Tampere University

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INTERNATIONAL HIGHER EDUCATION TECHNOLOGY STUDENTS IN THE FINNISH FOREST INDUSTRY

Opportunities and Challenges for Integration and Employment

Master's Thesis
Faculty of Engineering and Natural Sciences
Material Science and Engineering
Examiner: Sanna Auvinen
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May 2026

ABSTRACT

Noora Salmela: International Higher Education Technology Students in the Finnish Forest Industry
Master's Thesis
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The number of international students in Finland has increased significantly in recent years, while at the same time the outlook for the forest industry and the employment situation of highly educated individuals have weakened. This has highlighted the need to better understand the integration and employment of international graduates in Finland, as well as their willingness to remain in the country. The aim of this thesis was to examine the integration and employment of international technology students in the Finnish forest industry.

The study is based on a literature review and survey data collected from international students, student associations and companies. The results indicate that the most significant barriers to integration and employment are Finnish language skills and related requirements, as well as limited professional networks. At the same time, the findings show that many students are willing to remain in Finland if employment opportunities are available. The study period functions as an important pathway to integration, although its potential is not fully realised for all students.

The results demonstrate that although international students have a strong willingness to remain in Finland and work in the sector, this requires sufficient opportunities and support measures. Improving employment outcomes therefore requires actions at multiple levels, including enhanced language support, stronger connections between studies and working life and more inclusive recruitment practices.

This thesis provides practical recommendations for international students, student associations and companies on how integration and employment can be supported. The findings suggest that integration is not an individual process alone, but requires cooperation between individuals, organisations and society.

Keywords: international students, forest industry, student associations, higher education, integration, employment, labour market, language skills, networks, recruitment, Finland

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TIIVISTELMÄ

Noora Salmela: Kansainväliset tekniikan alan korkeakouluopiskelijat suomalaisessa metsäteollisuudessa
Diplomityö
Tampereen yliopisto
Materiaalitekniikka
Toukokuu 2026

Kansainvälisten opiskelijoiden määrä Suomessa on kasvanut merkittävästi viime vuosina samaan aikaan, kun metsäteollisuuden näkymät ja korkeakoulutettujen työllisyystilanne ovat heikentyneet. Tämä on korostanut tarvetta ymmärtää Suomessa valmistuneiden kansainvälisten osaajien integroitumista, työllistymistä sekä heidän halukkuuttaan jäädä maahan. Tämän diplomityön tavoitteena oli tarkastella kansainvälisten tekniikan alan korkeakouluopiskelijoiden integroitumista ja työllistymistä suomalaiseen metsäteollisuuteen.

Tutkimus perustui kirjallisuuskatsaukseen sekä kyselytutkimukseen, johon osallistuivat kansainväliset opiskelijat, ainejärjestöt ja yritykset. Tulosten perusteella keskeisimmiksi integroitumisen ja työllistymisen haasteiksi nousivat suomen kielen taito ja siihen liittyvät vaatimukset sekä rajalliset verkostot. Samalla havaittiin, että opiskelijoilla on vahva halu jäädä Suomeen, mikäli työllistymisen edellytykset täyttyvät. Opiskeluaika toimii tärkeänä siltana osaksi yhteiskuntaa, mutta sen tarjoamat mahdollisuudet eivät toteudu täysimääräisesti kaikille.

Tulokset osoittavat, että vaikka kansainvälisillä opiskelijoilla on vahva halu työllistyä alalle ja jäädä Suomeen, tämän toteutuminen edellyttää riittäviä mahdollisuuksia ja tukitoimia. Työllistymisen edistäminen vaatii toimenpiteitä useilla tasoilla, kuten kielituen kehittämistä, työelämäyhteyksien vahvistamista opintojen aikana sekä inklusiivisempien rekrytointikäytäntöjen edistämistä.

Tutkimus tarjoaa käytännön suosituksia kansainvälisille opiskelijoille, ainejärjestöille ja yrityksille siitä, kuinka integroitumista ja työllistymistä voidaan tukea. Tulosten perusteella voidaan todeta, että kansainvälisten opiskelijoiden integroituminen ei ole yksittäinen prosessi, vaan edellyttää laajaa yhteistyötä yksilöiden, organisaatioiden ja koko yhteiskunnan tasolla.

Avainsanat: kansainväliset opiskelijat, metsäteollisuus, ainejärjestöt, korkeakoulutus, integroituminen, työllistyminen, työmarkkinat, kielitaito, verkostot, rekrytointi, Suomi

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PREFACE

A great deal of water has flowed through the Tammerkoski rapids since this engineering student was baptized in its foaming currents. I have had the privilege of growing into adulthood as a teekkari of Tampere, as part of an exceptional community—and I am especially proud and grateful for that. Just a couple of years ago, I was convinced that this day would never come, but in the end, I managed to surprise and surpass myself. I would like to extend my deepest thanks for all the support and help over the years to my loved ones, fellow students and the university staff.

I had the honour of carrying out this meaningful thesis for the Finnish Forest Products Engineers' Association (Puunjalostusinsinöörit ry, PI). The supervisors of this thesis were Antti Lindqvist, Managing Director of PI, and Sanna Auvinen, University Instructor in Materials Science and Environmental Engineering at Tampere University. I also received invaluable guidance from Pasi Pyöriä, University Lecturer in Sociology at Tampere University.

I would especially like to thank my supervisor Antti Lindqvist and the Finnish Forest Products Engineers' Association for making this thesis possible and for their excellent guidance. Warm thanks also to Atte Jäntti for his important support during the project. I am deeply grateful to Sanna Auvinen for her perseverance, teaching and guidance—she was also a key contributor to my bachelor's thesis. I also extend my sincere thanks to Pasi Pyöriä for joining the project and for his constructive guidance and expertise. Special thanks also to everyone who contributed valuable input by responding to the surveys and sharing ideas.

Thank you, my family, Jukka and Bombus!
Thank you, friends, Elram, Materials Engineering Guild (MIK) and Teekkari Union of Tampere!
Thank you, Tampere University of Technology and Tampere University!

And once again, thank you to Sanna, Pasi, Antti and the entire Finnish Forest Products Engineers' Association.

Tampere, 18.05.2026

Noora Salmela

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ABBREVIATIONS AND DEFINITIONS

Abbreviation	Definition
CIMANET	Circular Materials Bioeconomy Network
FSHS	Finnish Student Health Service (YTHS in Finnish)
DEI	Diversity, Equity and Inclusion
DVV	Digital and Population Data Services Agency (Digi- ja väestötietovirasto in Finnish)
EDUFI	Finnish National Agency for Education (OPH in Finnish)
EEA	European Economic Area
EU	European Union
GPA	Grade Point Average
HR	Human Resources
KETEK	Kemiantekniikan kilta ry
Migri	Finnish Immigration Service
MIK	Materiaali-insinöörikilta ry
NF	Nuorten Forum (Youth Forum in English)
OECD	Organization for Economic Co-operation and Development
OPH	Opetushallitus (EDUFI in English)
OTUS	Research Foundation for Studies and Education
PI	Finnish Forest Products Engineers' Association
PJK	Puunjalostajakilta ry
SAIO	Savonlinnan Insinööriopiskelijat SAIO ry
SAMOK	Student Union of Universities of Applied Sciences in Finland
SYL	National Union of University Students in Finland
SWT	School-to-Work Transition
TAMKO	Student Union of Tampere University of Applied Sciences
TREY	Student Union of Tampere University
UAS	University of Applied Sciences
Yle	Finnish Broadcasting Company Yleisradio Oy

1. INTRODUCTION

The Finnish forest industry is one of the cornerstones of the national economy, contributing significantly to exports, employment and sustainable development. Numerically, this corresponds to an estimated 17 % share of Finland's goods export value in 2025, as reported by Finnish Customs [1]. In 2021, the Finnish forest industry generated approximately 33 billion euros in direct revenues, and when accounting for indirect economic impacts, the total contribution reached about 45 billion euros. According to an EY report, the forest industry employed approximately 40 000 individuals directly in 2021. Including indirect employment effects, the total employment impact reached about 100 000 individuals. [2] [3]

The Finnish forest industry operates within an intensely competitive global economic environment. As global markets evolve and sustainability becomes a central theme, industry faces increasing pressure to innovate and maintain competitiveness. One critical aspect of this transformation is the ability to attract and retain skilled professionals, including international talents.

In recent years, Finland has actively promoted higher education programs for international students, aiming to strengthen the talent pool and foster diversity in the labour market. According to Education Statistics Finland, over 37 000 international students enrolled in Finnish higher education institutions in 2024. Of these, 8 253 study engineering-related fields, including programs relevant to the forest industry [4]. This significant share of engineering students represents a key segment of the prospective workforce that could meet future talent needs in the Finnish forest industry.

Despite the efforts, the integration of international graduates into the Finnish workforce remains a challenge. This issue has also been widely recognized within the forest industry, both by employers and by students themselves. Language barriers and limited professional networks are commonly believed to hinder smooth transitions from academia to employment. Student organizations and active participation in student life can play a significant role in addressing these challenges. This is largely because they help international students build social connections and develop informal networks that support their integration into Finnish society as well as professional environments. Participation in student organizations is therefore not only associated with enhanced social integration but also provides access to industry events and valuable networking opportunities.

These networks can serve as important stepping stones toward internships and eventual employment within the forest sector. Accordingly, this study focuses on this topic.

Studies related to international students and talents have been carried out by several authorities, such as ministries, Finnish National Agency for Education (Eng. EDUFI, Fin. OPH) and higher education institutions, as well as other parties such as student organizations and professional operators which are for example National Union of University Students in Finland (Suomen ylioppilaskuntien liitto SYL) and Academic Engineers and Architects in Finland TEK (Tekniikan akateemiset TEK). [5] This study differs from previous research primarily through its more precisely defined target groups and its focus on the Finnish forest industry. The position of international students within the Finnish forest industry has not been examined in this level of detail before.

This thesis explores the experiences of international higher education technology students in relation to the Finnish forest industry. The study focuses on the integration and employment of international students. The research seeks to identify both opportunities and obstacles that influence the employability and retention of international talents. The analysis particularly focuses on how the study period influences these factors and what forms of support are needed. The findings are intended to assist stakeholders relevant to the research topic in developing effective support strategies that promote inclusivity and reinforce Finland's position as a competitive and sustainable hub for forest-based innovation.

Research questions:

1. What are the key barriers and enablers influencing the integration and employment of international higher education technology students in the Finnish forest industry?
    a. How do language proficiency and the study period in Finland influence international students' employment and integration?
    b. What factors encourage international students to remain in Finland after graduation, and what factors motivate them to leave?
2. What are best practices and recommendations for international students, student associations and companies in the Finnish forest industry to support integration and employment of international students?
    a. How can student associations and universities support integration through language learning, peer support, cultural orientation and networking opportunities?

b. What concrete actions can international students, student associations and companies take to strengthen the long-term retention of international graduates in Finland?

The thesis consists of five chapters. After the introduction, chapter 2 reviews the background and theoretical framework. It includes international students in Finland, the forest industry context and theories and other topics related to study. Chapter 3 explains the research methods that in this case are surveys. Chapter 4 presents and interprets the findings in relation to Chapter 2. Chapter 5 concludes with recommendations and future research directions. Flowchart of the thesis content in Figure 1.

Figure 1. Flowchart of the thesis content.

This master's thesis was commissioned by Finnish Forest Products Engineers' Association (PI) to investigate the integration and employment of international higher education students in forest-industry-related technical degree programs in Finland. PI is over 110 years old network for students, professionals and companies. It aims to develop competence, attract interest and function as a forerunner in the forest industry. [6] This thesis aims to support and is closely connected to PI's updated strategic direction, which seeks to further develop the association's services to better support international talents. Through responsible choices and the use of artificial intelligence, PI aims to take the needs of international professionals more fully into account across all its activities. [7] The author has a background in materials science and engineering. Therefore, this thesis aims to examine the topic from the perspective of materials engineering whenever possible and contextually appropriate.

2. BACKGROUND AND THEORETICAL FRAMEWORK

The primary objective of this study is to examine the challenges and opportunities related to the integration and employment of international higher education students in the Finnish forest industry. The purpose of this chapter is to provide a background and theoretical framework for the results of the study and their interpretation.

This literature review addresses five main areas. First, it frames the position of international higher education students in Finland, including statistical trends, policy frameworks and their contribution to addressing labour market needs. Second, the chapter explores the Finnish forest industry context, its current challenges, global trends and the role of international students in the industry. Third, the chapter introduces integration, focusing on social and professional dimensions as well as barriers and enablers. Finally, it considers career transition theories and the role of student life and associations in supporting integration and employability.

2.1 International Students in Finland

The number of international students in Finnish higher education institutions has increased steadily over the years, with a particularly sharp rise during the 2020s [8]. This growth has been most pronounced among students coming from outside the EU and European Economic Area (EEA), a trend significantly influenced by political decision-making. There are multiple factors that explain why students choose to come to Finland to pursue their studies. The following subsections examine this topic from several perspectives in more detail.

2.1.1 Number of International Higher Education Students in Finland and Forest Industry Related Fields

In this context, the terms international student and foreign student are related, yet they do not mean the same thing. International students are generally understood as students who have completed their previous education in another country but do not reside permanently in the host country [9]. More broadly, the term also includes students who have some kind of international background, for example through mobility, language or cultural experience. This group may consist of degree students who have moved to Finland, exchange students or students with immigrant or multilingual backgrounds who already

live in Finland permanently. In the data collected for Vipunen, the statistics service maintained by the Finnish National Agency for Education, international students are defined as those who have completed their upper secondary qualification outside Finland [8].

Foreign students, on the other hand, are defined simply by citizenship. They are students enrolled in a school or higher education institution who do not hold Finnish citizenship [10]. As a result, all foreign students can be seen as part of the international student population, but not all international students are foreign students.

The term foreign student is more clearly and strictly defined. As a result, most statistics are available for this group, and it is therefore commonly used in statistical reporting. In contrast, the definition of an international student is broader and more open to interpretation. According to the OECD (Organization for Economic Co-operation and Development), when specific data on international students is not available, information on foreign students can be used as an alternative indicator. [9] This thesis focuses primarily on foreign students completing technical higher education degrees related to the forest sector in Finland. However, the term international student is more neutral and inclusive, and is therefore used throughout the text.

Table 1 presents the total number of students, new students and graduates in 2024 by degree level. Numbers are broken down into all higher education students, international students and foreign students. The number of new doctoral students is not collected in the same way as other degree levels and therefore it is missing from Table 1. The application and selection processes for the doctoral degree differ significantly, which makes it difficult to compile statistics. Specialist Training in Medicine, Licentiate Degrees and other or unknown categories have been excluded from the table due to their small numbers and to simplify the presentation. All data is taken from Vipunen, and their data has been protected. This means that amounts below 5 are listed as 1-4 and larger numbers are rounded to the nearest multiple of three. For this reason, the figures may include slight variations or inconsistencies. Numbers and percentages later are based on these protected figures. [8]

Table 1. Number of students divided by degree level and group in Finnish higher education institutes in 2024 [8].

Number of students divided by degree level and group in 2024		Bachelor's Degree from UAS	Bachelor's Degree from University	Master's Degree from UAS	Master's Degree from University	Doctoral Degree	Total
Number of students in higher education institutions	All students	151 494	84 633	23 574	67 446	19 998	**347 427**
	International students	17 466	3 909	3 135	10 434	6 288	**41 244**
	Foreign students	16 341	3 426	2 499	9 516	5 505	**37 773**
Number of new students in higher education	All new students	39 780	19 644	6 198	8 577		**74 199**
	New international students	6 681	1 095	1 572	3 294		**12 642**
	New foreign students	6 627	1 362	1 320	3 618		**12 927**
Number of degrees completed in higher education	All degrees completed	27 282	15 435	6 057	18 558	1 875	**69 207**
	Degrees completed by international students	2 388	549	762	2 955	729	**7 383**
	Degrees completed by foreign students	2 088	462	633	2 706	612	**6 606**

The differences between the numbers of international and foreign students are relatively small. In total, Finland had 347 427 higher education students in 2024, of whom 41 244 were international and 37 773 were foreign students. International students accounted for 12 % of all higher education students, 17 % of all new students and 11 % of all graduates in 2024. Data on foreign students is available from as early as 2000, whereas data on international students has only been collected since 2021. [8] For this reason, when examining the statistics and their development over time, it is more meaningful to rely on the data available for foreign students.

Numerically, the largest group of higher education students in Finland consists of those completing a bachelor's degree at a university of applied sciences (UAS), accounting for approximately 43 % of all higher education students. International students form a particularly notable share also at the doctoral level. More than 30 % of all doctoral students are international and nearly 40 % of individuals who completed a doctoral degree were international students. Although most international students pursue bachelor's degrees

at UAS institutions, their representation is proportionally highest at the doctoral level. Altogether, 7 383 international students completed a higher education degree in Finland in 2024. [8]

The number of foreign students in the core target fields is specified for the year 2024 in Table 2. These fields include chemical engineering, process engineering and materials engineering. The amounts are presented both by degree program and as totals. In total, there were 1 110 foreign students enrolled in higher education programs related to technical aspects of the forest industry in Finland in 2024. The largest share, of 804 students, was in fields of chemical engineering and processes. [8]

Table 2. Number of foreign students in specific forest industry related technical fields and degree levels in 2024 [8].

Number of foreign students in forest industry-related technical fields in 2024	Bachelor's Degree from UAS	Bachelor's Degree from University	Master's Degree from University	Doctoral Degree	Total of all degrees
Chemical engineering and processes	**147**	**87**	**342**	**225**	**804**
M.Sc. (Tech), Biotechnology			69		
M.Sc. (Tech), Chemical Engineering			267		
M.Sc. (Tech), Process Engineering			6		
Bachelor of Engineering, Bio and Food Technology	126				
Bachelor of Engineering, Chemistry	15				
Bachelor of Engineering, Process Engineering	6				
B.Sc. (Tech), Biotechnology		1–4			
B.Sc. (Tech), Chemical Engineering		84			
B.Sc. (Tech), Process Engineering		1–4			
D.Sc. (Tech), Biotechnology				24	
D.Sc. (Tech), Chemical Engineering				171	
D.Sc. (Tech), Process Engineering				30	
Materials engineering (glass, paper, plastics and wood)			**12**	**39**	**51**
M.Sc. (Tech), Forest Products Technology			12		
D.Sc. (Tech), Forest Products Technology				39	
Production and process engineering, interdisciplinary degree programs	**129**	**1–4**	**72**	**54**	**255**
M.Sc. (Tech), Materials Engineering, Rock Engineering			72		
Bachelor of Engineering, Materials Engineering	129				
B.Sc. (Tech), Materials Engineering, Rock Engineering		1–4			
D.Sc. (Tech), Materials Engineering, Rock Engineering				54	
Total of all foreign students in forest industry related fields	**276**	**90**	**426**	**318**	**1110**

It is important to note that these technical fields do not include all students studying forest industry-related subjects, but only those within this more specific target group. Furthermore, even within these fields, not all students automatically specialize in forest industry topics, but relevant majors can be found within these disciplines. In technical fields in Finnish universities, students are mostly allowed to choose their majors based on personal interest not by grade point average (GPA) or other limitations. Therefore, the actual number of students studying forest industry related topics can have variations and is not listed or collected.

