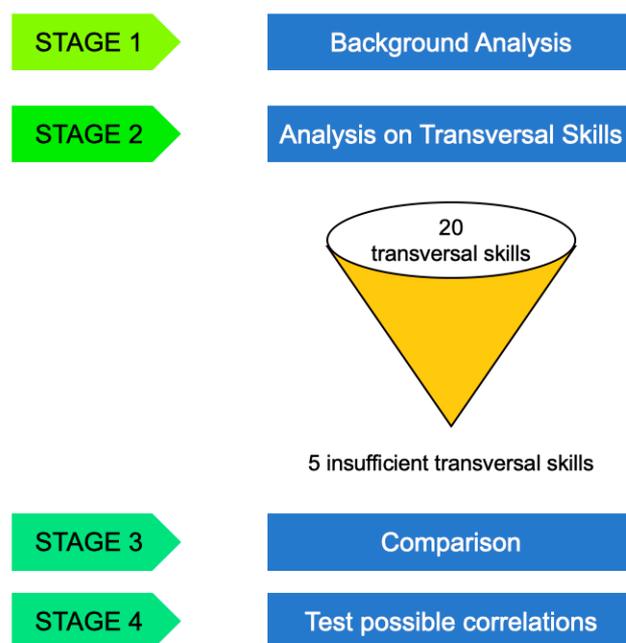
Figure 13 Summary of Questionnaire Analysis

The first step is to analyse demographics of respondents regarding age, gender and occupation categories. This analysis includes descriptive information like the number and percentage of factors. Next, the opinions of respondents on the lack of transversal skills after their graduation will be analysed. The list of twenty transversal skills will be shortened to a list of most insufficient five transversal skills. The result will be compared to the result in the interview in order to confirm the consistency of the research as well as explore unpredicted results that may occur. The final step is to test possible dependence or correlation between factors and the five most insufficient transversal skills. The last step may contribute some important points for the recommendation part and suggestions for future research, which will be discussed in Chapter 5.

Background Analysis

According to Dillman (2007), there are three types of the data variable, namely opinion, behaviour and attribute. While opinion variables record how respondents feel/think about

something, behaviour attributes assess what respondents do/did. On the contrary, attribute variables reflect on respondents themselves. (Saunders et al. 2009, 368.) This research uses two types of data variables, i.e. opinion and attribute. Opinion data is used to understand the acquisition level of transversal skills of students after graduation, while variable data is used to collect background information of the respondents.

Background information consists of gender, age and occupation. Descriptive information of each attribute variables is demonstrated in Table 9. Overall, the number of female respondents far outweighs that of male respondents, more than doubling (70% compared to 30%) and the majority of respondents are from 20 – 30 years old (i.e. 92.9%). Also, the table shows that the biggest occupation category is a routine occupation with 41.4%.

Table 9 Descriptive Analysis of Samples

Data	Valid	Frequency	Percent (%)
Gender	Male	21	30.0
	Female	49	70.0
Age [years old]	< 20	0	0.0
	20 - 30	65	92.9
	31 - 40	5	7.1
	41 - 50	0	0.0
	> 50	0	0.0
Occupation Categories	Higher managerial and professional occupations	1	1.4
	Lower managerial and professional occupations	8	11.4
	Intermediate occupations	19	27.1
	Small employers and own-account workers	2	2.9
	Lower supervisory and technical occupations	6	8.6
	Semi-routine occupations	4	5.7
	Routine occupations	29	41.4
	Never worked and long – term unemployed	1	1.4

Age is a crucial factor that is likely to have an impact on transversal skill acquisition. It is clear from Table 9 that 92.9% of respondents belong to the age group 20 – 30 years old and the rest belong to age group 31 – 40 years old. Therefore, it can be inferred that all of the respondents belong to Generation Y (also known as Millennials). Some of the noticeable characteristics of millennials are tech-savvy, work orientation and risk aversion. Moreover, they are less independent and wanting mentoring (Dolezalek 2007; Kehrli and Sopp 2006; Orrell 2009 as cited in Timothy & Rajesh 2009, 94). This leads us to the expectation that the respondents may lack leadership and self-initiative skills.

Occupation is another vital attribute that could have a correlation with transversal skills. The answers to question 3 (see Appendix 3) are grouped into eight groups as follows: (1) Higher managerial and professional occupations, (2) Lower managerial and professional occupations, (3) Intermediate occupations, (4) Small employers and own-account workers, (5) Lower supervisory and technical occupations, (6) Semi-routine occupations, (7) Routine occupations, and (8) Never worked and long – term unemployed. Details of occupation categories are clarified in Appendix 4. The purpose is to explore the medium job level of the graduate students according to the level of specialization and responsibility.
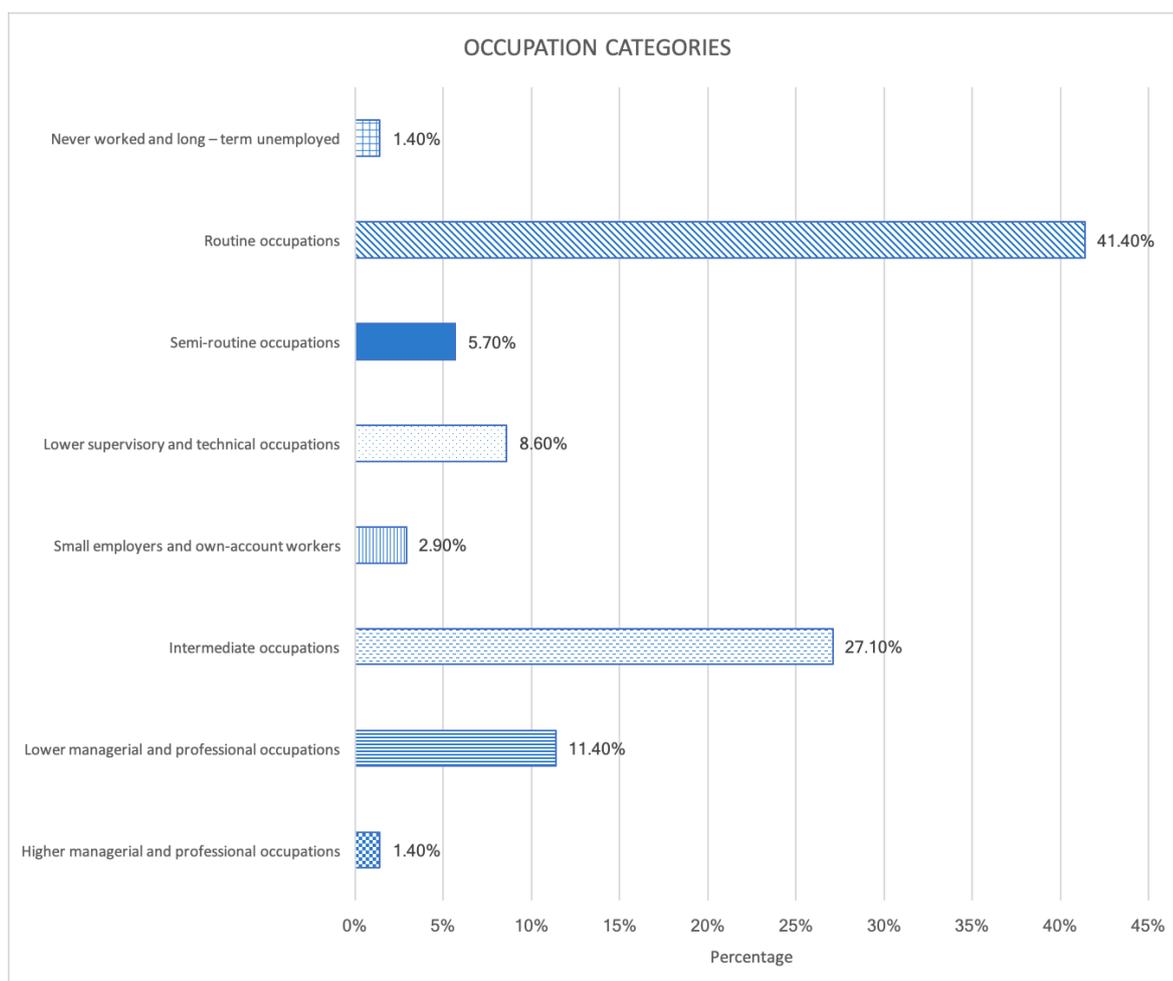
Figure 14 Occupation

Figure 14 illustrates the distribution of occupation. Overall, routine occupation constitutes the greatest proportion (i.e. 40%) in comparison with other groups. Routine occupations are positions with a basic labour contract. Job titles like salesperson, office assistant, waitress and cashier belong to this class. (Standard Occupational Classification 2010, 12.) The second biggest class is intermediate occupations. Positions in clerical, sales, service and intermediate technical occupations that do not involve general planning or supervisory power. Job titles of

this category are, for example, specialist, project manager or economist. (Standard Occupational Classification 2010, 11.) This group makes up for 30% and together with routine occupation class, they comprise more than 50% of the whole. By nature, the jobs of these two groups share common characteristics. What may differentiate them is the level of expertise and supervisory power.

On the contrary, the smallest category is the higher managerial and professional occupations with only 1%. The same situation applies to small employers and own-account workers. This group only makes up 3% in total. People in these two groups are likely employers, self-employed or higher managers. The only difference may lie in a size rule of 25 employees (Standard Occupational Classification 2010, 13). Based on the data and discussion, it seems that there is a barrier which prevents graduate students getting employed on a regular basis or getting further in their career ladder.