2.1.2 Statistics and Development Trends

The Finnish higher education system has undergone significant internationalization over the past two decades. The number of foreign degree students increased from approximately 6 000 in 2000 to over 37 000 by 2024, representing more than 10 % of the total student population. Much of this growth has come from students outside the EU and EEA, a trend strongly influenced by national policy decisions. [8]

As said in chapter 2.2.1, data on international higher education students in Finland has been available from the Vipunen since the year 2021. Whereas the data of foreign higher education students has been available since 2000. Therefore, the development trends with this topic are presented and studied based on data on foreign students.

The number of foreign students increased at an accelerating, although moderate, pace until the early 2010s. After that the growth slowed down and in some years the numbers even declined a bit. However, since 2021 the numbers have grown significantly. In 2023 and 2024, the number of foreign students increased each year by more than 5 500 students compared to the previous year. The most recent recorded year shows a high number of 37 773 students, which is more than six times the amount at the beginning of the millennium. If the 2025 figures follow the same trend, then once published they will show that student numbers have more than doubled in six years. Figure 2 presents the annual number of foreign higher education students in Finland, broken down by level of education. [11]

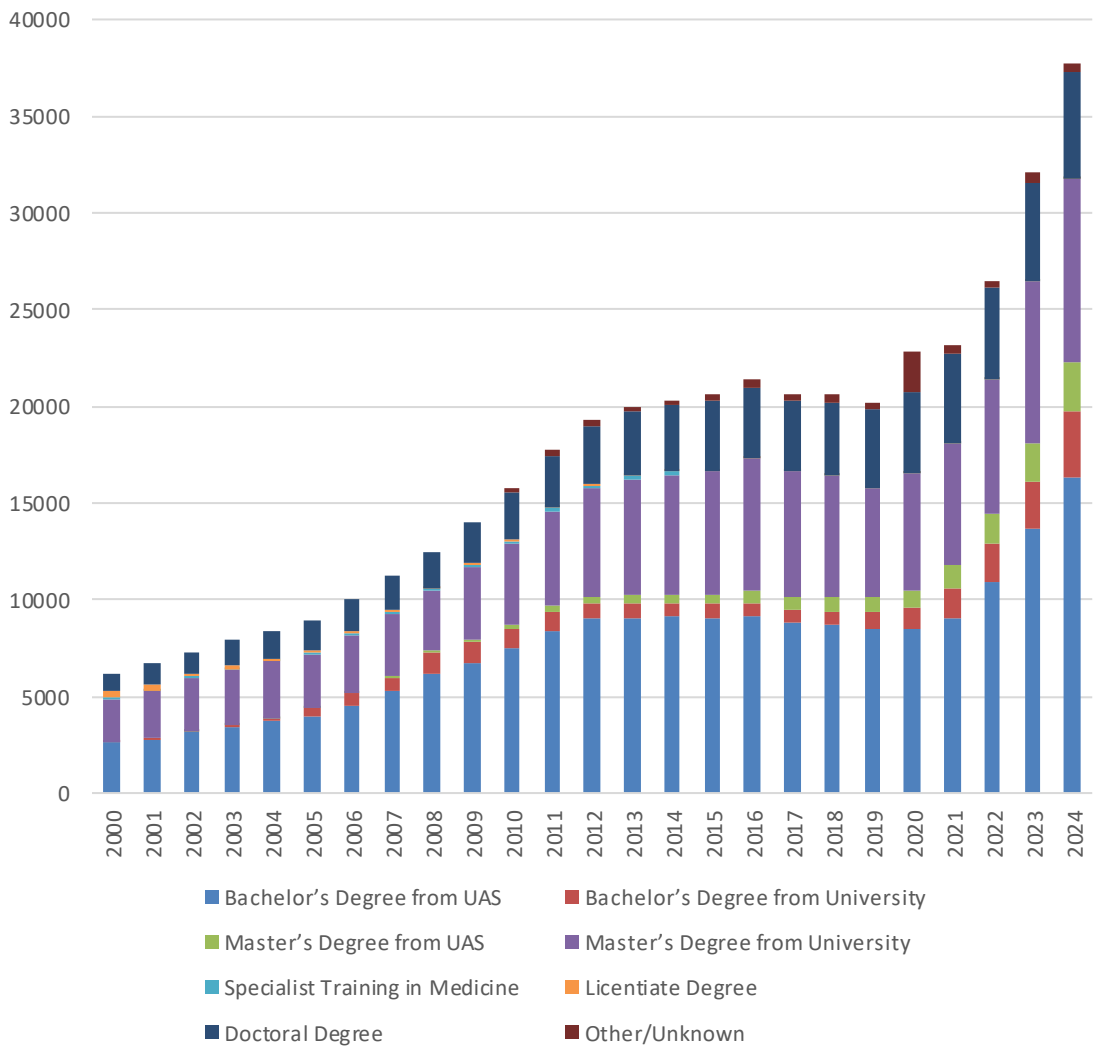


Figure 2. Total number of foreign higher education students in Finland by year [11].

Foreign students currently consist primarily of those pursuing bachelor's degrees at universities of applied sciences and those pursuing master's or doctoral degrees at universities. More recent statistics also highlight the growing groups of master's students at universities of applied sciences and bachelor's students at universities. Throughout the entire measurement period, bachelor's students at universities of applied sciences have formed a growing and majority of all foreign students.

The number of students arriving from outside EU and EEA countries has consistently exceeded the number of those coming from within the EU and EEA. Recently this gap has widened significantly. Since 2021, the number of students arriving from outside the EU and EEA has doubled in less than five years, whereas the number of students from EU and EEA countries has increased steadily but at a relatively moderate pace. Figure 3 shows how the number of students has developed based on nationality when students are divided into those coming from and outside EU and EEA countries. [11]

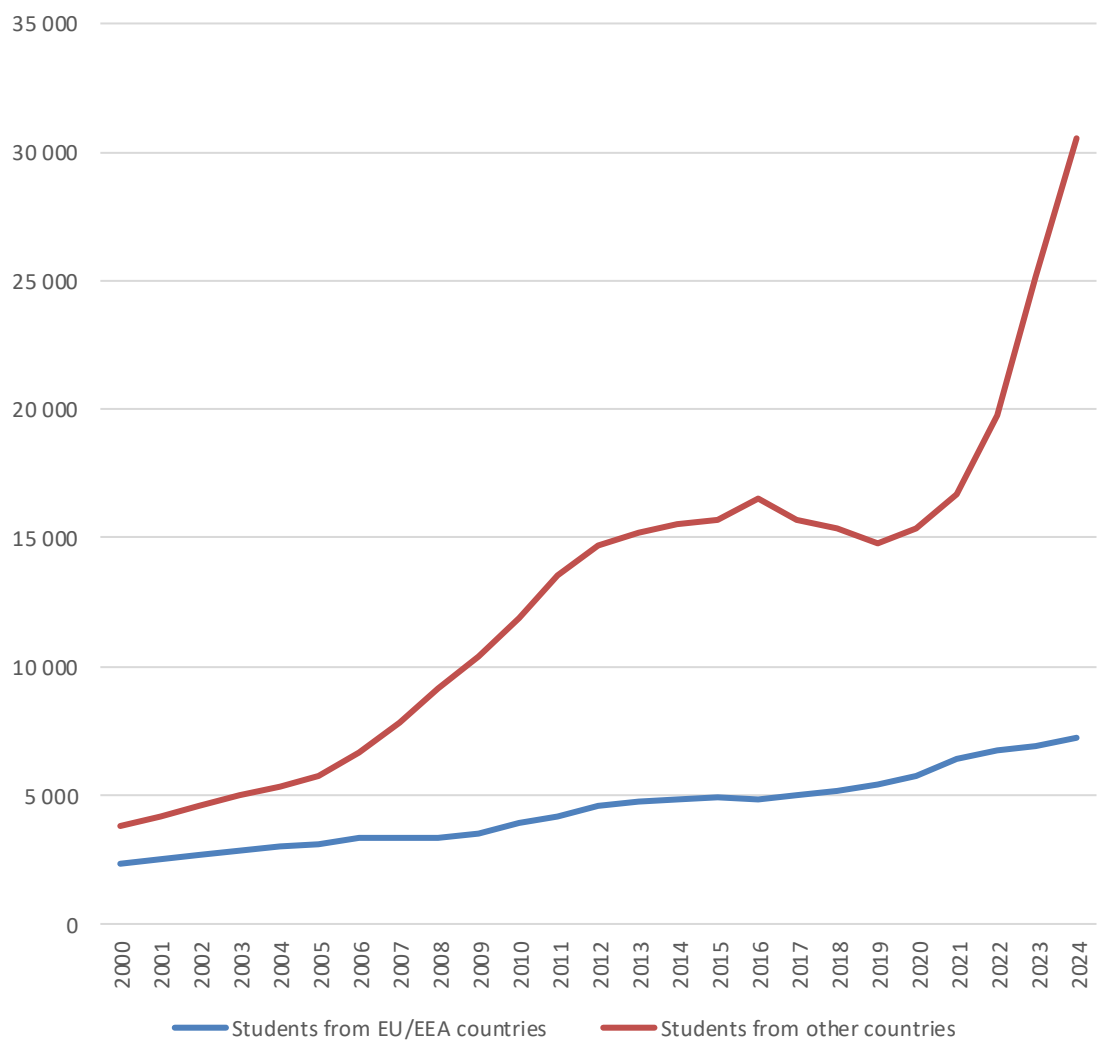


Figure 3. Annual number of foreign higher education students in Finland by nationality (EU/EEA vs. Non-EU/EEA) [11].

Most international students studying in Finland come from Asia. In quantitative terms, the highest numbers of study-based residence permits are submitted by citizens of Bangladesh, Nepal, Sri Lanka, India, Pakistan, China and Vietnam. In 2025 alone, these seven countries accounted for 6 500 study-based residence permits. Asian countries therefore stand out clearly both in residence permit statistics and in the composition of the international student population. [12]

In Figure 2 presented earlier, the total number of foreign students per year was shown. Figure 4 illustrates the number of new foreign students annually from 2000 to 2024. The annual number of newly enrolled students correlates with the overall growth in student numbers. Furthermore, the number of students coming from outside the EU and EEA also correlates with new enrolments, indicating that the increase in total student numbers is primarily driven by students from outside the EU and EEA countries. In 2024 81 % of the foreign students were from outside the EU and EEA. [8]

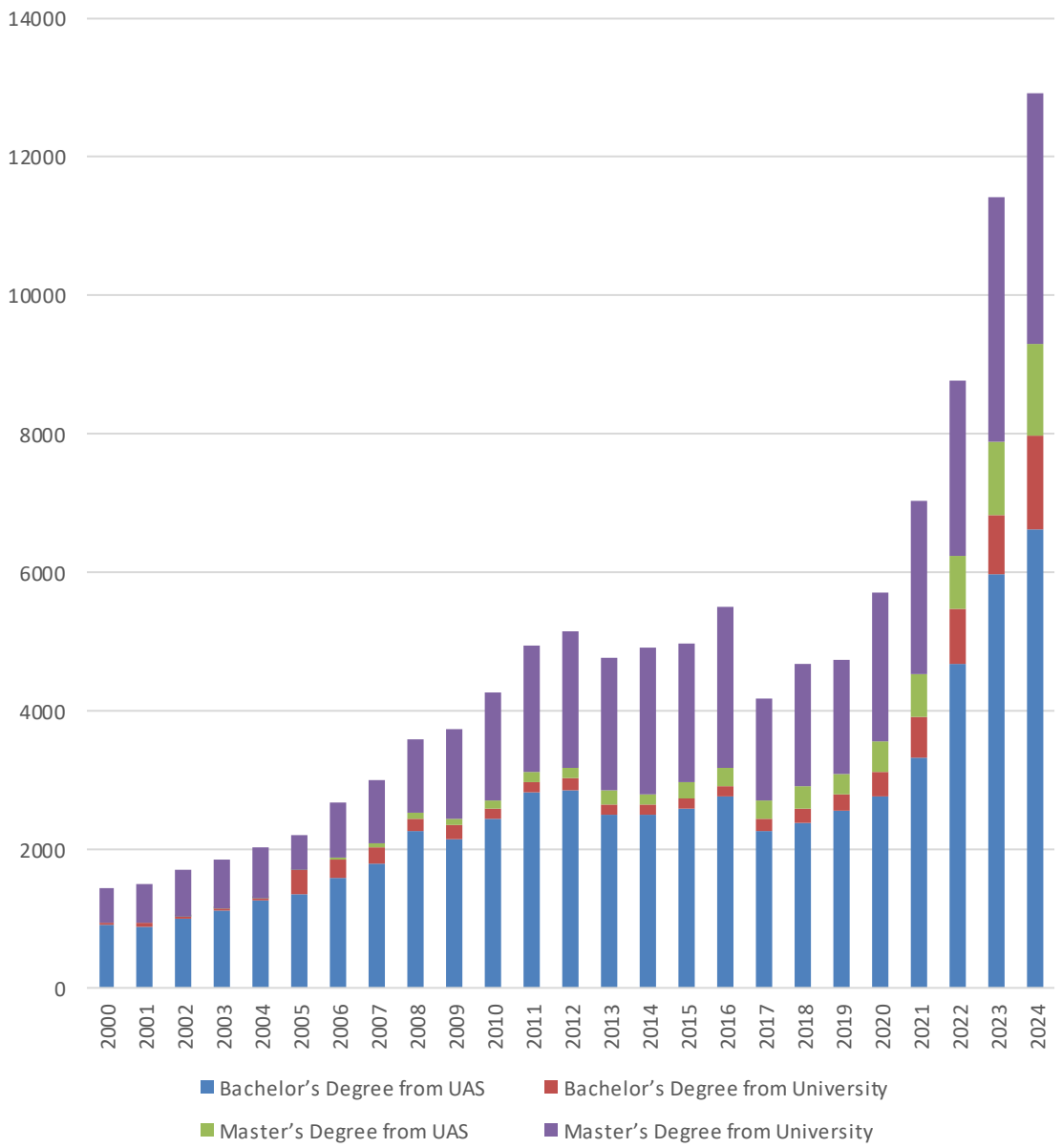


Figure 4. Annual number of new foreign higher education students in Finland [11].

As shown in Table 2, chemical engineering and processes are the forest-industry-related technical fields with the highest number of international students in Finland. When this group is examined more closely (Figure 5), it becomes evident that the number of new international students in these fields has increased significantly in recent years. In most cases, the number has at least doubled and in some cases increased severalfold. This development follows the overall growth trend of international student enrolment in Finland. In this group the increase is particularly pronounced among students pursuing a master's degree at universities.

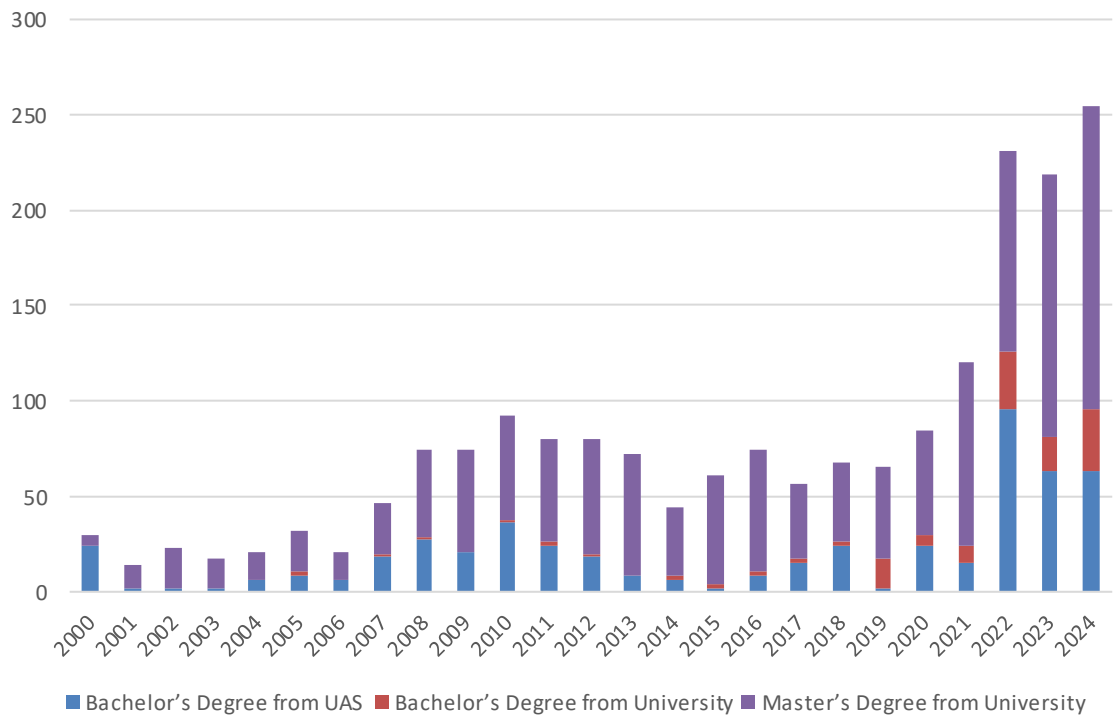


Figure 5. Annual number of new foreign higher education students in the fields of chemical engineering and processes in Finland [13].

As noted earlier, doctoral students are not included in statistics on new students in the same way as other degree levels. However, annual data on international doctoral students in chemical engineering and processes are available. As illustrated in Figure 6, the number of international doctoral students in these fields has increased steadily and at a relatively rapid pace.

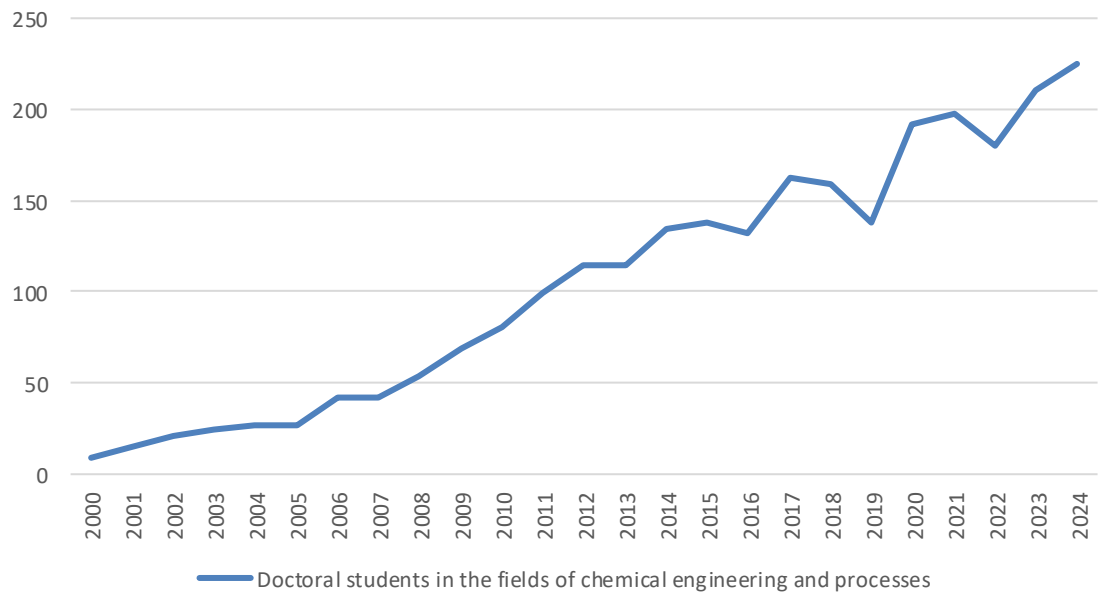


Figure 6. Total number of foreign doctoral students annually in the fields of chemical engineering and processes in Finland [13].