Opinion Analysis

In order to understand the opinions of respondents on the topic, questions are formed in a form of rating questions, using the Likert-style rating scale. Rating questions are the closed question in which a scaling device is used to record the respondent's response (Saunders et al. 2009, 599). A Likert-style rating scale is a scale that allows the respondent to indicate how strongly she or he agrees or disagrees with a statement (Saunders et al. 2009, 594). In this research, a four-point Likert rating scale will be adopted.

The main question of the questionnaire is "Please indicate how satisfied you are about the extent to which your higher institution taught you these skills". Respondents ranked the extent of missing 20 transversal skills on the four-point scale. The result was then converted to a percentage and presented in Table 10. There are 70 responses in total and none of them is considered invalid.

Table 10 Summary of Opinion Analysis

STT	Transversal Skills	Total	Very dissatisfied	Dissatisfied	Very Satisfied	Satisfied	Total
1	Adaptability	70	0.03	0.04	0.64	0.29	1.00
2	Autonomy	70	0.03	0.07	0.70	0.20	1.00
3	Collaboration	70	0.06	0.06	0.66	0.23	1.00
4	Communication	70	0.04	0.07	0.57	0.31	1.00
5	Context awareness	70	0.03	0.07	0.63	0.27	1.00

6	Creativity / Creative thinking	70	0.07	0.13	0.64	0.16	1.00
7	Critical thinking	70	0.09	0.07	0.63	0.21	1.00
8	Curiosity / Taking initiative	70	0.04	0.07	0.66	0.23	1.00
9	Flexibility	70	0.03	0.06	0.64	0.27	1.00
10	Information literacy	70	0.03	0.06	0.70	0.21	1.00
11	Initiative	70	0.06	0.11	0.63	0.20	1.00
12	Intercultural skills	70	0.06	0.04	0.49	0.41	1.00
13	Leadership	70	0.03	0.24	0.51	0.21	1.00
14	Media literacy	70	0.03	0.14	0.67	0.16	1.00
15	Problem-solving	70	0.03	0.06	0.67	0.24	1.00
16	Productivity	70	0.01	0.04	0.69	0.26	1.00
17	Social skills	70	0.06	0.10	0.57	0.27	1.00
18	Solution oriented thinking	70	0.06	0.07	0.60	0.27	1.00
19	Teamwork / Collaboration / Independent working	70	0.04	0.03	0.56	0.37	1.00
20	Technology literacy	70	0.10	0.19	0.53	0.19	1.00

In general, the majority of answers lie in 'satisfied' scale. The number of positive opinions (including satisfied and very satisfied) far outweighs that of negative opinions (including dissatisfied and very dissatisfied) (see Figure 15).
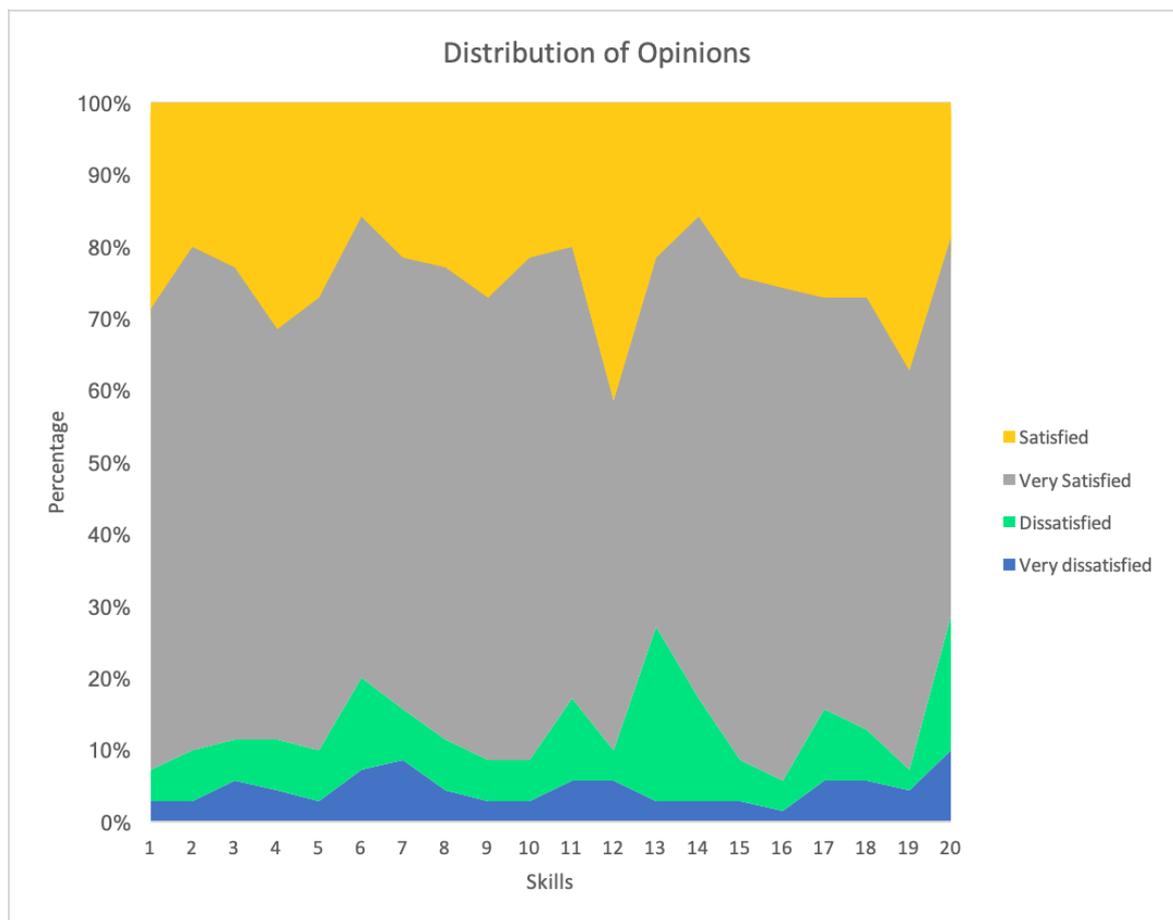
Figure 15 Distribution of Opinions

The five most insufficient transversal skills will be filtered based on the scale of dissatisfaction. In details, 'dissatisfied' and 'very dissatisfied' opinions will be coded into the same variable called dissatisfaction. Five transversal skills received the highest percentage of dissatisfaction will be considered as the five most insufficient transversal skills. The final data is displayed in Table 11 in the order of descending dissatisfaction.

Table 11 Ranking Dissatisfaction on Transversal Skills

No.	Transversal Skills	Dissatisfaction	Dissatisfaction(%)	Note
1	Technology literacy	20	0,29	Selected
2	Leadership	19	0,27	Selected
3	Creativity	14	0,20	Selected
4	Self-initiative	12	0,17	Selected
5	Critical thinking	11	0,16	Selected
6	Media literacy	11	0,16	Selected
7	Social skills	11	0,16	Selected
8	Solution oriented thinking	9	0,13	Omitted
9	Collaboration	8	0,11	Omitted

10	Curiosity	8	0,11	Omitted
11	Information literacy	7	0,10	Omitted
12	Autonomy	7	0,10	Omitted
13	Intercultural skills	7	0,10	Omitted
14	Context awareness	7	0,10	Omitted
15	Communication	6	0,09	Omitted
16	Flexibility	6	0,09	Omitted
17	Problem-solving	6	0,09	Omitted
18	Independent working	5	0,07	Omitted
19	Adaptability	5	0,07	Omitted
20	Productivity	4	0,06	Omitted

On grounds of the data in Table 11, the top five insufficient transversal skills are:

- Technology literacy

- Leadership

- Creativity

- Self-initiative

- Social skills, media literacy and critical thinking

First of all, it is worth noting that technology literacy has the highest level of dissatisfaction in the 'very dissatisfied' scale and the second highest score of dissatisfaction in the 'dissatisfied' scale. Whereas, leadership ranks second place in the list thanks to its noticeable high score in the 'dissatisfied' scale. In particular, 24% of respondents think they do not have enough competence in leadership after graduation.

In the 5th position, because there are three transversal skills that share the same percentage of dissatisfaction (i.e. 16%), all of these three skills are selected and accordingly, there are seven selected transversal skills in comparison with the intended five transversal skills.

Comparison

In the interview analysis, 20 transversal skills are categorized into three groups, entitled type-1, type 2 and type-3, according to their level of application and demand on the market (see more details in section 4.2). There are some findings drawn from the comparison between the results of the interview and the questionnaire.

Three out of five transversal skills in the list belong to type-1. These skills are technology literacy, self-initiative and social skill. The other two skills, namely leadership and creativity, are

in type-2. Last but not least, critical thinking belongs to type-1. Media literacy is the only transversal skill that, in the opinion of the interviewees, is not necessary.

On the other hand, self-awareness of alumni regarding the necessary transversal skills is comparatively good. It means that they are aware of the skill demand from the company side although some of their assumptions are not totally correct. For example, according to the company representative, leadership is seen as unnecessary in the first step of recruitment unless the open position is about management. At the same time, social skill is undermined by graduate students although that skill is highly expected from companies and plays a vital role in the first step of getting employed.

On grounds of this finding, it can be inferred that graduate students are missing critical transversal skills that help them to get employed or to move up the career ladder. Therefore, the recommendation part will focus on providing suggestions for improving the insufficient transversal skills leaving out media literacy because it is of no need according to the company side.