The number of international students is expected to continue rising, as indicated in Finnish Broadcasting Company's (Yle) survey and responses from higher education institutions. Most institutions aim for moderate growth by 2030, while at least five have set targets to double their intake of international students. For instance, LUT University and LAB University of Applied Sciences plan for Lahti to have 12 000 students by 2035, with approximately half coming from outside Finland. Currently, the share of international students in Lahti is 28 %. This trend is driven partly by labour shortage due to shrinking domestic age cohorts and partly by institutional strategies and political decisions. Both the previous and the current government have actively pursued policies to increase the number of international students. The growth in these numbers and the reasons why students choose Finland will be examined in more detail in the following chapter. [14] [15]

2.1.3 Drivers Behind Studying in, Coming to and Leaving Finland

Studies conducted in various countries indicate that degrees earned within the host country tend to be valued more highly in the labour market than equivalent qualifications obtained elsewhere. While exceptions certainly exist, this tendency often encourages individuals to pursue their education in the country where they intend to work. Comparable findings have also been reported in the Finnish context. Research indicates that completing a degree in Finland tends to strengthen immigrants' position in the labour market when compared with holding a qualification obtained abroad. [16] Many students coming to Finland also wish to work in the country [17]. However, for many of those who have such aspirations, this is not necessarily possible. One of the main reasons is the difficulty in securing employment that matches their educational background, and there are several contributing factors behind this.

Finland has been ranked as the happiest country in the world for eight years in a row [18]. Finnish education is widely recognized and valued internationally, and the country is perceived as stable, safe and equal. Consequently, Finland's national image is often highly positive. [19] According to a survey conducted in spring 2021 among international students studying in Finland, the strongest motivation for choosing Finland was the country's highly respected education system. The availability of appealing study programs and curricula ranked as the second most influential factor. Safety, along with the opportunity to remain in Finland after completing studies, were the third and fourth most common reasons. Respondents viewed Sweden, Germany and the Netherlands as Finland's

closest competitors in higher education. Popular destinations such as the United States, the United Kingdom and Canada ranked lower, starting from fourth place. [15]

A study entitled “At What Cost?”, commissioned in 2025 by SYL and SAMOK (the Student Union of Universities of Applied Sciences) from the Research Foundation for Studies and Education (Otus), examined international students’ experiences and perceptions of studying and their future in Finland. The key reasons for choosing Finland as a study destination were largely the same as those identified in previous studies. In addition to the factors mentioned earlier, personal relations such as family members or friends living in the country also play a role. Although certain reasons are highlighted more strongly in research, the final decision to come to Finland may be the result of a combination of multiple factors. According to the same study, the most significant barrier to studies and the primary reason for discontinuing studies and leaving Finland is a lack of sufficient income. The next most influential factors were challenges related to integration into Finnish society and issues concerning motivation. [17] Figure 7 presents examples of factors influencing decisions to come to Finland and to leave, drawing on previous research findings combined with the author’s interpretation.

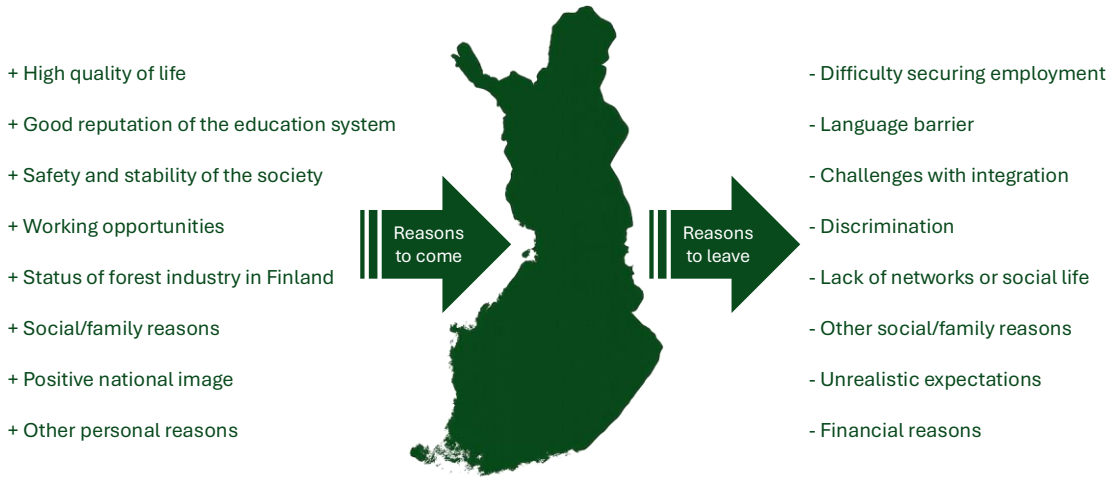


Figure 7. Examples of factors influencing international students’ decisions to come to Finland and to leave.

Any individual coming to Finland for studies lasting more than 90 days is required to obtain a residence permit for studies. Previously, this permit was granted for only one year at a time, but it is now issued for the entire duration of the studies. In addition, family members of the student may be granted a continuous residence permit based on the

student's permit. Notably, the number of residence permit applications submitted by family members of students from outside Europe was eight times higher in 2025 compared to 2021. Political decisions have therefore facilitated the entry of students and their families into Finland, which is clearly reflected in the statistics and can be considered one of the contributing factors to the increase in international student numbers, particularly among those coming from outside the EU and EEA. [20]

In Finland, it has been observed that students coming from within the EU often return to their home countries after completing their studies. Those coming from further away tend to stay in Finland after graduation to build their lives here. In addition, students from outside the EU and EEA countries pay for their education. [14] [21] This may partly explain why attracting students from these regions is considered beneficial. A student's country of origin therefore matters both for their likelihood of staying in Finland and for whether educational marketing is targeted at them.

Yle has widely reported about international students and the abuses they have faced. Particularly in Asia, where a large proportion of international students coming to Finland originate, education agents may provide incomplete or even misleading information about Finland and studying here. For example, they may claim that Finnish language skills are unnecessary and that finding employment is easy, even though Finland is currently experiencing what could be described as an unemployment crisis. Students who have come to Finland based on false information may have ended up in poverty, have had to rely on food aid and eventually leave Finland. This is a major tragedy as the students have spent enormous amounts of money to be able to come to Finland to study. [22]

These problems have mainly been concentrated on universities of applied sciences, but they are also affecting other levels of education and various degree programs. There are non-contracted education agents who do not co-operate with higher education institutions but attract students to Finland in hopes of earning a commission [22]. They can target students in any field and promise anything. Higher education institutions must recognize this issue and work to prevent it. Many actors among SAMOK and the Finnish government have therefore called for action and urged that the issue be addressed. [23] [24]

For students coming from outside the EU and EEA, one requirement for a residence permit is the ability to support themselves with their own income or savings. A draft proposal in early 2026 suggests that a student's residence permit could be cancelled if the student receives social assistance. [25] This may discourage students from asking for

help in difficult situations and could increase the risk of problems. From this perspective as well, Finnish and international students find themselves in very different positions. International students come from highly diverse backgrounds, and their support networks play a crucial role in both coping with their studies and managing life in Finland. The issue is therefore not only about whether they are able to stay in Finland after graduation, but also about whether they are able to complete their studies in the first place.

Regardless of their background, many international talents living in Finland face challenges when entering the labour market and therefore end up leaving Finland. Employers do not always value earlier skills gained abroad, professional networks can be difficult to access, and difficulties experienced by family members may slow down the settling process. Although, in a survey conducted in November 2022, most international degree students report that they have settled in Finland very well or well (86 %), a significant share is still considering moving away. Almost half of international students (47 %) and many other international professionals (39 %) are planning to leave Finland. About one third (32 %) feel that their career advancement opportunities in Finland are weak. A similar share would like more support in learning Finnish, in job search training and in opportunities to network with Finnish companies which would increase their chances to stay in Finland. [26] Integration and employment influence the decision to stay in Finland or to leave in many ways. The factors that enable or hinder integration and employment are discussed in more detail in later chapters.

Despite all this, the stay rate of international students who graduate in Finland within five years is relatively high. Educational level has a moderate effect on this outcome, with slightly lower stay rates observed at higher levels of education. Educational level also influences the factors affecting the decision to remain in Finland, such as marriage and having children, as well as employment. Access to employment, in turn, is strongly influenced by professional and social networks. When compared with other OECD countries, the five-year stay rate of international graduates in Finland is high. [27]

The forest industry is a significant industrial sector in Finland [2]. Consequently, many international students who come to Finland to study forest-related fields may already be familiar with the importance, scale and long-standing traditions of the Finnish forest industry. At the same time, Finland's education system has gained widespread international recognition for its quality and strong learning outcomes. This is reflected in the high levels of literacy, numeracy, and adaptive problem-solving skills observed among the adult population in OECD comparisons [28]. Taken together, these factors make Finland an attractive destination for students interested in forest-related disciplines.

2.1.4 Policy Framework and Strategic Objectives

The roadmap for education-based and work-based immigration outlines three long-term strategic objectives that guide Finland's efforts to strengthen its attractiveness and competitiveness. First, Finland aims to become globally interesting and appealing to international talent. Second, the roadmap seeks to create the world's best migration experience by ensuring smooth processes and supportive services for newcomers. Third, it emphasizes that international competence is a key source of vitality for Finland, contributing to innovation, economic growth and long-term sustainability. [15] These objectives are strong, but their implementation and actual effectiveness require critical examination.

The previous Finnish government led by Prime Minister Marin (2019–2023) aimed to triple the number of international higher education students in Finland and to ensure that 75 % of them would find employment after graduation. During this period, residence permit regulations for students and their family members were eased. As a result, the number of international students nearly doubled between 2019 and 2024. By 2023, 53 % of foreign citizens who completed a degree in Finland were employed in the country three years after graduation, compared to 42 % in 2018. However, these statistics do not fully reflect the quality of employment, as international graduates still enter expert-level positions less frequently than their Finnish counterparts. [21] [15]

In contrast, several restrictions on residence permits will enter into force in 2026 under the current government. A student's residence permit may be withdrawn if they apply for social assistance or if their studies do not progress sufficiently. This places international students in a difficult position: they are expected to have a significant amount of savings or work to cover their living expenses, while at the same time ensuring rapid academic progress to meet degree requirements and retain their residence permit. At the same time, Finland is reforming its tuition fee system. From August 2026 onwards, tuition fees for non-EU/EEA students in foreign-language degree programs will probably increase because they must fully cover the costs of providing the education. For example, in the master's program in Materials Science and Engineering at Tampere University, the tuition fee for this academic year will be 12 000 € [29]. Tuition fees can go up to 28 000 € per year [30]. The 100 € application fee has already been introduced. Higher education institutions report that although the number of applications has decreased due to this, the quality of applications has improved. These fees apply to bachelor's and master's degree programs, while doctoral studies remain free of charge for all students regardless of nationality. [31] [32]

It is important to note that the three/six-month unemployment rule does not apply to international students or researchers. This rule is not applicable to the job-seeker residence permit available to international graduates. After graduation, students and researchers may apply for a two-year residence permit for job seeking or for establishing a business. Consequently, international higher education graduates may accept fixed-term employment without the risk of residence permit revocation, as the unemployment rule does not pertain to the job-seeker permit. The job-seeker residence permit can be applied for at any time within five years of the expiry of the student residence permit and allows unrestricted employment across sectors in accordance with labour legislation. In this way, international students are provided with a stable and secure opportunity to transition into working life in Finland without undue pressure or legal uncertainty. [33]

Finland has also introduced several strategic programs aimed at strengthening its attractiveness to international talent. The Talent Boost program emphasizes the importance of international graduates in responding to labour shortages, supporting both work-based and education-based immigration and enhancing Finland's innovation capacity. The 2023–2027 program brings together national and regional actors to improve residence permit processes, develop services for employers and international professionals, and support local language learning and recognition of prior competence. It also includes measures to strengthen retention through improved access to essential services, such as basic banking services and English-language early childhood education. [32]

All Finnish higher education institutions also implement Talent Boost projects that focus on improving students' connections with working life, creating new models for learning Finnish and Swedish, and supporting the recognition and development of professional skills. One project that supports the objectives of the Talent Boost program in Tampere University of Applied Sciences is the International Students into Internships and Employment in Regional Cities – KOHTA project. The project strengthens cooperation between universities of applied sciences, regional cities and employers, develops guidance models for companies hosting international students and organizes targeted networking events and company visits to support internship placements. In addition, KOHTA maps regional networks that promote students' integration and produces an open, transferable cooperation model designed to enhance employment pathways for international students in Finnish regional labour markets. The project lasts for two years and began at the beginning of 2026. [34]

The Finnish National Agency for Education coordinates SIMHE activities (Supporting Immigrants in Higher Education), which aim to provide faster and more effective educational and employment pathways for degree-seeking students with immigrant or foreign

backgrounds. These activities focus on identifying prior learning, developing bridging and language programs and supporting the employment prospects of international students. [35]

As has been outlined in relation to international students, a range of political and strategical objectives have been set, and various initiatives and projects have been launched to support them. Political decision-making and public debate should reinforce the achievement of these goals. However, at present these two appear to be partly misaligned. The impact of existing measures should therefore be critically assessed, and successful outcomes should be translated into concrete practice and made more widely visible.

2.1.5 Talent Shortages and Labor Market Needs

At the beginning of 2026, Finland has the highest unemployment rate in Europe. The number of unemployed higher-education graduates is higher than it has been in years. [36] [37] In this context, it is understandable that, toward the end of 2025, sectors connected to the forest industry were not experiencing critical labour shortages. Instead, both unemployment and job mismatch were visible in the sector, with the situation varying across specific sub-industries and regions [38]. Given this, discussions about labour shortages may currently seem contradictory. However, Finland's population is ageing and declining without immigration (Figure 8), the national economy needs growth, and the forest industry is subject to cyclical fluctuations. Therefore, when assessing labour markets and future skill needs, it is important to take a longer-term perspective.

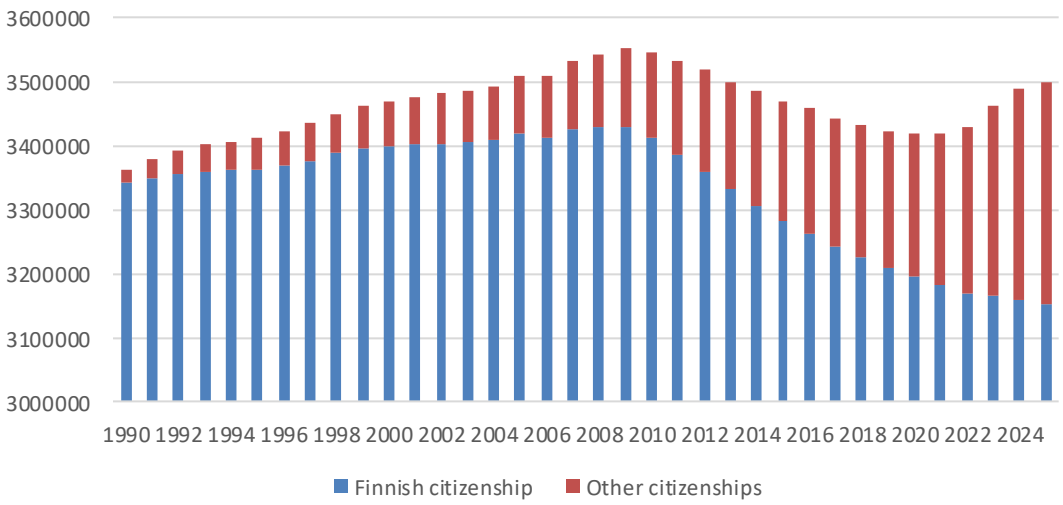


Figure 8. The annual number of Finland's working-age (15–64) population by citizenship. [39]

According to a study conducted last year by Manpower, nearly two thirds of employers in Finland reported difficulties in finding the right skills in 2025. The figure has also doubled since 2014, when only 33 % of employers expressed similar concerns. Finland faces the most severe shortages in IT and data professionals, technical specialists, sales and marketing expertise, HR, and industrial and production workers. [40] These are professionals that are also in demand in the forest industry.

The extent of the talent shortage varies across sectors and educational levels. Not all study programs in Finland are available in English. This limits in which fields international students can help with the shortage. In higher education, there is a wide range of English-taught programs in fields related to industry and engineering. These fields are typically international in nature, and international graduates can therefore play an important role in addressing skills shortages in these areas. Addressing skill shortages is especially critical in export-driven sectors, including the forest industry [41].

A recent survey by the Technology Industries of Finland indicates that the technology sector will require approximately 140 000 new professionals over the next decade, with a substantial share of this demand directed at highly educated engineering experts, the same group examined in this thesis. Skills shortage is not considered a temporary phenomenon but a structural issue. The same survey also shows that 82 % of companies are interested in recruiting international talent within the next four years, highlighting the importance of international graduates as part of the long-term solution. [41]

Finland has acknowledged the value of attracting international talent to address labour and skill shortages, enhance productivity and foster innovation. Initiatives such as the Talent Boost program illustrate these efforts [42]. Considerably less emphasis has been placed on retaining international professionals and supporting their long-term integration [42]. Highly educated migrants often remain marginal in national statistics, policy discussions and academic research, which contributes to their limited visibility in Finnish society [42]. International students who complete their degrees in Finland are nevertheless in a more favourable position than those who were educated abroad, as they benefit from the networks, language skills and cultural understanding gained during their studies.

2.2 Finnish Forest Industry Context

The Finnish forest industry constitutes a central pillar of the national economy. Relative to its size, Finland is more dependent on forests and forest-based economic activities than nearly any other nation. This has fostered the emergence of highly advanced expertise in both forest management and forest-industry processes. The sector also plays

a key role in regional employment, particularly outside major urban centres, where it forms an essential component of local economic vitality. [43] Due to structural changes, the industry faces pressing challenges related to workforce renewal and the maintenance of international competitiveness. These dynamics simultaneously underline the strategic importance of attracting skilled professionals.

Companies operating within the Finnish forest industry represent a broad range of sectors. These include forest management and wood procurement, sawmill industry, pulp and paper industry, packaging materials, various bioproducts and new bio-based materials. In addition, the sector covers automation systems, equipment manufacturing, measurement and analysis technologies, chemicals as well as research, design and consulting services. These sectors are illustrated in Figure 9. This diversity means that companies require talent across a wide spectrum of disciplines. Even within a single subsector, there is demand for professionals with varying skill levels and educational backgrounds to perform different types of tasks.