Possible Correlations between Factors and Transversal Skills

The last step of questionnaire analysis is (i) testing possible correlations between factors and transversal skills and (ii) testing the internal consistency of the research. The purpose of this section is to reveal hidden correlations that could contribute to answer the research question or generate suggestions for future research.

First of all, Bivariate Correlations test is used to check possible correlations between factors and the top missing transversal skills. If the sig. the result is less than 0.05 ($p < 0.05$), it can be concluded that the correlation is significant enough. However, all of the results are higher than 0.05, which means there is no significant correlation between variable factors (i.e. gender, age and occupation categories) and the top missing transversal skills (i.e. technology literacy, leadership, creativity, self-initiative, social skills and critical thinking). Detailed results are presented in Appendix 5.

Secondly, there are significant correlations between the top missing transversal skills with other skills the whole list. The correlations are illustrated in Table 12. Boxes with "X" indicate there is a positive correlation between the two transversal skills. Boxes without "X" mean there is no correlation between the two transversal skills. As can be seen from Table 12, most of the transversal skills are connected to each other.

Table 12 Correlations between Transversal Skills

	Technology literacy	Leadership	Creativity	Self-initiative	Social skills	Critical thinking
Critical thinking	X	X	X	X	X	
Creativity		X		X	X	X
Collaboration	X	X	X	X	X	X
Communication	X	X	X	X	X	X
Information literacy	X	X	X	X	X	X
Media literacy	X	X	X	X	X	X
Technology literacy		X		X	X	X
Flexibility	X	X	X	X	X	X
Leadership	X		X	X	X	X
Self-initiative	X	X	X		X	X
Productivity	X	X		X	X	X
Social skills	X	X	X	X		X
Independent working	X	X	X	X	X	X
Autonomy	X	X	X	X	X	X
Problem-solving	X	X	X	X	X	X
Curiosity		X	X	X	X	X
Adaptability	X	X	X	X	X	X
Intercultural skills			X	X	X	X
Context awareness	X		X	X	X	X
Solution oriented thinking	X		X	X	X	X

Finally yet importantly, Reliability Analysis is adopted to test the internal consistency between all the variables. Internal consistency test – Cronbach alpha (α) was invested by Cronbach (1951) and is a popular measure of reliability in social science studies. Ranges of Cronbach are shown in Table 13.

Table 13 Ranges of Cronbach α (Hinton, Brownlow, McMurray & Cozens 2004, 364)

Reliability	Range
Excellent reliability	$\alpha \geq 0.90$
High reliability	$0.70 \leq \alpha < 0.90$
Moderate reliability	$0.50 \leq \alpha < 0.70$
Low reliability	$\alpha < 0.50$

The overall Cronbach of 23 items in this research is 0.9, suggesting excellent reliability of the questionnaire. The findings generated from the questionnaire will be summarized in the next section.

4.3.3 Results

In this section, data harvested from the Internet questionnaire was examined. After the analysis process, several highlighted findings are:

- Five most insufficient transversal skills are technology literacy, leadership, creativity, self-initiative, and social skills, media literacy and critical thinking (listed in ascending order).

- The majority of opinions from alumni distribute in the 'satisfied' era.

- The self-awareness of graduate students regarding the demand of employers is comparatively good although there are still some misunderstandings.

- Six out of seven insufficient transversal skills are considered necessary for getting employed by company representatives. Therein, three out of six are of pivotal importance or so-called must-have transversal skills.

- There is no significant correlation between variable attributes and the lacking transversal skills. However, there are possible correlations between transversal skills with each other.

This chapter ends with findings from both qualitative and quantitative data collected from empirical research. Next, the findings will be connected to the final answers to the investigative questions and research question.

5 DISCUSSION AND CONCLUSIONS

The last chapter puts the final touches to this thesis work. The chapter commences with answers to all investigative questions (IQ) and research question (RQ) in Section 5.1. The second section (Section 5.2) will discuss the reliability and validity issue. In the end, the chapter will provide suggestions for future research in Section 5.3.

5.1 Answers to Research Questions

As mentioned in Chapter 1, the objectives of this thesis are (i) to identify skill mismatches in the labour market and (ii) to help graduate students enhance their employability with transversal skills. Having completed the research process, the author will first fathom out the investigative questions in sequence because investigative questions support the research question. After that, the author will elucidate the answer to the research question.

IQ1: What transversal skills do employers expect from graduates?

Employers expect graduate students to acquire the following five transversal skills:

- Self-management

- Self-initiative

- Technology literacy

- Social skill

- Curiosity

These transversal skills can be considered must-have to some extent.

Next, employers highly appreciate if graduate students have this set of transversal skills: leadership, common sense, intercultural skill, creative thinking, collaboration, problem-solving and information literacy. It can be said that this set of transversal skills will improve your chances of getting hired.

Finally, employers will be totally convinced if graduate students have either of the following transversal skills: communication, flexibility, critical thinking, self-branding and adaptability. It is worth noting that the demand for transversal skills in this group is much dependent on the characteristics of an industry. Hence, graduate students are advised to do research on their orientation of career.

In addition, from experts' perspectives, collaboration is ranked as the most important transversal skill in the workplace. Whereas, social skill is seen as the most useful for all the industries thanks to its high level of application.

IQ2: What transversal skills do graduates lack after graduation?

There are five transversal skills that graduate students seriously lack after graduation:

- Technology literacy

- Leadership

- Creativity

- Self-initiative

- Social skill, media literacy and critical thinking

Among these skills, technology literacy, self-initiative and social skills are of pivotal importance based on findings from the interview. Therefore, it is crucial that students prepare themselves on these skills.

IQ3: What kind of support would graduate students need from higher education?

According to interviewees, universities can help students in several aspects (see Table 14). First and foremost, it is necessary to have students do a personality test. The personality test helps students understand themselves better and recognize their strengths and weaknesses.

Table 14 Guidelines for Higher Institutions

Skills	Guidelines for Higher Institutions
	Adopting Personality Test into the curriculum
	• Encouraging students to do practical training. • Supporting students in finding suitable companies for their career goals and verifying the quality of the companies.
Self-management	• Adopting a self-management course into the curriculum. • Teaching students to define their goals, make a future plan and get self-motivated at work
Common senses	• Teaching students to be punctual, keep promises, take responsibilities • Practising strict deadlines

| Technology literacy | • Teaching students to use common or useful software at work in both English and Finnish |
| | • Organizing an in-depth course about Excel in both English and Finnish |

Concerning self-initiative skill, higher education institutions should introduce self-management course into the curricular and make it as a compulsory study element. During the course, students may learn to define their goal, to make the future plan and how to get self-motivated at work. Next, higher education institutions can teach students social skills and common senses by improving their awareness on common knowledge such as being punctual, keeping words and taking responsibility. One simple solution could be implementing strict deadlines.

Last but not least, interviewees strongly believe that higher institutions can help students get ready for the real working life by doing practical training as many as possible. The interviewees believe that the only way to get ready for the real working life is by doing more actual work.

RQ: How can graduates improve their employability with transversal skills?

On grounds of data generated from empirical research, the research is able to identify skill mismatches between employers and graduate students. In particular, the research identifies six transversal skills that even though employers demand, graduate students lack. These six transversal skills are:

- Technology literacy

- Social skill

- Collaboration

- Self-initiative

- Creativity

- Critical thinking

With a view to enhancing the employability and impressing employers, graduate students are advised to acquire and develop these transversal skills. Concise guidelines on how to improve these skills are outlined in Table 15.

Table 15 Guidelines on the Improvement of Transversal Skills

| Transversal Skills | Recommended Activities |

Technology literacy	• Understand your goals and existing skills
	• Read books
	• Learn online
	• Practice
Social skill	• Enhance verbal communication
	• Improve non-verbal communication
	• Practice
Collaboration	• Play team sports or team building games
Self-initiative	• Gain self-confidence
	• Think as a team member, not an employee
	• Always be prepared
	• Ask as many questions as possible
Creativity	• Adopt "Three ifs" technique
	• Listen to the type of music you enjoy most
Critical thinking	• Hone questioning skills
	• Adjust your perspectives
	• Train your brain
	• Read books
	• Practice a healthy lifestyle

The guidelines are created based on the author's knowledge and background research. The guideline is elucidated into practical implications in Appendix 6. Readers can consult the sample action and tips in Appendix 6 to build their own action plan on particular transversal skills.

5.2   Reliability and Validity

Reliability is the consistency of measurement (Bollen 1989), or stability of measurement over a variety of conditions in which basically the same results should be obtained (Nunnally 1978, as cited in Drost 2011, 106). Regarding the reliability of this thesis, the authors are confident of the research methodology, including data collection and data analysis. As mentioned in the earlier chapters, this empirical research consists of both qualitative and quantitative data. The qualitative data and quantitative data was harvested from a focus group interview and internet questionnaire respectively. Firstly, the focus group interview managed to engage all interviewees into the discussion in a free and open manner. Secondly, the Internet questionnaire was forwarded to selected alumni in order to ensure the validity of respondents.

The sample size of answers to the Internet questionnaire was 70, which is sufficient in the context of this thesis. After that, the data was treated with the utmost caution throughout steps, including transcription/coding, interpretation and analysing. Hence, the same results should be obtained by other researchers under variable conditions.