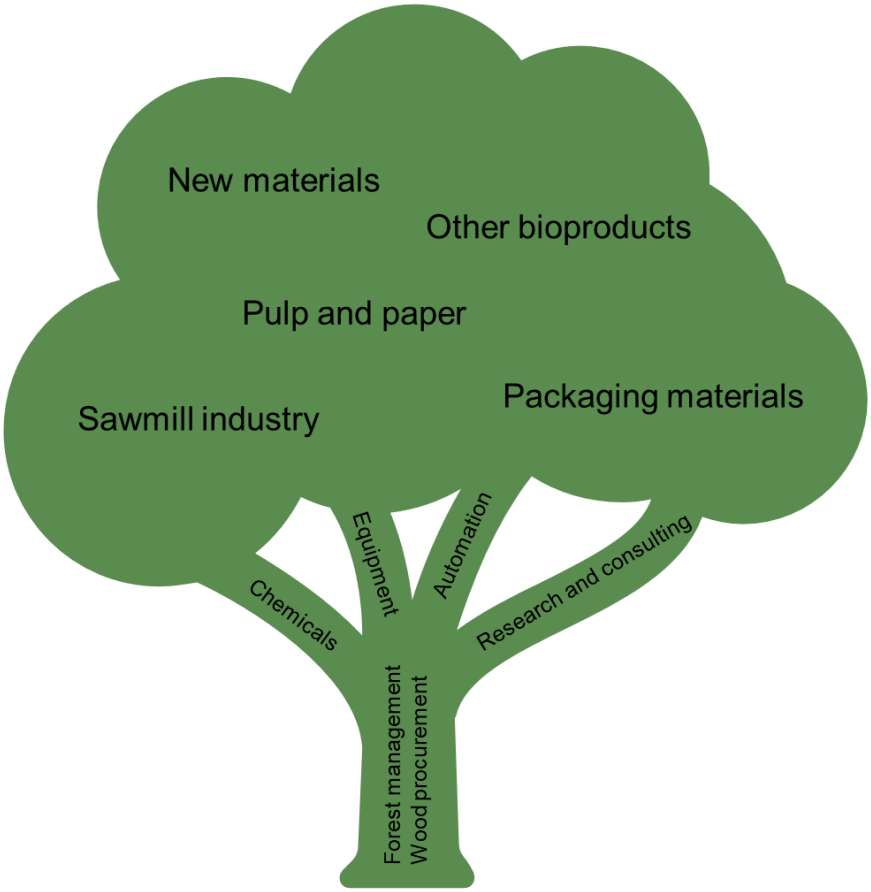


Figure 9. An illustrative and simplified representation of the forest industry sectors and value chain.

According to the Finnish Forest Industries Federation, the Finnish forest industry comprises approximately 143 mills. These include pulp, paper, paperboard and wood-products mills. The figure includes both chemical and mechanical forest industry plants, while excluding forestry operations, logistics and non-industrial facilities, in line with the official industry definition [44]. The exact number of companies operating in the industry in Finland is not listed, but for example, PI has approximately 50 member companies [45]. These companies range from large international corporations to smaller specialized companies. Many organizations have their headquarters in the Helsinki Metropolitan Area or other major cities, while production facilities and operational sites are located across the country, including in smaller and more remote municipalities. [45] [43] The geographical distribution of workplaces affects both the availability of labour and the attractiveness of job opportunities. In some regions, labour market mismatches may occur even when qualified professionals exist elsewhere in Finland.

2.2.1 Current Challenges and Trends

The Finnish forest industry is navigating a period of economic uncertainty and structural change. Global economic growth is slow and uncertain, and this slows demand for Finnish forest products in key export markets such as Germany [46]. Demand for sawn wood, plywood and paper remains modest, and global overcapacity in pulp and wood products continues to keep prices low. This puts pressure on profitability throughout the sector. At the same time, the cost of raw wood in Finland has increased. The end of wood imports from Russia has tightened supply across the Baltic region and raised production costs for Finnish companies. [46] [47] Changing consumption patterns also shape the operating environment. The use of traditional printing paper continues to decline, while demand for packaging materials grows steadily. Packaging materials are also a highly competitive segment at the global level. This shift requires companies to adjust their production structures and invest in new product development. [46] However, this is not easy, as the Finnish forest industry has been in an economic downturn for few years, as shown in Figure 10. The numbers are presented using the original index series, meaning that the data have not been seasonally adjusted and reflect actual fluctuations over time.

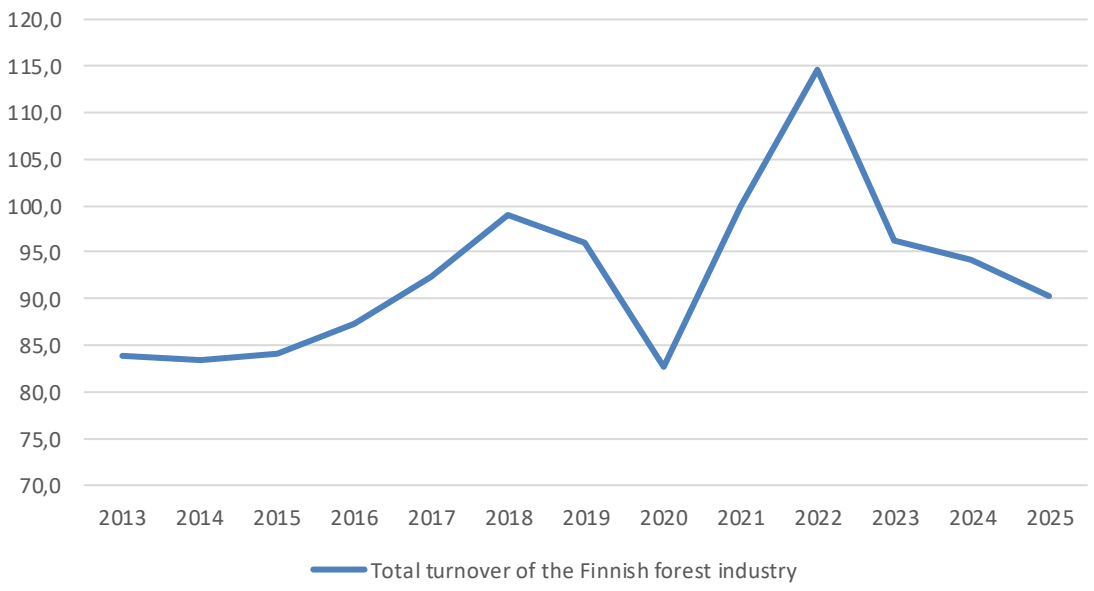


Figure 10. Annual total turnover of the forest industry at constant prices (original index series), from 2013 to 2025 in Finland. [48]

Finland's domestic economy also remains weak [49]. The country entered a technical recession in 2023, and this limits the growth prospects of the forest sector and with other factors reduces domestic wood consumption. At the same time, global sustainability expectations and climate policy trends influence forest use and sector competitiveness. These factors create pressure for industry to adapt, improve productivity and develop higher value products while maintaining environmental responsibility. [47] These transformations also have direct implications for labour needs. As companies shift toward bio-based materials, engineered wood solutions and advanced packaging, demand grows with expertise related to these. The ongoing globalization of production and supply chains increases the need for employees who can operate in international contexts. In this environment, international students and graduates in Finland represent an important potential talent pool that can support innovations and growth.

In the current period, the weak economic situation is reflected in the number of open job vacancies also in the forest industry. When the entire Finnish industrial sector is examined, the annual number of open job vacancies has been in sharp decline for several years. The number of vacancies has more than halved compared to three years ago and was at a lower-level last time ten years ago. Employment prospects are therefore challenging for all jobseekers, including international professionals. It is nevertheless important to seek to retain international talent at this stage, so that growth-enabling labour is available when economic conditions improve and to support recovery. In Figure 11 is presented the annual number of open job vacancies in the entire industrial sector, in-

cluding the forest industry. Trends in industrial job vacancies closely follow overall vacancy trends in Finland. A comparison of Figures 10 and 11 shows that the trend closely follows also changes in the forest industry's turnover. [50]

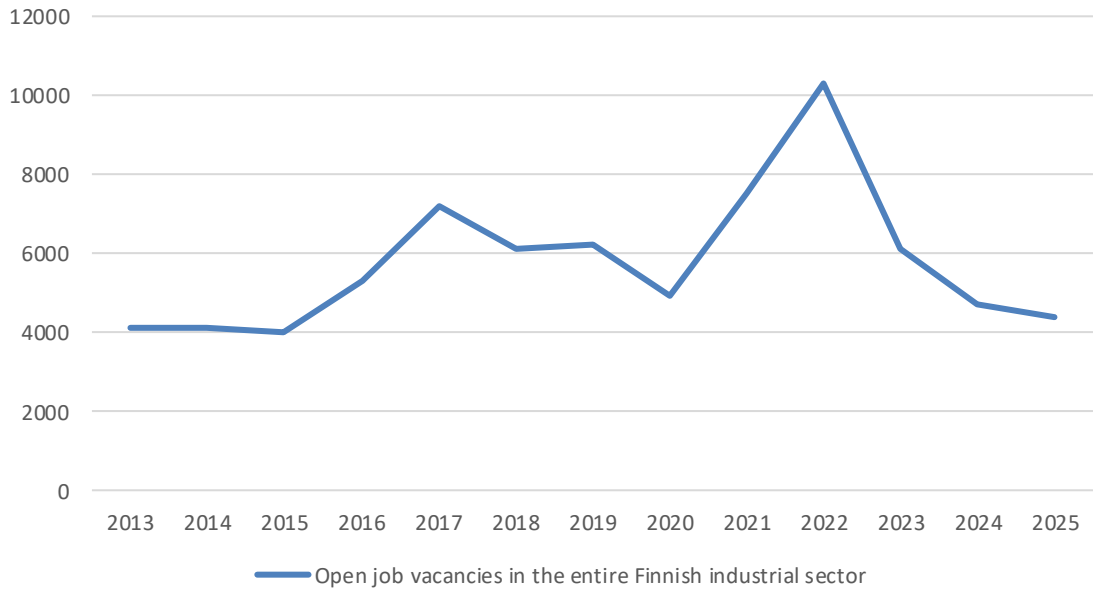


Figure 11. Annual number of open job vacancies in the entire Finnish industrial sector, including the forest industry. [50]

Finland's demographic transition is one of the most significant drivers shaping political decision-making related to international students and talent. A clear example of this development is that since 2022, migration to Finland has exceeded the number of births. [39] Many of the challenges affecting the success of the forest industry are complex, yet often closely interconnected. These challenges are influenced by competitiveness, the price and availability of raw materials, the general economic situation in Finland and globally, market demand, regulation and political decision-making, the ability to make effective strategic choices and innovations, and the availability of a skilled and motivated workforce that enables development.

From the perspective of the forest industry's future workforce, labour market mismatch represents one key risk. Production facilities are frequently located in smaller and more remote towns, where attracting employees is already challenging. In regional areas, additional difficulties arise from declining services as population numbers decrease, as well as from the concentration of education, professional networks and social life in larger cities. In such a situation, targeted measures are required if international talent is expected to contribute to addressing employment and labour shortage challenges also in more remote locations.

2.2.2 Role of International Students in Finnish Forest Industry

The position of international students is particularly paradoxical. On one hand, they are closely connected to universities and are precisely at the stage of transitioning into the labour market and forest industry. On the other hand, they are not fully recognized as the kind of international talent that Finland or industry seeks to attract. [51] Talent shortage and competition require Finland and its forest industry to reflect on its approach to immigration, international students and workforce. [52] International professionals play an essential role in a country like Finland, where economic competitiveness relies heavily on innovation and a strong export sector. Immigration through education supports Finland's long-term need for skilled experts and strengthens national growth and development, says Minna Koutaniemi from the Finnish National Agency for Education's International Affairs. [21]

International students have significant potential to contribute to host countries through cultural enrichment and the strengthening of human capital. They bring with them diverse perspectives, skills and knowledge shaped by their prior educational and cultural backgrounds. These attributes can be particularly valuable in international and multicultural working environments. [53] However, the extent to which these benefits are realised depends largely on the successful integration of international students into the Finnish labour market and society.

Work communities with a high degree of diversity have consistently been shown to be more productive and successful. Diverse and inclusive workplaces not only achieve stronger overall performance but also demonstrate an enhanced capacity for creativity and innovation. Diversity should be understood broadly, encompassing factors such as national origin which is one aspect of cultural background. The more diverse the workplace, the greater its potential to generate new ideas, innovations and solutions. [54] [55] [56]

Several studies and surveys show that Finland and the industrial sector is experiencing significant labour shortages. Tapio Group's analysis indicates that the forest sector would benefit from increasing English-language studies also at the vocational level, and that foreign seasonal workers have already played an important role in meeting labour needs in practical forest work. The forest-sector education needs therefore extend across multiple occupational levels, creating clear demand for international students and for the contribution they can make in the Finnish labour market. [57]

2.2.3 Forest Industry as Part of Materials Engineering Studies

Higher education related to the forest industry is widely available across Finland [58]. Some programs are specifically designed to train professionals for the forest sector, while others provide varying levels of forest-related expertise alongside broader technical or scientific competencies. As previously noted, the forest industry requires specialists from multiple disciplines and educational levels. In this thesis the focus is placed particularly on technical higher education programs that relate to forest industry. PI maintains and further develops statistical monitoring and summary related to higher education in the forest bioeconomy in Finland [59]. Table 3 presents selected and most relevant programs from this data.

Table 3. Forest industry relevant technical higher education in Finland. [60]

Institution	Field of Study	Major in Master's/Study Module Related to Forest Industry
Aalto University	Chemical Engineering	Bioproducts Engineering
Åbo Akademi University	Chemical and Process Engineering	Bioproducts Engineering
LUT University	Chemical Engineering	Sustainable Biomass and Bioproducts Engineering (SBBE, Erasmus)
Tampere University	Material Science and Engineering	Sustainable Materials
Tampere University of Applied Sciences	Bioproducts engineering	International Bioproduct and Process Engineering
University of Oulu	Process Engineering	Bioproduct Engineering
Xamk – South-Eastern Finland University of Applied Sciences	Bioproduct Engineering	Bioproduct Engineering

Materials engineering is one of the fields in which students may choose to orient their studies towards the forest industry, and the range of educational opportunities and specialization paths in this area is extensive. In Finland materials engineering can be studied in universities and universities of applied sciences. However, not all such programs include content explicitly connected to the forest industry.

At the university level, materials engineering programs under this title are offered at Tampere University and University of Turku. In Turku, the curriculum does not include direct forest-industry-specific content. Instead, students may specialize in areas such as energy technology materials, health technology materials or modern industrial materials at the master’s level. In Tampere, master’s-level students in materials engineering can

choose from six major subjects, among which Sustainable Materials is the most closely aligned with the forest industry. Nevertheless, none of the courses focus exclusively on wood processing or other typical forest-industry topics. Instead, these themes are integrated into courses either throughout the course or in the form of individual lectures. Students seeking deeper or more comprehensive knowledge are encouraged to select elective courses from other faculties or institutions. For example, Tampere University of Applied Sciences (TAMK) offers forest-industry-related courses that are also listed as elective options in the university's curriculum. [61] [62]

Like many other engineering fields, materials engineering educates broadly skilled graduates who are qualified to work in diverse roles across various industrial sectors. Over time, degree structures have evolved. Earlier programs tended to specialize more narrowly in one competence area, whereas today, materials engineering graduates can shape their expertise through elective coursework, choosing both the content and extent of their specialization. Study paths often offer opportunities to learn about wood processing and properties at multiple levels, from micro-scale material phenomena and laboratory work to product manufacturing, processing, development, and even life-cycle and environmental impact assessment [61].

Within Finland, technical university students have relatively free access to courses and study modules within their own university and offered by other higher-education institutions. As a result, particularly at the university level, degrees can often be tailored to match individual interests. This flexibility requires initiative and active planning on the student's part. It is also important to note that degree programs in Finnish higher education are not static. New programs and specialization tracks are introduced, while older ones may be modified or discontinued.

At Tampere University, the master's phase of the materials engineering program has been taught in English for several years, whereas the bachelor's phase has only recently become available in English and still has only few students [8]. Consequently, international students entering the master's program come from diverse educational backgrounds and a substantial proportion have completed their prior studies abroad. For this reason, it may be particularly important to consider their previous academic background more carefully when planning their current studies. It could also be beneficial to provide students with clear, high-quality information about the expectations and needs of industry and working life for different professional profiles.

2.3 Integration into Finland

International students' retention and integration in Finland can be supported in several ways. Key dimensions of integration include employment, education, health and wellbeing, participation and inclusion, and the overall receptiveness of society. These dimensions are closely interconnected and mutually reinforcing. Structural factors can both facilitate and hinder integration. [42] Integration is a continuous and mutually beneficial process in which both the host society and newcomers adjust. As societal diversity increases, the host environment evolves, while international students and other migrants develop the competencies required for participation in society and working life. Effective integration therefore relies on the active engagement of newcomers as well as supportive structures and practices within the receiving society. [63] [64]

Integration into Finland, particularly into the labour market, is strongly shaped by informal recruitment practices and access to social networks. Alho (2020) shows that international students' transitions into Finnish working life depend not only on formal qualifications and language skills, but also on weak ties and informal contacts, which play a central role in job search processes in Finland. Because many job opportunities are filled through non-public channels, international graduates often face structural disadvantages due to their limited social integration. Integration outcomes also vary across sectors, with smoother transitions in fields experiencing labour shortages and more challenging paths in highly competitive disciplines. In addition, implicit employer bias and subtle forms of discrimination may further hinder labour market integration and lead to an underutilization of international graduates' skills. Overall, the study highlights that integration into Finland is not solely an individual responsibility, but a broader institutional and societal process influenced by labour market structures, recruitment cultures and access to social capital. [65]

Migrants who encounter ethnic discrimination tend to report poorer overall wellbeing and feel less connected to their neighbourhoods and to Finnish society. In other words, discrimination undermines both individual integration and the cohesion of the wider community. [42] Individuals who move from countries that share cultural similarities with the Finnish society often find the process of adapting to a new environment less demanding than those arriving from culturally more distant contexts [16].

According to Finland's roadmap initiatives are and will be launched to support the comprehensive integration of international talent and to strengthen cooperation with working life, spanning the entire path from student recruitment to job-seeking after graduation. This work has already begun, but it requires ongoing development in future government

terms and coordinated efforts from various stakeholders. [15] Integration is a multifaceted process shaped by a combination of interconnected factors, where no single element alone determines the outcome. Therefore, solutions are not always straightforward, and different aspects must be considered. Figure 12 illustrates several factors influencing integration, drawing on multiple sources and the author's own interpretation.

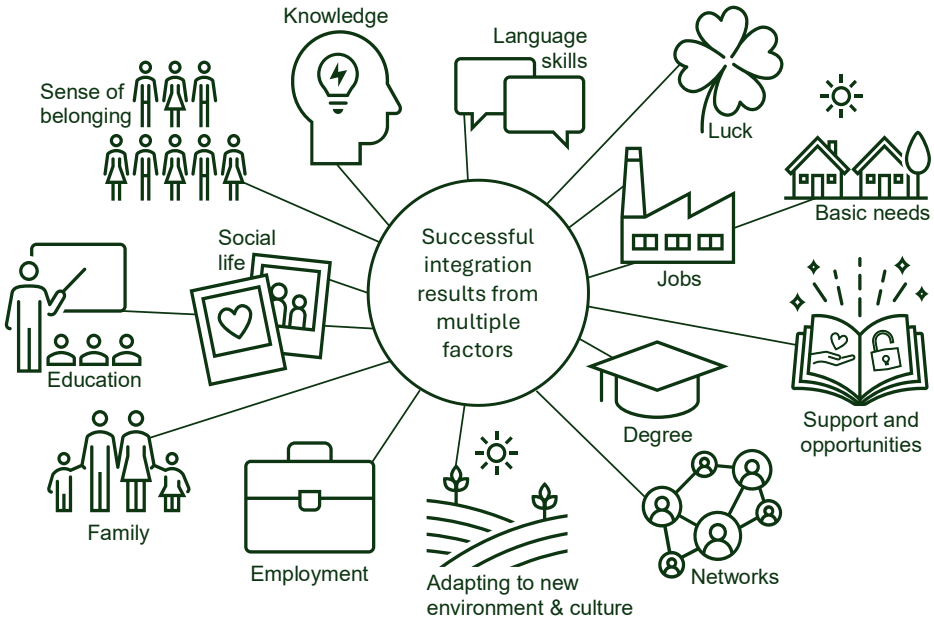


Figure 12. Visual representation of factors influencing successful integration.