In terms of validity, it is concerned with the meaningfulness of research components (Drost 2011, 114). Therefore, the research question and investigative questions were always kept parallel during the empirical research. On one hand, qualitative data was translated with the true meaning of the construct, omitting personal opinions and any other external behaviours. This ensures the construct validity. On the other hand, any statistical conclusions are made after taking major threats into consideration. Major threats can be low statistical power, violation of assumptions, the reliability of measures, reliability of treatment, etc. (Drost 2011, 115). All in all, the validity of the research is assured.

5.3   Suggestions for Future Research

What has been ruled out of the scope of this research can be potentially examined in future studies. In particular, the first limitation is geography. This study only takes place in Lahti, Finland, therefore the scope of application is limited in that area. In order to draw conclusions on other areas, future researchers should conduct separate research using a similar methodology. The second limitation of this research is the target of application, which is in this case graduate students. Thus, future research can aim at the company side or the higher education side.

In addition, this research showed that there are some positive correlations between transversal skills but those correlations are not examined in this research. Hence, it is advisable that future researchers do in-depth research on those correlations between transversal skills.

6 SUMMARY

Unemployment is a persistent issue in Europe and especially in Finland. Compared to other age groups, youth unemployment is even more serious and complicated. In Finland, the rate of youth unemployment almost trebles that of general unemployment. At the same time, there are research showing that skill mismatch is one of the causes of this problem. Nowadays, 40% of European employees have difficulty finding people with desirable skills while more than six million long-term unemployed are considered low-skilled. On realizing the problem and potential opportunity to improve the situation, the author did the research on the opinions of parties involved in the problem (i.e. employers and graduate students) in order to identify existing skill mismatches and based on that give suggestions for graduate students to enhance their employability through transversal skills.

There are two main parts covered in this thesis: theoretical and empirical part. The related theory was covered in Chapter 2 and 3. The literature review clarifies the following themes: basic knowledge about skill types, definition and the importance of transversal skills, transversal skills in Finland, basic knowledge about generation and generation Y.

The empirical part is discussed in Chapter 4. For the research, the author conducted two thorough analyses, one for the company side with qualitative data and one for the alumni side with quantitative data. The qualitative and quantitative data were collected via a focus group interview and the Internet questionnaire respectively. The data collected was then refined using network modelling and quantifying method for qualitative data, and IBM SPSS Statistics 23 and Excel Data Analysis for quantitative data.

The thesis ends with a discussion and conclusions part. All the investigative questions (IQ) that are formed at the beginning are answered in Chapter 5. Unlike IQs, the research question (RQ) is answered in a separate section named recommendation. Finally yet importantly, the author is confident of the reliability and validity of this research because throughout every step, the data was treated with the utmost caution and a few tests are adopted in order to check the internal consistency of the data (details can be found in Chapter 4).

The author is convinced that there will be more and more research on transversal skills. Future researchers can find constructive suggestions in this field at the end of Chapter 5. The author wishes the best for future researchers.

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APPENDICES

Appendix 1 Stages of EmploySkills Erasmus+ Project (EmploySkills Erasmus+)

	Intellectual Outputs	Description
O1	State of the Art Report	Develop a state of the art report concerning skills mismatch with a specific focus on transversal skills.
O2	Modules – Curricula Development	Design new module curricula that will support students in acquiring transversal skills to reduce skills mismatch and foster employability
O3	Assessment Toolbox	Develop new tools to assess transversal skills
O4	Teacher Training Module	Improve the capacity of the academic staff to implement curriculum
O5	Teacher Support Systems	Develop tools that will support teachers when implementing curricula focusing on developing students' transversal skills

Appendix 2 Interview Questions

1. What skills do your starting employees/graduates need?

2. What is your opinion on the missing skills of graduates when they start at your firm?

3. What future trends can you see and how will they change the required set of skills in your business?

4. What do they mean within your company?

5. Which skills do you consider as the most important?

6. What tools would you recommend higher education institutes to give the students the opportunity to develop the skills they are missing?

Appendix 3 Questionnaire Questions (Edited version based on the need for this research)

General Questions

1. Gender

    Male

    Female

    Don't want to indicate my gender

2. Age

    < 20

    20 - 30

    31 - 40

    41 - 50

    > 50

First Job Activities

3. Your job/Occupation (name)   [Open question]

4. Company/Organization you work for (type and name)   [Open question]

Your opinion on transversal skills

5. Please indicate how satisfied you are about the extent to which your higher institution taught you these skills

Critical thinking	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Creativity	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Collaboration	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Communication	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Information literacy	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Media literacy	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Technology literacy	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Flexibility	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Leadership	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied

Self-initiative	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Productivity	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Social skills	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Teamwork/Independent working	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Autonomy	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Problem-solving	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Curiosity	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Adaptability	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Intercultural skills	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Context awareness	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied
Solution oriented thinking	Very dissatisfied	Dissatisfied	Satisfied	Very satisfied

Appendix 4 Operational Categories and Sub-Categories Classes

Analytic Classes	Operational categories and sub-categories classes
1.1	**L1 Employers in large establishments**
	L2 Higher managerial and administrative occupations
1.2	**L3 Higher professional occupations**
	L3.1 'Traditional' employees L3.2 'New' employees L3.3 'Traditional' self-employed L3.4 'New' self-employed
2	**L4 Lower professional and higher technical occupations**
	L4.1 'Traditional' employees L4.2 'New' employees L4.3 'Traditional' self-employed L4.4 'New' self-employed
	L5 Lower managerial and administrative occupations
	L6 Higher supervisory occupations
3	**L7 Intermediate occupations**
	L7.1 Intermediate clerical and administrative occupations L7.2 Intermediate sales and service occupations L7.3 Intermediate technical and auxiliary occupations L7.4 Intermediate engineering occupations
4	**L8 Employers in small organisations**
	L8.1 Employers in small establishments in industry, commerce, services etc. L8.2 Employers in small establishments in agriculture
	L9 Own account workers
	L9.1 Own account workers (non-professional) L9.2 Own account workers (agriculture)
5	**L10 Lower supervisory occupations**
	L11 Lower technical occupations
	L11.1 Lower technical craft occupations L11.2 Lower technical process operative occupations
6	**L12 Semi-routine occupations**
	L12.1 Semi-routine sales occupations L12.2 Semi-routine service occupations L12.3 Semi-routine technical occupations L12.4 Semi-routine operative occupations L12.5 Semi-routine agricultural occupations L12.6 Semi-routine clerical occupations L12.7 Semi-routine childcare occupations
7	**L13 Routine occupations**
	L13.1 Routine sales and service occupations L13.2 Routine production occupations L13.3 Routine technical occupations L13.4 Routine operative occupations L13.5 Routine agricultural occupations
8	**L14 Never worked and long-term unemployed**
	L14.1 Never worked L14.2 Long-term unemployed
*	**L15 Full-time students**
*	**L16 Occupations not stated or inadequately described**
*	**L17 Not classifiable for other reasons**

Appendix 5 Bivariate Correlations Test between Factors and Transversal Skills

		Gender	Age	Occupation Categories
Information literacy	Sig. (2-tailed)	,744	,678	,190
Leadership	Sig. (2-tailed)	,785	,729	,505
Creativity	Sig. (2-tailed)	,837	,336	,136
Self-initiative	Sig. (2-tailed)	,626	,930	,751
Social skill	Sig. (2-tailed)	,691	,447	,814
Critical thinking	Sig. (2-tailed)	,897	,215	,660

Appendix 6 Practical Implications

Technology Literacy

Understand your goals and existing skills	Guiding questions: • What roles/activities do you want to pursue? • What technical skills do you have? • What other technical skills do you need? Interactive ICT career wheel (see Appendix 7)
Read books	• "CompTIA A+ (Certification)" for a general understanding of computing hardware and software technology
Learn online	Free online education sites: • Codeacademy • Dash General Assembly • EdX • Havard Online Learning • Khan Academy • MIT OpenCourseWare • Udemy

Social Skills (WikiHow 2019a)

Enhance verbal communication	• Volume and tone of your voice: Try to speak at the same volume and tone as people in your surrounding area. In case you feel nervous, try to speak slower (about a third of your normal speaking speed). • Clear inflammatory topics • End conversations politely
Improve non-verbal communication	• Observe people in social situations • Smile • Dress properly
Practice	• Recommended places for practice: gym, sports clubs or community centres • Initiate a short conversation with service people • Self-reflect and draw learning lessons

Collaboration

Play team sports	• Example: hockey, football, basketball, volleyball, cricket, baseball, etc.

Self-initiative

Guiding steps	• Step 1: List benefits to be gained by acting on your own initiative
	• Step 2: If it is to be, it is up to me.
	• Step 3: Trust your own judgement
	• Step 4: Don't wait for other permissions or opinions
	• Step 5: Do it now!

Creativity

Adopt "Three Ifs" technique	• What would happen if I change it (the object, system, etc.)?
	• What would I change or improve it if I want to use it in 10 years?
	• What would I do if I had a one-million-dollar investment to improve it?
	(Top University 2019)
Listen to the type of music you enjoy most	• Instrumental music stimulates more artistic and visual senses (Dr Jockers 2019)

Critical Thinking (WikiHow 2019b)

Hone questioning skills	• Question your assumptions
	• Invest every new piece of information before taking it
Adjust your perspectives	• Understand your own biases
	• Thank several moves ahead
	• Put yourself in other peoples' shoes
Train your brain	• Recommended games: Rubik's cube, crosswords or Sudoku
Practice a healthy lifestyle	• Daily exercise schedule

- Recommended food: avocados, blueberries, wild salmon, nuts, seeds and brown rice

Appendix 7 Interactive ICT Career Wheel (Careers Foundation 2019)