2.3.1 Barriers and Enablers

Language proficiency has consistently been identified as one of the strongest predictors of successful integration, social inclusion and labour market participation. Limited Finnish language skills constitute a significant barrier for international students, particularly in relation to employment and long-term retention. Several studies indicate that insufficient Finnish proficiency hinders both labour market integration and broader participation in Finnish society, even among highly educated individuals. At the same time, international students themselves often recognize the importance of Finnish language skills, although opportunities for meaningful language use during studies may remain limited. [66] [67] [68] Naturally, proficiency in English also plays an important role in all these areas in an international environment.

Language-related barriers are not permanent. In working life, they can, in simplified terms, be overcome either by learning Finnish or by adapting organizational practices and requirements. Practical examples demonstrate that institutional adaptations can ease linguistic obstacles. In response to labour shortages, Danfoss Drivers' factory in

Vaasa removed Finnish language requirements for certain positions and instead introduced active language training and workplace support, contributing to a functional bilingual work culture without compromising occupational safety. [69] This example illustrates how language policies can operate as enablers rather than exclusionary gatekeeping mechanisms. In the forest industry, students' first work duties during their studies are often in production or customer service etc. These positions typically require Finnish language skills. The requirements are often justified by occupational safety considerations or the need to communicate with customers or other stakeholders.

At the initial stage, learning Finnish may be perceived as demanding and somewhat unappealing, especially among international individuals who may not immediately recognise its relevance to their studies or career prospects. This situation is largely explained by structural factors related to the Finnish language, which has a relatively small and geographically limited speaker base globally and differs significantly in its grammatical structure from many other languages. In addition, everyday life in Finland can be managed relatively well in English, particularly in urban and educational contexts, which can lessen the immediate motivation to learn Finnish.

Policy-oriented analyses further emphasize language as a structural issue rather than an individual deficiency. According to the Sitra Kuutio #3 process, more flexible language requirements, targeted workplace-based language learning and a broader acceptance of English as a working language, particularly during early career stages, can significantly improve integration outcomes for international students. [70]

Cultural differences and socially segregated networks significantly influence integration outcomes. International students often form social connections primarily with other international peers, which may limit interaction with Finnish students and restrict access to local networks essential for long-term integration. [65] Inclusive institutional environments can mitigate these effects. Mentoring programs, bilingual or English-language student activities and structured opportunities for intercultural interaction, have been shown to foster belonging and participation. The role of the educational environment is particularly crucial. Seemingly minor everyday practices can considerably reduce cognitive and emotional burden, especially given that many international students are managing life in a second language while simultaneously learning Finnish. [68]

Integration is also shaped by the manageability of everyday life. Securing housing, opening bank accounts, registering with authorities and navigating residence permit procedures can introduce significant stress and divert attention away from studies and social participation. Supporting the smooth functioning of daily life is therefore a crucial enabling

factor for academic success and longer-term integration. Family-related factors, including spouses' employment opportunities and the stability of residence permits, further influence integration trajectories. Policy analyses emphasize that integration policies should address the broader life situations of international students rather than focusing narrowly on education or employment alone.

Integration cannot be separated from broader societal discourse and political context. Public discussion concerning foreign nationals in Finland has become increasingly polarized in recent years. Both perceived and experienced discrimination can significantly undermine international students' sense of belonging and well-being. Importantly, even experiences that fall outside formal legal definitions of discrimination can have lasting negative effects on integration. Both empirical research and policy analyses address that responsibility for integration should not be placed solely on individuals. Preventing discrimination and promoting equal treatment requires coordinated action across education, working life and governance, supported by concrete practices, inclusive leadership and institutional accountability.

Employment plays a particularly important role in the ability to remain in Finland after graduation. Employment outcomes are influenced by prior work experience, professional networks, and an understanding of local job search practices and recruitment processes. Recruiting is examined in more detail from this perspective in Section 2.4.2. While labour market integration plays a central role in integration into Finland, employment alone does not necessarily lead to a sense of full societal membership. The completion of studies functions as an important enabler for entry into the labour market. However, international students can encounter obstacles to academic progress. These challenges include financial strain, difficulties related to integration and motivational issues, which may delay graduation and subsequently hinder transitions into employment and longer-term integration.

Social integration and employment are strongly linked to each other. The student responses for E2's survey offer an illustration of how friendships can facilitate integration by supporting access to the labour market. Nearly one third (30 %) of international students report that they receive information about job opportunities from friends. This channel appears especially important for students with extensive Finnish social ties: 45 % of those with many Finnish friends cite friends as a source of job-related information, compared with 22 % among those who have no Finnish friends. [26]

Active measures, responsible leadership, and clear practices are needed to reduce discrimination and promote equal treatment and integration at all levels. Integration and the

factors that influence it positively or negatively are diverse and often either reinforce or undermine one another. In this context, the actions of companies, student organizations and international students themselves can function both as barriers and as enablers of integration. The actors affecting integration during the period of study are examined in Section 2.5.

2.3.2 Integration Theories and Models

Understanding the integration and employment of international students in the Finnish forest industry requires a multidimensional theoretical perspective. This study adopts a combined framework based on Berry's acculturation theory and Tinto's student integration model. Together, these theories provide complementary explanations for how international students adapt to a new cultural and educational environment and how this process influences their transition into working life. Berry's acculturation theory explains how students adapt to the broader societal and cultural context and Tinto's model focuses on adaptation within the educational environment. These two processes are closely interconnected, as successful integration into higher education institutions often facilitates broader societal integration.

Berry's acculturation theory is widely used in cross-cultural psychology to explain how individuals adapt to a new cultural environment when they come into continuous contact with a different culture. Acculturation refers to the process of cultural and psychological change that occurs as a result of such interaction. The theory conceptualises adaptation as a dynamic process shaped by both individual choices and the characteristics of the host society. [71]

Berry's framework is based on two key dimensions: the extent to which individuals wish to maintain their original cultural identity, and the extent to which they seek interaction with the host culture. These dimensions lead to four primary acculturation strategies: integration, assimilation, separation and marginalisation (Figure 13). Integration occurs when individuals maintain their cultural heritage while actively participating in the host society, whereas assimilation involves adopting the host culture at the expense of one's original identity. Separation refers to maintaining one's original culture while avoiding interaction with the host culture, and marginalisation describes a situation in which individuals are disconnected from both. [72]

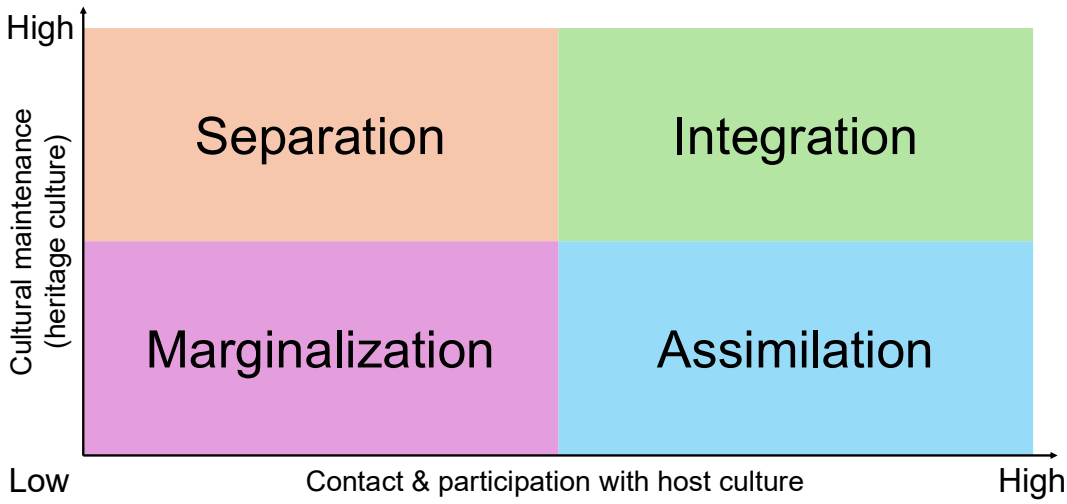


Figure 13. Berry's acculturation theory [71]

Research has consistently shown that the integration strategy is associated with the most favourable outcomes, including better psychological well-being and sociocultural adaptation [71]. This is particularly relevant in the context of international students, whose success depends on their ability to engage with both their own cultural background and the host society. In this study, acculturation theory provides a framework for analysing how international students adapt to the Finnish context, including language use, social participation and access to employment opportunities.

While Berry's theory focuses on cultural adaptation at the societal level, Tinto's student integration model explains how students adapt within higher education institutions. Originally developed to understand student retention and dropout, the model emphasises that students' persistence in higher education is largely determined by their level of integration into the academic and social systems of the institution. [73] [74]

Tinto distinguishes between two key forms of integration: academic integration and social integration (Figure 14). Academic integration refers to students' engagement with their studies, including academic performance and interaction with the institution. Social integration, on the other hand, relates to students' relationships with peers, participation in student communities and sense of belonging. Both forms of integration contribute to students' commitment to their studies and ultimately affect their likelihood of completing their degree. [73] [74]

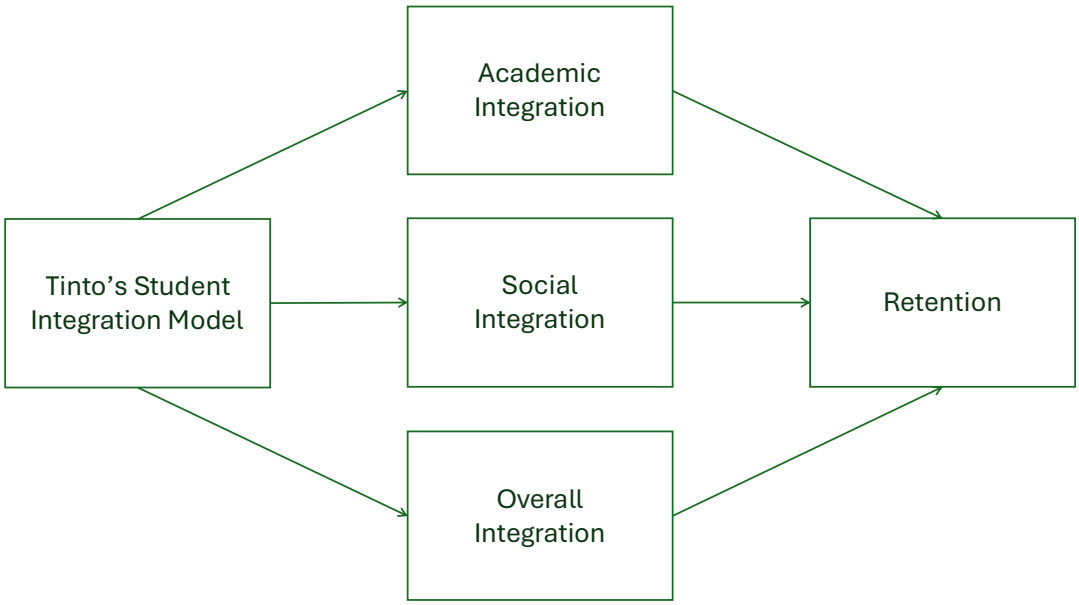


Figure 14. Tinto's student integration model (1975) [73]

The model also recognises the influence of pre-entry characteristics, such as students' background, prior education and expectations, as well as their goals and commitment. These factors interact with institutional experiences to shape the overall integration process. Importantly, Tinto highlights that higher levels of academic and social integration are associated with increased persistence and more successful educational outcomes. In the context of this study, Tinto's model is used to examine how international students integrate into Finnish higher education institutions. [73] [74]

The combined use of Berry's acculturation theory and Tinto's student integration model enables a comprehensive analysis of international students' transition from higher education to working life. While the two theories originate from different disciplines, they complement each other in explaining different dimensions of the integration process. In practical terms, Berry's theory is used to interpret students' adaptation to the broader societal and cultural environment, whereas Tinto's model is applied to analyse their integration within the higher education system. These two processes are interconnected, as successful academic and social integration within the university can facilitate broader cultural integration, for example by increasing opportunities for interaction with Finnish students and institutions. Table 4 summarises the theoretical concepts used in this study and illustrates how they are operationalised in the context of international students' integration and employment in the Finnish forest industry. In this study, the most central concepts are integration, academic integration and social integration.

Table 4. Concepts and definitions of Berry's acculturation theory and Tinto's student integration model in the context of this thesis.

Theoretical perspective	Concept	Definition	Context in this thesis	Example outcomes
Acculturation Theory (Berry)	Acculturation	Adaptation to a new culture	International students' adaptation to Finnish society	Level of integration into Finnish society
	Integration	Maintain original and engage host culture	Balancing and engaging original culture and Finnish culture	Better employment and well-being
	Assimilation	Adopting host culture and abandoning original culture	Strong focus on Finnish norms and practices	Higher host-country adaptation but weaker cultural identity
	Separation	Maintaining original culture and avoiding host society	Limited engagement with Finnish society	Restricted networks, lower employment opportunities
	Marginalisation	Lack of connection to both original and host cultures	Weak integration in both Finnish and international contexts	Poor outcomes, isolation
	Sociocultural adaptation	Ability to function effectively in the host society	Practical adaptation to Finnish systems	Language skills, job search success
	Psychological adaptation	Emotional well-being during adaptation	Students' satisfaction and sense of comfort	Lower stress, higher life satisfaction
Student Integration Model (Tinto)	Student integration	Integration into academic and social systems of higher education institutes	Overall integration into Finnish higher education	Academic and social integration
	Academic integration	Engagement with studies and academic system	Performance and participation in studies	Skill development, employability
	Social integration	Interaction and belonging in student community	Participation in student organisations and networks	Professional networks, job opportunities
	Student engagement	Active participation in academic and social activities	Involvement in studies, events and networks	Stronger integration and employability
	Sense of belonging	Feeling accepted and included in a community	Feeling part of university and Finnish society	Retention, motivation, integration
	Persistence	Continuation and completion of studies	Finishing degree and staying in Finland	Graduation, transition to employment

In this study, the transition from education to working life is conceptualised as an outcome of both acculturation and student integration processes. International students who achieve a high level of cultural integration are more likely to engage with the host society,

including the labour market. Similarly, students who are well integrated into their academic and social environment are more likely to develop the skills, networks and confidence required for employment.

The combined framework is particularly relevant in the Finnish forest industry context, where language proficiency, professional networks and cultural familiarity play a significant role in employment opportunities. By integrating these two theoretical perspectives, the study can capture factors from different levels that influence international students' integration and employment outcomes.

2.4 The Role of the Study Period in Integration and Employment

When international students arrive in Finland, higher education institutions become their primary environment for developing professional competencies, language skills and social and professional networks. Given the relatively short duration of many degree programs, particularly at the master's level, early support for inclusion is essential. However, international students often face time pressure due to financial constraints and residence permit requirements, which may limit their participation in extracurricular activities and increase the risk of reduced integration outcomes. Consequently, the organization of teaching and study structures plays a critical role in shaping both integration and employability. [75]

Employment during studies, such as through internships, summer jobs and thesis collaboration, is a key mechanism linking education to working life. In the forest industry, established practices of offering field-related work opportunities facilitate students' transition to employment while simultaneously benefiting employers through access to emerging talent. For international students who study in Finland, employability is further supported by the development of local language skills, adaptation to Finnish working culture, early career planning and access to labour market-oriented education. Strengthening connections between students and employers through internships, joint projects and networking opportunities is particularly effective, especially when such engagement begins early in the study period. [65]

Completing a degree in Finland significantly strengthens students' attachment to the local labour market by providing access to employer networks, institutional practices and workplace expectations [76]. Language proficiency and structured interaction with employers are especially critical, as insufficient exposure to these reduces both employment outcomes and retention [77] [78]. Measures such as paid internships, mentoring, industry

projects and discipline-specific language training are therefore essential in translating study experiences into concrete employment opportunities [77] [78].

In addition to formal education, integration is supported by a wide range of actors, including student organizations, peer networks and institutional services. These environments contribute to students' social belonging and the development of employability-related competencies, such as communication skills and professional confidence. To maximize their impact, collaboration among higher education institutions, employers and support organizations is required at both local and national levels. Furthermore, fostering the agency and active participation of international students, through both institutional measures and everyday practices such as inclusive language use, is essential for strengthening integration and long-term employment outcomes. It is essential to understand the various ways in which the integration and employment of international students is supported by whom and to what extent international students themselves are involved in these processes. Equally important is that international students can identify the services and activities designed for them and actively seek out and participate in them. [79]

Figure 15 presents the author's conceptual illustration of the actors involved in or supporting international students during their studies in Finland. This thesis focuses particularly on the role of actors that support integration and career development, such as companies and student communities, while also acknowledging the importance of education.

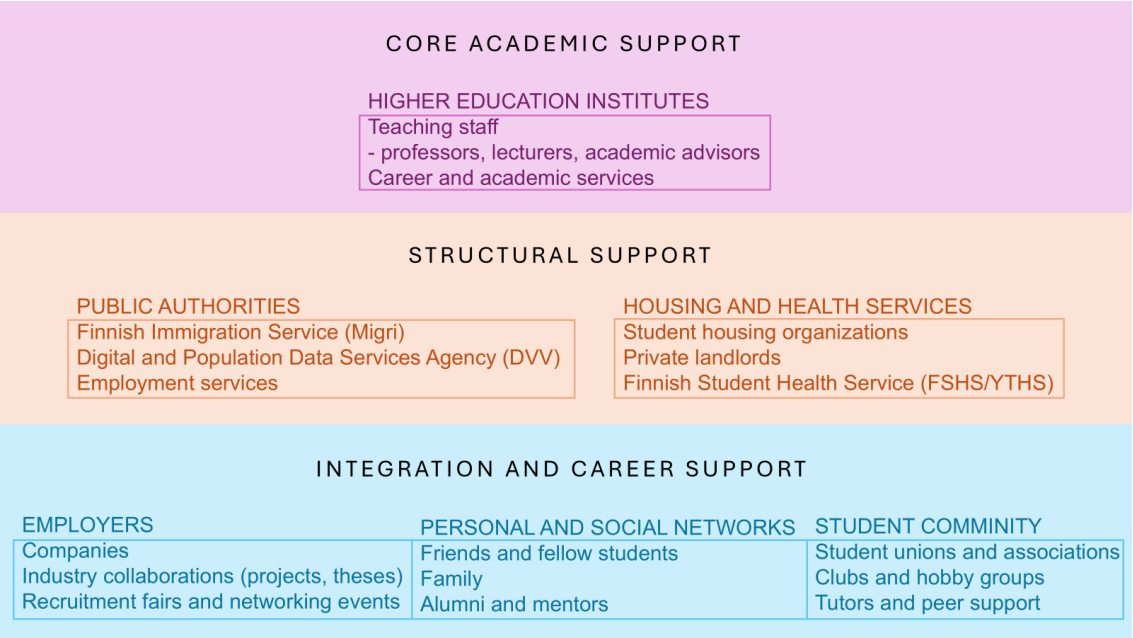


Figure 15. Conceptual illustration of the actors involved in or supporting international students during their studies in Finland.

2.4.1 Role of Teaching Practices and Universities

Academic and social integration are widely recognized as interdependent processes that influence international students' overall success. Key factors affecting integration include language proficiency, familiarity with academic conventions, cultural adaptation and access to social support networks. Teaching methods play a pivotal role in addressing these factors. Inclusive and student-centred pedagogies, such as interactive learning and group work, can enhance participation and reduce barriers related to language and cultural differences. These approaches help create learning environments in which international students feel valued and are encouraged to actively engage, thus fostering both academic achievement and a sense of belonging. [80] [81]

In addition to supporting integration, teaching methods are directly linked to the development of employability competencies. Research indicates that employability depends not only on disciplinary knowledge but also on transferable skills such as communication, teamwork, problem-solving and critical thinking. Experiential and practice-oriented teaching methods are particularly effective in developing these competencies, as they simulate real-world work environments and provide opportunities for applying theoretical knowledge in practical contexts. Embedding such methods within curricula enables students to acquire skills that are aligned with labour market demands, thereby improving their employment prospects after graduation. [82] [83]

Universities can act as key intermediaries by facilitating collaboration with industry, offering internships and embedding language and career-related learning into degree programs. Integrating employer engagement into teaching, such as industry projects, guest lectures, mentoring and internships, helps students understand labour market expectations and needs. Strengthening partnerships between universities and employers is particularly crucial, as it provides students with opportunities to build professional networks and gain work experience relevant to their field of study.

The curricula and modes of study further affect integration. The required amount, availability and quality of Finnish language studies also play a significant role in integration and employment. Remote and hybrid learning can limit informal interaction and make it harder to build peer relationships. Social integration can be actively promoted through pedagogically purposeful group work that encourages cooperation and peer connection [66]. For students from diverse backgrounds to experience a strong sense of community, programs must adopt pedagogical solutions that support working together, building trust and strengthening students' confidence [84].

Academic advising is another important support mechanism. In many higher education institutions, academic advising is an established practice. Within the context of this thesis, such a system is used at least at Tampere University in materials engineering. A personal academic advisor supports students throughout their studies by guiding course choices, degree requirements and career planning. Advisors also help students set goals and navigate institutional structures, which supports both academic progress and personal development.

Higher education institutions can, in addition to teaching and various support services offered to international students, create and maintain close relationships with industry and working life. For example, Tampere University encourages companies to recruit international talent and highlights ways to support this. Tampere University uses the JobTeaser platform, through which employers can also find international candidates. Employers are offered concrete forms of support, such as internship funding from the university. The university also promotes the services of International House Tampere, which provides free advisory services on international recruitment for employers in the Pirkanmaa region. [85]

2.4.2 Role of Student Organizations

Because native Finns are generally the most familiar with the workings of Finnish society, members of the majority population can play an important role in supporting migrants, including international students, by sharing information about job opportunities and recommending them to potential employers [16]. Student organizations and domestic students therefore serve as an important channel for such support.

Student organizations in Finland operate at multiple organizational levels and their roles in advancing international students' integration and employability vary accordingly. Subject-specific associations, often called guilds or clubs in technical fields, are typically closest to students' everyday academic and social life. They provide informal communities, social events and opportunities to interact with industry representatives. These guilds and clubs, as well as their activities from the perspective of international students, are examined via surveys and presented in more detail in Chapter 4.

These student associations can play a particularly influential role in integrating international students into the student community and, through it, into Finnish society. They organize events that connect international and domestic students, excursions and company visits and networking opportunities that facilitate contact with potential employers.

Such activities are especially valuable given evidence that international students in Finland often struggle with limited networks, unfamiliarity with informal recruitment practices and difficulty accessing industry contacts [65] [53]. International students might have their own student associations, or they can be a part of the same student association as domestic students. This has both advantages and disadvantages. It influences, for example, how international students interact with domestic students and whether activities are designed for all students or only for international students.

International students are less frequently considered in the activities of subject-specific student associations, and they are less often active members within them. However, there are dedicated local, national and international networks specifically aimed at doctoral students. Examples of such networks include DRAFT ry, which is open to all doctoral students at Tampere University, as well as topic-specific initiatives such as the CIMANET Doctoral Education Network, where CIMANET refers to the Circular Materials Bioeconomy Network [86] [87]. In addition, organisations outside higher education institutions also take doctoral students into account at the national level in their activities, with PI being one such organisation [6]. The activities of the organisation may be managed either by volunteers or by employees, depending on the organisation.

Access to these opportunities and activities varies. Because subject-specific associations depend heavily on volunteer work, the scope, language accessibility and continuity of activities can differ considerably between associations and across years. Language barriers and limited access to professional networks remain key challenges for international students. In addition, difficulties in accessing local communities and participating fully in student life can restrict their opportunities for social integration and networking. National talent attraction policies, including the Talent Boost program, therefore emphasize the need to strengthen multilingual practices and expand inclusive activities to support early-stage networks that contribute to long-term integration and employment [32].

A key starting point is outreach: international students need to be reached, informed about the community and the association's activities, and supported in becoming genuinely interested and willing to participate. Because international students are a highly diverse group, associations should take this diversity into account when planning activities and services, so that participation feels relevant and attainable for different backgrounds and situations [17]. Strengthening interaction between international and domestic students benefits both groups: while international students gain social ties that support integration and future employability, Finnish students likewise benefit from building international networks already during their studies [26]. However, organizing inclusive and coherent activities can be challenging when similar education can be fragmented across

several locations, campuses or associations, as this makes it harder to design and deliver participation opportunities that work well for everyone. Being volunteer-driven, these associations often face resource constraints that limit both activity diversity and the continuity of structured support.

Beyond subject-specific associations, student unions act as overarching organizations. In Tampere, these include TREY (Student Union of Tampere University) and TAMKO (Student Union of Tampere University of Applied Sciences), while at the national level SYL and SAMOK represent university and university of applied sciences students. Together, they shape the environment in which international students study, socialize and build networks. With broader mandates, more stable resources and long-term continuity, local student unions offer orientation services, peer tutoring, support for associations, community-building activities and practical advice related to housing, employment and student rights. Their national umbrella organizations, SYL and SAMOK, further reinforce this work. They have highlighted international students' challenges related to income security and employment, and through political advocacy and commissioning the study *At What Cost – Being an International Student in Finland*, which documents key barriers to integration and calls for systemic improvements. [88] [89] [90] [91]

It is also important to recognize that successful integration is not only about what is offered to international students, but also about how they are involved and included. Their opportunities to participate, influence and take part in organizing and developing activities are essential. When international students are not merely recipients of services but active contributors, they gain a stronger sense of belonging and ownership within the community. Inclusive practices that invite international students to co-create events, join decision making processes or take on organizational roles help ensure that support structures genuinely respond to their needs and enhance both their integration and engagement.

2.4.3 Mentoring Programs and Other Support

Mentoring programs provide international students with valuable opportunities to build professional networks, acquire knowledge about Finnish working life and strengthen their emerging professional identities. Such programs are widely available and are organized by various institutions, targeting different groups. Universities and professional associations offer mentoring specifically for students and alumni in technical fields as well as for international students. The duration, scale, timing and type of these programs differ across organizers.

In autumn 2025, Suomen Mentorit piloted a mentoring initiative tailored for international engineering master's students. In total, 25 participants were matched with personal mentors. The program focused on supporting job search activities, identifying internship opportunities and facilitating master's thesis placements. The broader aim was to ease students' transition into the Finnish labour market and enhance their career planning abilities. [92] The Forest Products Engineers' Association (PI) organizes an annual mentoring program for students in the field. Delivered in English, the program is open to both domestic and international student members. Topics are selected jointly by each mentor–mentee pair, allowing the program to address a wide and flexible range of developmental needs. [93]

At higher education institutions, mentors are often alumni. For example, Aalto University's six-month mentoring program brings together approximately 400 mentor–mentee pairs each year. [94] Tampere University also offers mentoring services not only for international students but specifically for doctoral researchers, acknowledging their distinct developmental needs. [95] Mentoring is typically based on voluntary participation, and the quality of the interaction between the mentor and the mentee plays a central role in its success. The outcomes of mentoring, and how effective it ultimately is, depend on several interconnected factors.

Depending on its structure and objectives, a mentoring program can provide international students with networks that extend both into working life and beyond their studies. It may also increase students' understanding of Finnish work practices and cultural expectations, strengthen their awareness of their own competencies and support the development of individual career pathways as well as the transition to employment.

In addition to mentoring programs, international students have access to a range of other support services. They may, for example, receive financial assistance through scholarship schemes offered by higher education institutions and professional associations, such as PI [96]. Universities and municipalities also provide employment services and integration support, including language learning opportunities, career counselling, job-matching and recruitment services, workshops on Finnish working culture, and guidance related to residence permits and local public services. [35] [97]

2.5 Transition from Studies to Working Life

The transition from higher education to working life has become a central focus in research on graduate employability, particularly in the context of international students. The education-to-work transition is widely understood as a complex, multidimensional

process through which graduates move from academic settings into the labour market, influenced by individual competencies, institutional practices and labour market conditions [98] [99]. In Finland, this transition is especially critical, as international students are expected to integrate into the labour market within a relatively short study period. Empirical research indicates that while international graduates face structural challenges such as language barriers, limited professional networks and unfamiliarity with recruitment practices, completing a degree in Finland enhances access to local labour markets and institutional networks. [53] In addition to external factors and opportunities, students' own motivation and skills also play a significant role in employment. These diverse factors influencing the education-to-work transition are illustrated in Figure 16.

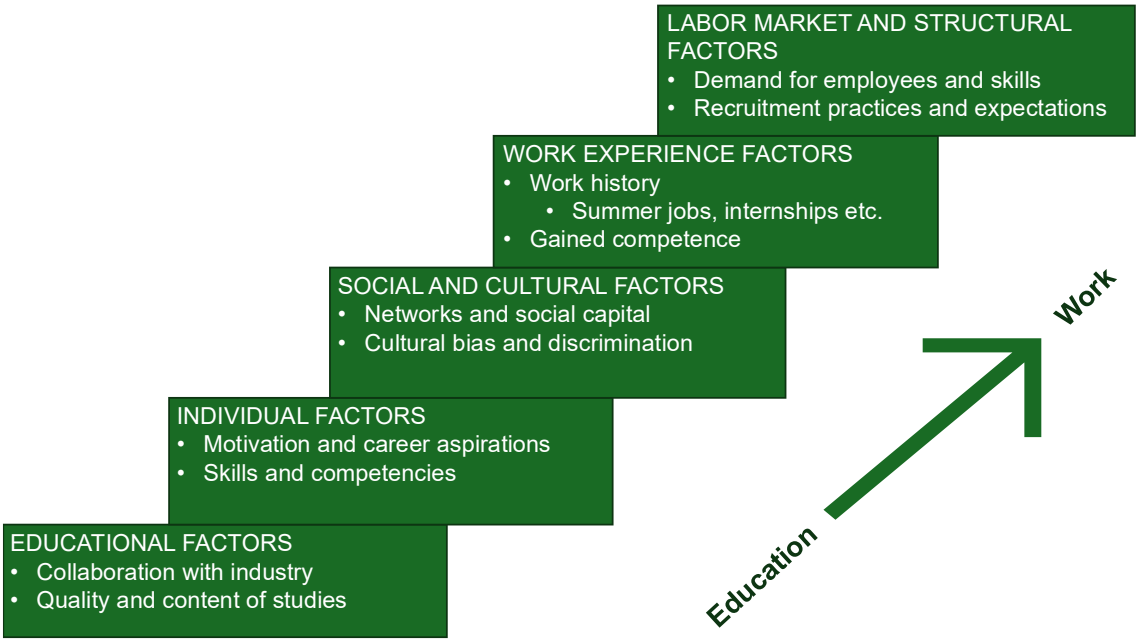


Figure 16. Factors influencing the education-to-work transition of international students.

The transition from studies to working life is a critical stage in determining whether international students remain in Finland. The transition from studies to working life is not always clearly defined. Studies and employment may take place simultaneously, occur in stages, or even be separated by longer periods of time. Those international students who have a job before graduating are more likely to stay in Finland after graduation. The probability of staying in Finland also increases if student have a family or network in Finland. [84] Higher levels of education have a significant impact on the likelihood of remaining in Finland after graduation. At the highest qualification levels, and especially among those who have completed a doctoral degree, labour markets are highly international and mobility is substantial. The group of doctoral graduates in Finland is exceptionally international, and in 2011 the probability of remaining in Finland after completing

a doctorate was 58 %. In the same year, the corresponding figure for graduates from universities of applied sciences was 78 %. [84] Efforts to increase retention could include measures that make it easier for international degree students to be recruited during their studies [84].

In 2023, 53 % of international graduates from Finnish higher education institutions were employed in Finland three years after completing their degree, compared to only 42 % in 2018. Although employment outcomes have improved, the development has been relatively slow. Among domestic graduates, the corresponding employment rate has consistently remained well above 80 % for several years. More recent data is not yet available, and given the current weak labour market situation, it is unlikely that these figures will have improved. As there is currently a record-high number of highly educated people unemployed in Finland [100]. International students and graduates also remain less likely to obtain expert-level positions, meaning roles that correspond to their education and competencies. Several factors contribute to this disparity. One well-documented difference between Finnish and international students is that Finnish students tend to work alongside their studies more frequently, whereas international students do so more rarely. [21]

Students from EU and EEA countries are more likely to leave Finland after graduation than those coming from outside the EU/EEA. However, those EU/EEA graduates who do remain in Finland are more likely to be employed in expert positions than graduates from other nationalities. Among international graduates who do find employment in Finland, the majority are concentrated in the Uusimaa region. In international comparisons examining the employment outcomes of international students, Finland ranks near the average among the 100 countries included in the assessment. [21] Barriers to employment among international graduates are primarily linked to the limited capacity of Finnish working life to integrate international talent, insufficient Finnish proficiency and weak professional networks with Finnish employers and workplaces [32].

When considering students' transition into working life, early work experiences such as summer jobs, entry-level production roles, and internships play a crucial role in developing competencies and facilitating labour market entry. In the Finnish forest industry, this highlights the importance of actively providing such opportunities also for English-speaking students, as access to relevant work experience is a key factor in employability. Currently, office-based internships remain relatively limited, and although many of these positions operate in English, proficiency in Finnish is often required, particularly in customer-facing roles. Similarly, production roles typically demand Finnish language skills, especially due to occupational safety requirements.

These constraints are particularly relevant in the Finnish forest sector, where strong expectations for local language proficiency, industry-specific practices and regionally concentrated workplaces may create additional barriers for international graduates. Addressing these challenges requires companies to strengthen their intercultural competence, as well as to develop employees' social and leadership skills and to adopt shared best practices for building effective international work communities. Taken together, the interaction of structural, institutional and individual factors helps explain why some international students can integrate successfully into the Finnish labour market, while others encounter significant difficulties during the transition process. [26]

Research by TEK shows that completing a master's thesis in collaboration with a company significantly improves future employment outcomes. International students who conduct their thesis with a company are up to four times more likely to secure employment that matches their education compared to those who complete their thesis outside the private sector. [101] Despite this, not all international students are able to access such opportunities, partly due to limited professional networks and challenges in connecting with employers during their studies. Moreover, thesis positions are often sought within a relatively narrow time frame during the final phase of studies, which can create bottlenecks in availability.

2.5.1 Recruiting from the Perspective of International Students and Talents

In the Finnish labour market, a significant share of open positions is never publicly advertised. It is estimated that 60–70 % of jobs constitute hidden opportunities, accessible primarily through personal networks [102]. Informal recruitment cultures tend to exclude outsiders. Even when jobs are publicly advertised, informal relationships still influence how positions are filled [65]. For this reason, social capital plays an important role in who can enter the labour market, as many positions are filled through referrals or internal channels. Some employers also use headhunting and employee referral bonuses, which further reinforce the importance of existing networks and tend to benefit applicants who already have professional or social ties in Finland. For international students, this creates a structural disadvantage, as they often lack the local networks that domestic students and applicants may have established over the years. As noted by Lu and Everson Härkälä, limited access to informal recruitment networks places international students at a structural disadvantage in the Finnish labour market. [53]

Recruitment practices for publicly advertised positions vary widely. It is therefore mandatory for the applicants to understand where different companies advertise their positions and how application cycles operate, for example for the summer jobs. This can be particularly challenging for international students who are unfamiliar with Finnish recruitment culture. It also differs how language requirements are communicated and interpreted. Understanding all unwritten rules can be demanding for newcomers.

In addition to these structural challenges, unconscious and conscious biases influence employers' decisions to hire international talent. According to Forbes, 48 % of HR managers acknowledge that bias affects their hiring choices [103]. One practical method increasingly used to reduce such bias is anonymous recruitment, in which identifying information such as name, gender, age, photograph or native language is removed from application materials during the early stages of the process. The aim is to ensure that evaluation focuses solely on skills and experience, typically up to the point of selecting candidates for interviews. This approach seeks to promote fairness, diversity and inclusion, and to identify the most suitable candidate based strictly on competence. Anonymous recruitment is used in several public-sector organizations in Finland and has also been adopted in parts of the forest industry, including by Metsä Group [104]. [105] Anonymous recruitment has been shown to be beneficial, and research also shows there is a clear need for it. A study funded by the Kone Foundation found that having a foreign-sounding name alone significantly affects whether an applicant receives an interview invitation. [106]

However, anonymous recruitment alone cannot eliminate all forms of discrimination in recruitment and at workplaces. Achieving more equitable recruitment requires broader organizational efforts. For international students, barriers often arise from a combination of factors: limited networks, discriminative recruitment methods and the potential influence of cultural bias. Together, these can complicate their transition into the Finnish labor market, even when their qualifications and competencies align well with the job requirements.

3. METHODOLOGY

This study is made by a survey-based research design consisting of three separate surveys targeting international students and recent graduates, student associations and companies. The objective is to examine the integration and employment of international students in the Finnish forest industry, focusing on the transition period from higher education to working life. In terms of timeframe, this refers to the period from when an international student begins their studies at a Finnish higher education institution until their transition into working life after graduation. This chapter presents the methodological framework of the study, including the target groups and scope, research design, data collection and analysis methods and considerations related to reliability, validity and research ethics.

3.1 Target Groups of the Thesis

The main target group of the thesis consists of all international students who are completing a technical higher education degree related to the forest industry in Finland. This is presented visually in Figure 17. In this thesis the group also includes recent graduates, as they have experience of both studying and transitioning into working life, as well as the current situation in both contexts. The term recent graduate is not strictly defined. In the surveys, respondents were allowed to determine for themselves whether they consider themselves recent graduates. According to PI's membership definition, recent graduates have graduated within five years.

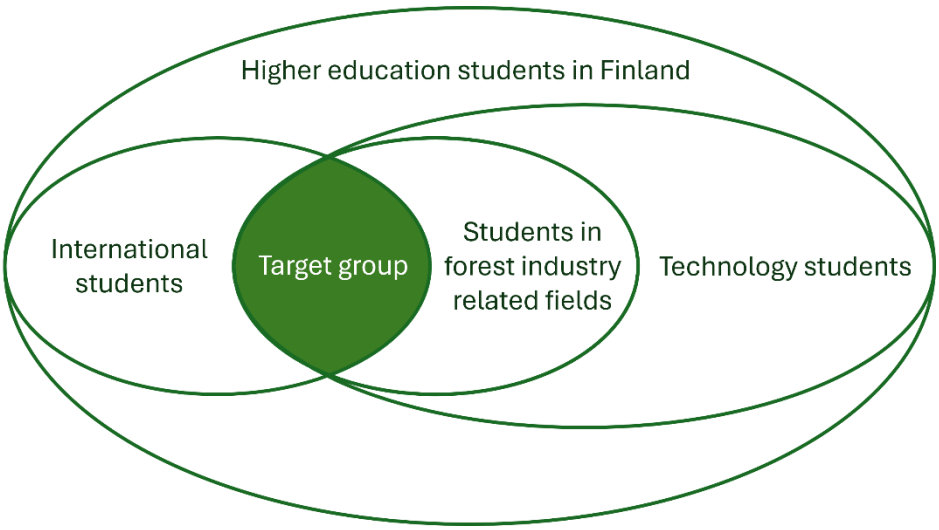


Figure 17. Simplification of the student target group of this thesis.

The concept of a technical higher education degree related to the forest industry is not strictly defined. Therefore, individuals who have a technical background and view the forest industry as their field or as a potential employer can also be considered part of the target group. The forest industry requires a diverse range of technical professionals whose expertise supports the entire value chain from raw material processing to advanced bio-based product development. Engineers specialized in chemical engineering, process engineering and materials engineering play a central role, as modern pulp, paper and biomaterials production relies heavily on complex chemical processes, optimized industrial operations and the development of new sustainable wood-based materials. These technical education fields are the most relevant to the forest industry, and the student organizations in the study are from these areas.

For practical reasons, the empirical part of the thesis focuses on student organizations and companies that cooperate with PI. A total of ten student organizations are included in the analysis. The company target group primarily consists of PI member companies operating in the Finnish forest industry, although responses from other relevant companies are also considered. The selected organizations and companies are assumed to provide a representative overview of the perspectives of student associations and companies within the field.

3.1.1 Scope and Limitations

The scope of this study is limited to selected stakeholder groups relevant to the research topic. Higher education institutions and their staff were excluded from the target groups, as were student organizations other than certain subject-specific associations. In addition, actors outside the forest industry, such as companies from other sectors, were not included. The study further focuses exclusively on higher education students with a connection to or interest in the forest industry. Therefore, students from other fields as well as lower levels of education were excluded. Furthermore, governmental and municipal actors were not considered within the scope of this research. It should also be noted that certain dimensions of integration were excluded from the surveys, and the perspectives of international professionals with longer work experience in Finland were not included in the study.

3.2 Research Design

The survey was conducted in three parts, each targeting a specific respondent group. These three groups were: all forest-industry-related companies in Finland, student associations that collaborate with PI and all international higher education students studying forest-industry-related technical subjects in Finland.

The company survey was shared primarily with PI's member companies through relevant contact people. Additional contacts were also utilized, and an announcement about the survey was distributed through the newsletter of the Finnish Forest Industries Federation to its members. The survey was directly sent to 46 companies operating across various sectors of the forest industry. Regarding student associations, the focus was on associations representing students in technical fields related to the forest industry. In total ten associations were contacted and they are specified in more detail alongside the results. For international students, PI's English-speaking student members and recent graduates (n = 68) were included. Efforts to reach international students were also made through student associations and university staff. It is not possible to estimate how many individuals were indirectly reached through these channels in the company and international student groups.

The responses were collected mainly during December 2025 and beginning of January 2026. The survey was distributed and communicated through multiple channels, including email, PI's website and social media platforms. There are several factors in both the design of a survey and the process of responding to it that may influence the number, quality or interpretation of the answers collected. Such factors include unclear questions, multiple-choice items that constrain respondents' options, the overall length of the questionnaire and the characteristics of the target group.

Efforts were made to design each questionnaire with careful consideration of its intended respondent group. However, both international students and companies formed rather heterogeneous populations, which meant that some questions may have been irrelevant or only marginally useful for certain respondents. The questionnaires consisted of both multiple-choice items and open-ended questions. The aim was to gather information as broadly as possible on themes related to the topic, which led to the extensive use of multiple-choice questions. These were followed by open-ended items that allowed respondents to elaborate on or clarify their answers. The structural characteristics of the surveys are presented in Tables 5, 6 and 7. A more detailed description of the survey contents, including the questions and response options, is provided in Appendices A–C.

The student survey consisted of a total of 60 questions, of which 42 were mandatory. All single-choice and multiple-choice questions were required, whereas all open-ended questions were optional. This was because the open-ended questions were primarily designed to elaborate on or complement the preceding questions. Quantitatively, the questions were evenly distributed between the different question types. The questionnaire was divided into six sections covering background information, language proficiency and its effects, studying and living in Finland, integration and student associations, employment and the forest industry, and experiences of discrimination. Implementation of the survey for international students in Table 5.

Table 5. Implementation of the survey for international students.

Property	Design
Number of questions	60
Mandatory questions	42
Question type	Multiple-choice questions (18)
	Single-choice questions (21)
	Open-ended questions (21)
Number of sections	6
Section headings	Background
	Language
	Finland and studying
	Integration and associations
	Employment and forest industry
	Last section (discrimination)
Duration to answer (estimated)	15-30 min
Survey language	English
Answer collection period	December 2025
How the survey was shared	Through teaching staff and student associations to students, as well as directly to students via email and social media

The survey was conducted entirely in English, and responses were collected during December 2025. International students were reached through multiple channels, including teaching staff, student associations and PI's own members and networks, using both email and social media. To encourage participation, respondents were motivated and rewarded through a raffle in which gift cards were offered as prizes.

The student association survey consisted of a total of 30 questions, of which only the first question, requesting the name of the responding student association, was mandatory. The purpose of this was to provide student associations with a low-threshold and flexible way to either complement their responses or distribute the questions internally to

those with the most relevant knowledge. Additionally, not all questions were necessarily applicable or relevant to every respondent, given the varying roles and levels of engagement of international students within different associations.

Two thirds of the questions were open-ended, while the remaining questions were single-choice or multiple-choice. The questionnaire was divided into four sections addressing background information, international students as part of the student association and their activities, integration and employment, and the support received by the association. The survey was conducted entirely in Finnish, as the respondents were assumed, based on their roles and experience, to have sufficient proficiency in Finnish. Responses were collected between December 2025 and January 2026. The respondents were reached through PI's Youth Forum (fin. Nuorten Forum, NF). Implementation of the survey for student associations in Table 6.

Table 6. Implementation of the survey for student associations.

Property	Design
Number of questions	30
Mandatory questions	1
Question type	Multiple-choice questions (7)
	Single-choice questions (3)
	Open-ended questions (20)
Number of sections	4
Section headings	Perustiedot (Basic information)
	Kv-opiskelijat osana toimintaa (International students as part of activity)
	Integroituminen ja työllistyminen (Integration and employment)
	Saamanne tuki (Received support)
Duration to answer (estimated)	10-20 min
Survey language	Finnish
Answer collection period	December 2025 - January 2026
How the survey was shared	With NF members/chairs of the association via email

The company survey consisted of a total of 37 questions, of which 21 were mandatory. All single-choice and multiple-choice questions were required, whereas all open-ended questions were optional. This was because the open-ended questions were primarily intended to elaborate on or complement the preceding questions. The questionnaire was divided into five sections: introduction, recruitment practices and language requirements, integration and support, talent needs and collaboration with universities and students.

The survey was conducted in both Finnish and English, with the aim of ensuring that the versions were as identical as possible. The respondent was able to choose the language in which they completed the survey. Responses were collected between December 2025 and January 2026. Companies were primarily reached directly through their designated contact people via email. Implementation of the survey for companies in Table 7.

Table 7. Implementation of the survey for companies.

Property	Design
Number of questions	37
Mandatory questions	21
Question type (number of questions)	Multiple-choice questions (9)
	Single-choice questions (12)
	Open-ended questions (16)
Number of sections	5
Section headings	Introduction
	Recruitment Practices and Language Requirements
	Integration and Support
	Talent Needs
	Collaboration with Universities and Students
Duration to answer (estimated)	10-20 min
Survey language	English and Finnish
Answer collection period	December 2025 - January 2026
How the survey was shared	With industry contacts via email and with social media

3.3 Data Collection Methods

All data on this research was collected via anonymous electrical surveys. The surveys were conducted and responses were collected using a service called Eventos.

Only background variables were collected, and no contact information or personally identifiable data was requested. The only exception to this was the survey for student associations, from whom one response per association was requested. In their response, they indicated which association they represented, ensuring that each organization participated in the survey, but only once. The respondent was most often the association's chair or the person responsible for international affairs for the current year.

Companies responded completely anonymously. For this reason, it cannot be fully ruled out that a company may have responded more than once. Depending on the company's size and internal structure, the contact person and respondent was most likely someone working in human resources. The survey requested that the respondent be a person who

works with the topics covered in the survey and is therefore best positioned to answer accurately.

Demographic and background information from students was collected for research purposes. The data was handled in such a way that respondents could not be identified at any stage, nor could individual responses be linked to specific participants. During the presentation of the results, direct quotes from the surveys are included. The quotations have been selected in such a way that they do not reveal information that could be used to identify individuals or cases.

3.4 Data Analysis Methods

The data analysis in this study was conducted using a mixed-methods approach, combining both quantitative and qualitative techniques to provide a comprehensive understanding of the research phenomenon. The selection of the analysis methods was based on the nature of the research problem and the type of data collected. The use of mixed methods is particularly appropriate in studies where both numerical trends and experiential insights are required to understand complex phenomena. [107]

Quantitative data from the survey were analysed using descriptive statistical methods, such as counts and percentages, to identify general patterns and trends among the respondents. Descriptive statistics are widely used in survey-based research to summarise and present data in a clear and interpretable form, enabling the identification of key distributions and tendencies within the dataset. [108] This approach supports the comparison of responses related to international students' integration and employment in the Finnish forest industry.

Qualitative data obtained from open-ended questions were analysed using thematic analysis, which enables the identification, categorisation, and interpretation of recurring themes within the data. Thematic analysis is a flexible and widely applied method in qualitative research, particularly suitable for analysing experiences, perceptions, and context-dependent processes [109]. In this study, it allowed for a deeper understanding of participants' experiences, perceived barriers, and enabling factors related to the integration of international students into the Finnish forest sector and their transition into working life.

The use of a mixed-methods approach is well established in research on education-to-work transitions, as the phenomenon is inherently multidimensional and influenced by a combination of individual, institutional, and labour market factors [107]. Previous research has emphasised that combining quantitative and qualitative approaches enables

researchers to capture both general trends and the underlying mechanisms that explain them. In higher education research, such approaches have been particularly useful in examining how practices such as internships and collaboration between universities and employers support graduates' entry into working life.

By combining statistical results with the themes identified from the open-ended responses, the study was able to triangulate findings by comparing quantitative trends with qualitative themes. This strengthened the robustness of the results and provided a clearer and more comprehensive understanding of the factors influencing international students' integration and employment in the Finnish forest industry.

3.5 Reliability, Validity and Ethical Considerations

The reliability and validity of the study were assessed by evaluating the representativeness of the collected data and the quality of the responses. The overall number of responses was considered when interpreting the findings, as relatively small sample sizes may limit the generalizability of the results. In particular, the interpretation of open-ended responses required careful consideration, as such responses are inherently subjective and may vary in depth and clarity. In addition, responses from companies were collected in two languages, which required careful translation and interpretation to ensure consistency and comparability across the data.

Some responses were incomplete or left unanswered, and in certain cases, the compactness of responses limited the level of analysis that could be conducted. Furthermore, some survey questions may have been open to multiple interpretations, which could affect the consistency of responses. These factors were considered when analysing the data and drawing conclusions.

In the case of company and student association surveys, a single respondent often represented the view of an entire organization. Consequently, the responses may reflect the respondent's personal experiences, knowledge or attitudes rather than a fully comprehensive organizational perspective. This limitation was considered during the analysis by critically reflecting on potential biases and variations in perspective.

To enhance the reliability of the study, attention was paid to the clarity and structure of the questionnaire design. Questions were formulated to align with the research objectives, and both closed and open-ended questions were used to capture quantitative trends as well as qualitative insights. The use of multiple question types also supported triangulation within the dataset.

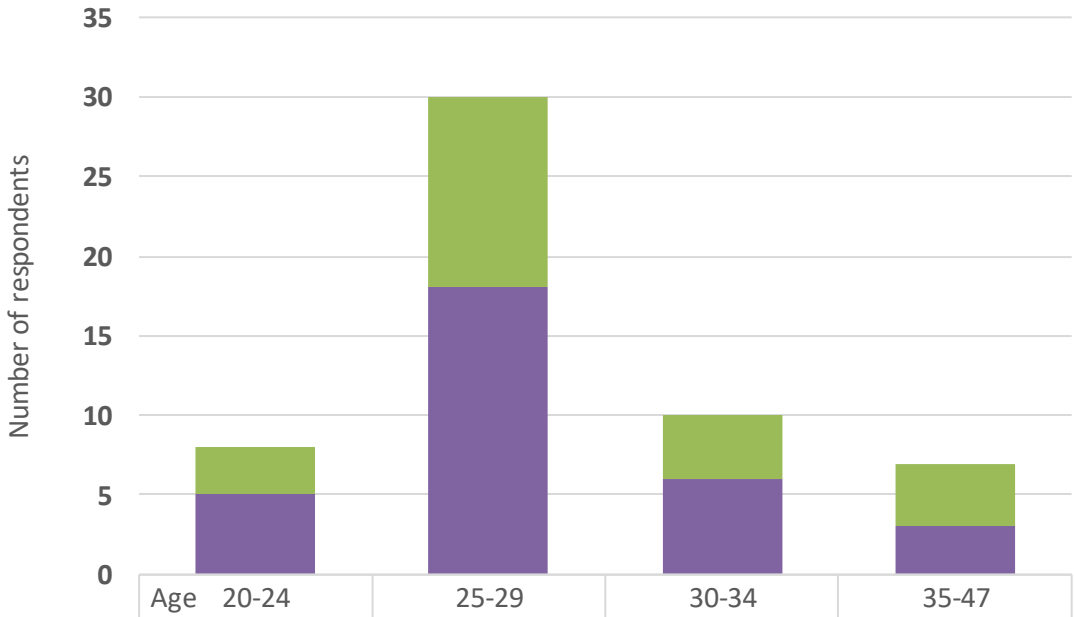
Ethical considerations were carefully addressed throughout the research process. Participation in the survey was voluntary, and respondents were informed about the purpose of the study. All responses were collected anonymously, and the data were handled in a way that ensured that individual respondents could not be identified at any stage, nor could their responses be linked to them. The data were used solely for research purposes and were stored securely in accordance with good research practice.

4. RESULTS

This chapter presents the results of the surveys. The aim is to link the findings to the background and theoretical framework, and through this, address the research questions. A total of 55 international students, ten student associations and 16 companies from the forest industry responded to the surveys. Originally, 56 student responses were received, but one was excluded. This was based on the responses, which indicated that the respondent did not meet the criteria of the target group.

4.1 Student Survey

The age range of the student respondents is 20–47 years, and the gender distribution consists of 32 women and 23 men. Slightly more than half of the respondents are between 25 and 29 years old, which is a typical age range for completing higher education studies for international students. A more detailed breakdown by age and gender is presented in Figure 18.



Age	20-24	25-29	30-34	35-47
Male	3	12	4	4
Female	5	18	6	3

Figure 18. Breakdown by age and gender of the international student respondents.

The international students who participated in the survey represent a diverse and highly varied group. In total, they come from 22 different nationalities across five continents.

The distribution was strongly weighted toward non-EU and non-EEA countries, which accounted for 90% of all respondents, as well as Asian countries, which represented 78% of all respondents. Students originating from South Asia were particularly prominent, forming 51% of the entire respondent group. Nationalities and numbers shown on the map in Figure 19. Overall, the national composition of the respondents closely matches to the broader demographics of international students in Finland.

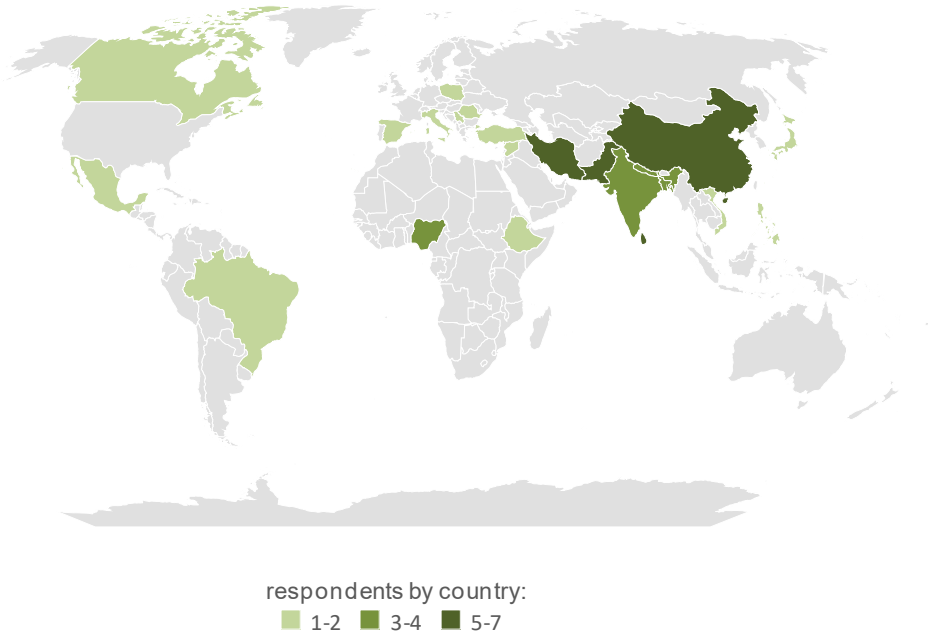


Figure 19. Numbers of the student respondents by country, presented on a map.

All participating students share the common characteristic of pursuing a technical higher education degree in Finland. They either study a field directly related to the forest industry or have a specific interest in it. There is a good representation from each degree level. Among the respondents, 15 are currently completing a bachelor's degree, 14 a master's degree and 20 a doctoral degree, while six respondents are recent graduates from at least one of these levels. Students represented all fields of study and higher education institutions that were listed and aimed to reach. The largest group consisted of students in chemical engineering, which is consistent with the numbers presented in Table 2. More specific figures about study fields and degree levels are shown in Table 8. Respondents study in over eight different higher education institutions. More than half of them study at Aalto University or Åbo Akademi University.

Table 8. Respondents divided by study fields and degree levels.

Field of study	Bachelor's student	Master's student	PhD student	Graduated	Total
Chemical Engineering	1	9	9	1	**20**
Bioproduct Engineering	5	3	3	1	**12**
Materials Engineering	1		3	2	**6**
Mechanical Engineering	1	1	1	1	**4**
Process Engineering			4		**4**
Biochemical Engineering	2				**2**
Other	5	1		1	**7**
Total	**15**	**14**	**20**	**6**	**55**

Before starting their studies in Finland, 12 respondents had completed only pre-tertiary education, 24 held a bachelor's degree, 15 held a master's degree, 2 had completed a doctoral degree and 2 reported other or unknown qualifications. As expected, the level and field of prior education are mainly closely connected to their studies in Finland.

The reasons for moving to Finland varied, but the single most common primary reason was education. A total of 44 respondents moved to Finland specifically for their studies, 6 due to a partner or family reasons, 4 for employment and 1 for other reasons. This is visualized in Figure 20.

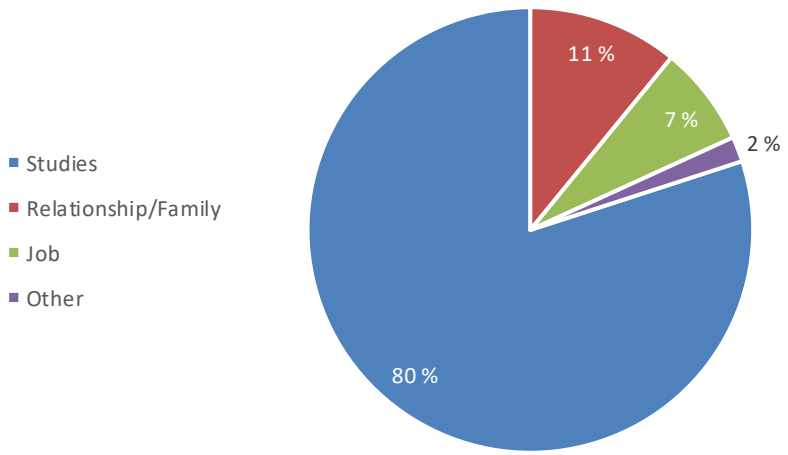


Figure 20. Reason for international student to move Finland.

There are several reasons why students have chosen to study forest industry–related fields especially in Finland. When explaining their motivations, the significance and scale of the forest industry in Finland are often recognized and highlighted. The strong reputation and global visibility of the Finnish forest industry have played a major role in students'

decisions to study here. In particular, Finland's leading position in Europe in textile recycling and the development of wood-based textiles was frequently mentioned. Many students already had prior knowledge of or experience in the field, which influenced both their choice of study area and their decision to come to Finland. In addition, employment opportunities and the possibility of securing a job in Finland were commonly cited as important reasons for studying in the country. The following excerpt is direct quotation about the topic from one respondent.

> *"My choice was influenced by Finland's strong reputation in forestry, sustainable forest management, and high-quality education, as well as good career opportunities in the forest industry."*

Additional quotations are presented later in the text to further illustrate how respondents described the challenges they face, as well as their choices and perspectives in the survey.

4.1.1 International Students' Language Skills and Perceived Impact

The respondents' language skills do not appear to be directly linked to their reason for coming to Finland or the length of time they have lived in the country. Most respondents had lived in Finland only for a relatively short period. Of all respondents, 27 had been in the country for 0–1 year, 17 for 2–3 years, 6 for 4–5 years and 5 for more than six years. Overall, the length of stay ranged from a few months to 13 years. Correlation between Finnish language proficiency and time spent in Finland is listed in Table 9.

Table 9. Finnish proficiency and time spent in Finland.

Finnish proficiency / Time spent in Finland	0-1 year	2-3 years	4-5 years	6+ years	Total
I don't speak Finnish at all	4	2			**6**
Beginner – I know a few words and basic phrases	18	7	3	1	**29**
Basic user – I can understand and use simple sentences in everyday situations	3	8	3	1	**15**
Independent user – I can understand and communicate in everyday situations with some difficulty	1			2	**3**
Proficient user – I can speak, write, and understand Finnish fluently	1			1	**2**
Total	**27**	**17**	**6**	**5**	**55**

Most respondents assessed their Finnish language skills as being at a beginner level, which is partly explained by the relatively short time many had spent in Finland. While Finnish language proficiency increased to some extent with longer residence, the correlation was weak, and even respondents who had lived in Finland for several years often reported limited skills. Importantly, language proficiency was experienced subjectively: some respondents felt that even minimal Finnish skills supported their integration and employability, whereas others perceived only little benefit from partial proficiency. For students who had arrived recently, Finnish was often not yet considered essential, as daily life and studies were largely conducted in English-speaking environments. The importance of Finnish language proficiency from an employment perspective is not always sufficiently emphasised, and misconceptions may exist, as one respondent also notes:

> *"We were told that Finnish was not necessary for many jobs. However, it is a strong advantage for those that have it."*

Altogether 16% of respondents are not currently studying Finnish. Most of these are doctoral students. This can be explained by the highly international nature of doctoral studies and research, as well as the high level of mobility within these fields. The remaining respondents study Finnish in one or more ways. The most common approaches are self-study and courses offered by higher education institutions. In addition, Finnish is studied through online courses, language schools and at work. A more detailed breakdown of these is presented in Figure 21.

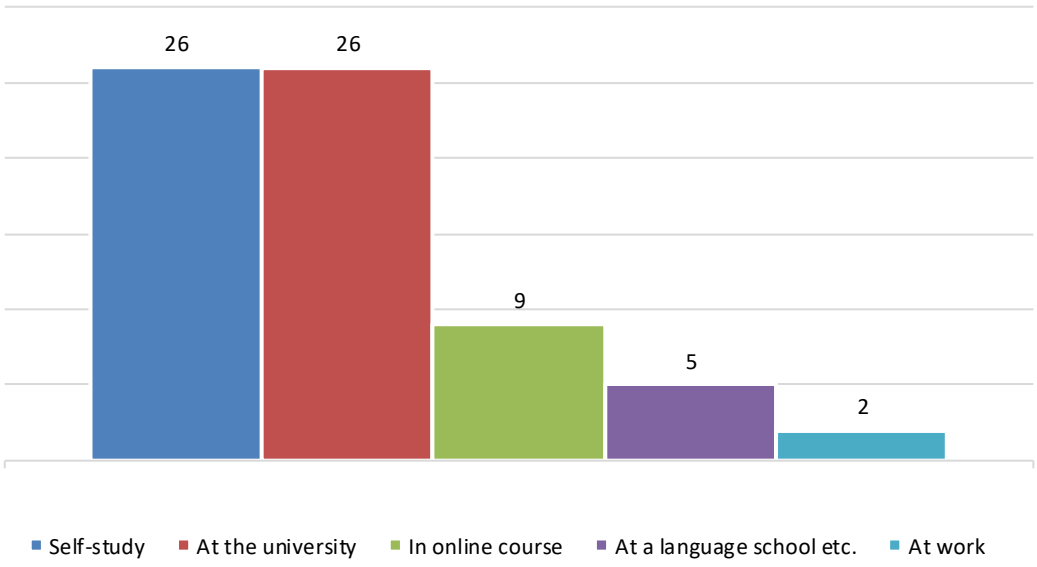


Figure 21. Methods used by international students to study Finnish (multiple-choice question).

Respondents' experiences of receiving sufficient support for learning Finnish varied across all language proficiency levels. The need for support is nevertheless high, as only 30% felt they receive enough support with their Finnish studies. The respondents suggested several ways to improve the support available. Many wished for free and high-quality learning materials. The most frequently mentioned need was the opportunity to practice speaking Finnish in groups and with native speakers. Higher education institutions are expected to offer more Finnish-language courses integrated into degree studies, and a proper diploma-type program for learning Finnish is wished for. Some noted that their university provides only basic-level courses and that courses fill up quickly. Courses offered by certain universities were also described as very non-structured. Respondent described their expectations and suggestions regarding Finnish language education as follows:

> *"I would need more practical and flexible support for studying Finnish. This includes courses that focus on every day and work-related language, more opportunities to practice speaking with native speakers, and study options that can be combined with work."*
>
> *"For example, in Germany, first-year students are entitled to one year of free language classes. I believe that if Finland offered similar support to students, not just their dependents, it would greatly improve language learning and integration."*

Most respondents reported that a lack of Finnish language skills affects several areas of life. The most mentioned challenges relate to employment, social relationships and integration. Respondents felt that finding employment outside the university is difficult with limited language skills. Employment in large, well-established companies was also perceived as challenging, even though these are often perceived as the most promising employers for international professionals. According to one respondent, Finnish is either not required at all or fluent proficiency is expected. Motivation to learn the language may decrease if it is not perceived as necessary or if partial proficiency is not seen as useful. Below are excerpts describing the impact of Finnish language proficiency on employment.

> *"You have far lesser opportunities in the industry if you don't speak Finnish"*
>
> *"My applications for the desired roles are being rejected, and the reason is always given as lack of Finnish."*

Most respondents reported their English language skills to be at a proficient user level. The assessment of language proficiency and its perceived positive or negative impact appeared to be highly subjective. Among respondents who evaluated their English skills

as weaker, the impact on integration and employment was perceived as somewhat positive, whereas a native speaker evaluated the impact of their English proficiency on these aspects as somewhat negative. Only two respondents were native speakers of English, and neither considered their English language skills to have a positive effect on employment or integration. Overall, regardless of proficiency level, English language skills were generally perceived to have a positive impact on employment and integration. Fewer than 10% of respondents reported a negative impact.

4.1.2 International Students' Social Life and Student Associations

The social circles of international students were predominantly international or mixed, combining Finnish and international contacts. A small share of respondents reported not having established social circles at all. The composition of international students' social circles is illustrated in Figure 22. Studies played a crucial role in social integration, with nearly 80% of respondents indicating that their social networks were formed through their degree programs. Other commonly mentioned areas included hobbies, student events, work or internships and student organizations.

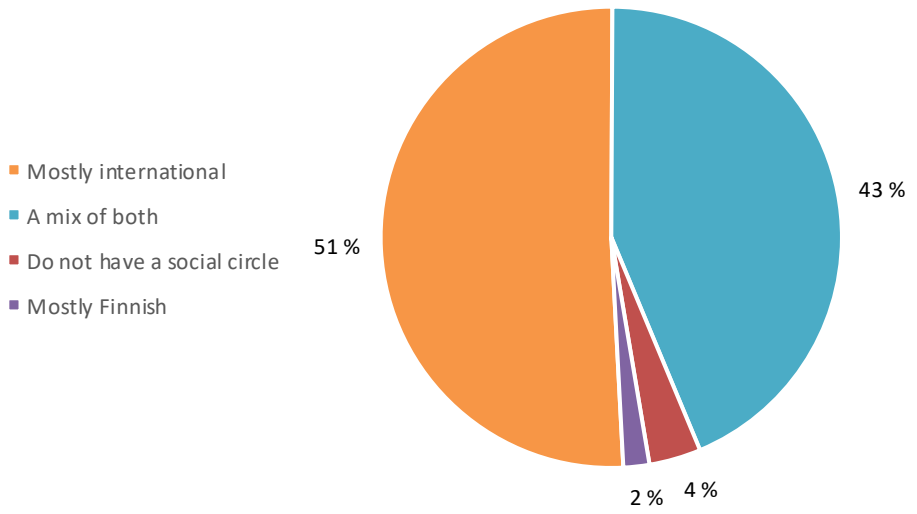


Figure 22. The composition of international students' social circles.

Most respondents perceived their student organizations as welcoming, although a notable minority did not share this experience. It is wished that associations would communicate more with English. Doctoral students felt less included, as fewer events were organized for them and their integration within student organizations varied highly across associations. In addition, integrating international students more fully into organisational

activities and decision-making was identified as an important way to strengthen inclusion and a sense of belonging. Barriers to participation included lack of time, limited information, language barriers and uncertainty about inclusivity. Respondents expressed a preference for structured and purposeful events combining social interaction with networking or career development. One respondent described their expectations regarding events as follows:

> *"I would attend events that focus on networking, career development, cultural exchange or social activities where international students feel included."*

When asked how student associations could become more welcoming, respondents consistently highlighted the importance of clearer communication in English, inclusive event design and mentoring or buddy programs with local students. In addition, one respondent described areas for development in student associations as follows:

> *"The student organization could provide information and guidance about studying and living in Finland and encouraging mentorship or buddy programs with local students. Clear communication in English and inclusive activities would also help international students feel more included."*

4.1.3 International Students' Employment and Career Prospects

Employment emerged as one of the most challenging aspects of international students' experiences in Finland. At the same time, it is also one of the most significant factors influencing whether individuals choose to stay in Finland or leave. More than half of the respondents perceive their employment opportunities to be weaker compared to those of Finnish students and professionals, while fewer than 10% believe their employment prospects to be fully equal to those of Finns. Figure 23 illustrates how the responses regarding opportunities to find employment are distributed across all respondents.

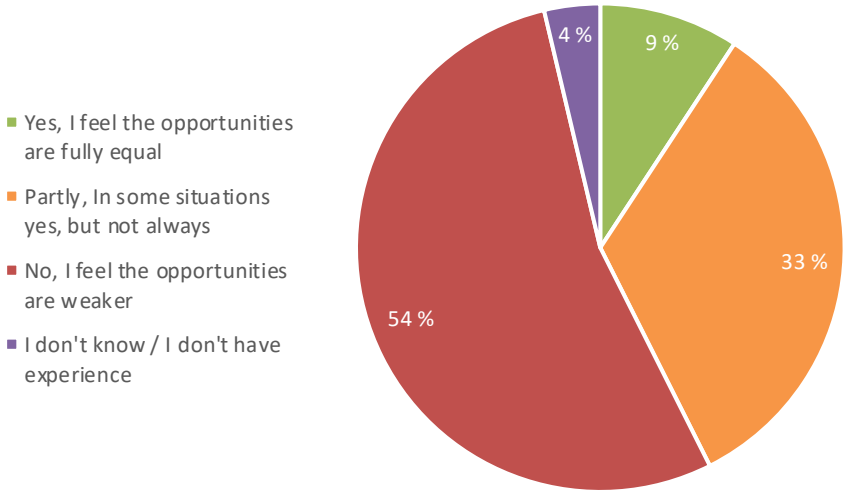


Figure 23. Are the opportunities equal to find employment in Finland compared to Finnish students/professionals?

When discussing solutions to unequal opportunities, several recurring themes emerged from the responses. The most frequently highlighted measures related to fair and transparent recruitment practices. Respondents emphasised the importance of reducing unnecessary language requirements, recognising foreign qualifications and work experience and implementing bias-free recruitment processes, for example through anonymous applications and clearly defined job criteria. Another commonly mentioned theme was the need to lower language barriers, both by increasing the use of English in the workplace and by supporting Finnish language learning and gradual integration rather than requiring high proficiency from the outset. In addition, respondents stressed the importance of improving access to practical opportunities, such as internships, thesis positions and mentoring programmes, which can help international students build networks and gain relevant work experience. Finally, stronger employer awareness and a shift in attitudes towards valuing international talent were seen as essential for creating more equal opportunities in the Finnish labour market. One respondent commented on the situation as follows:

> *"I noticed that opportunities were not equally accessible, especially getting a job. These experiences made me feel less welcomed and supported."*

Nearly 80% of respondents considered employment in Finland to be challenging (Figure 24). The remaining respondents found employment somewhat difficult or were uncertain about their prospects, while none of the respondents perceived employment in Finland to be easy. Among other factors, this may be influenced by perceived unequal opportunities compared to Finnish students and professionals.

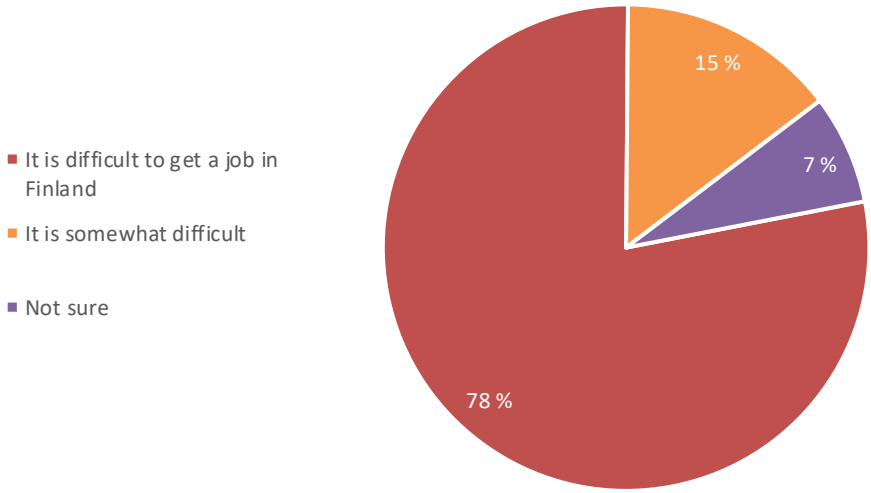


Figure 24. International students' experiences of employment in Finland.

A total of 85% of respondents identified Finnish language proficiency as one of the main challenges in finding employment in Finland. Given the current labour market conditions, it is understandable that the second most reported barrier was the limited availability of jobs in the field. Other challenges highlighted by respondents included difficulties in networking, perceived cultural bias from employers and a lack of work experience. Work permit–related issues were identified as one primary concerns by 13% of respondents. These main challenges for finding employment are listed in Figure 25.

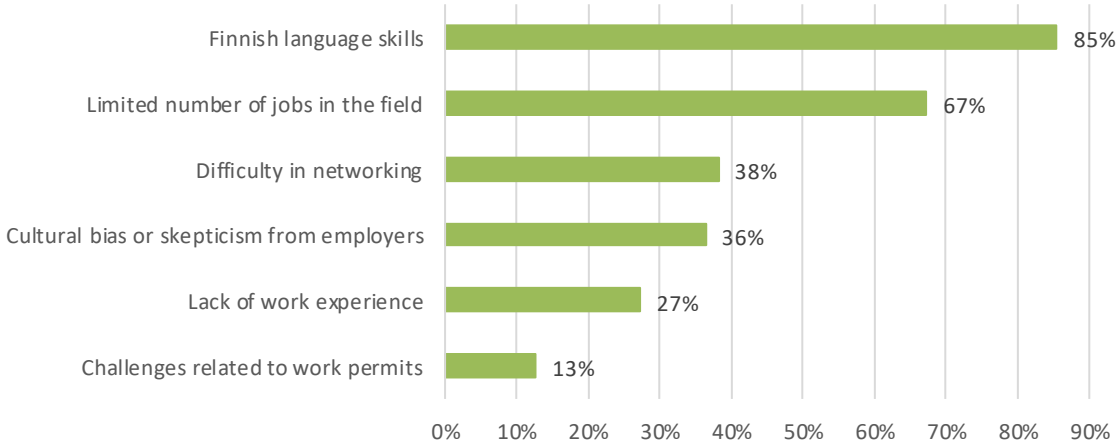


Figure 25. Main challenges for international students in finding employment in Finland.

Approximately 30% of respondents reported having received no support for employment, including some who had lived in Finland for several years. Informal networks especially family, friends, mentors and alumni were identified as the most significant sources of

support, underscoring the central role of personal connections. Approximately one in five respondents had received support from university career services. Sources of support for employment are listed in Figure 26.

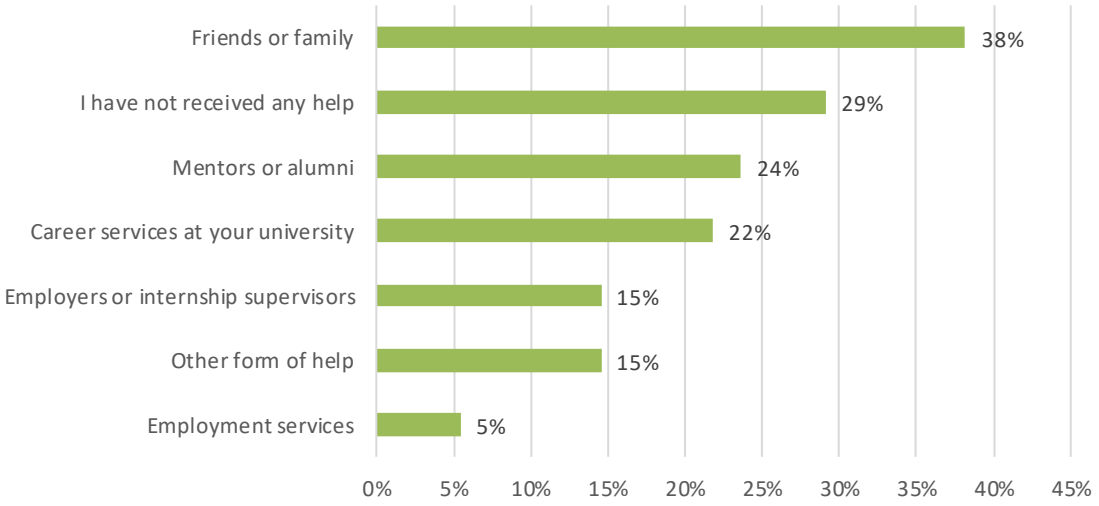


Figure 26. Sources from which international students have received support in finding employment in Finland.

Respondents called for more transparency in recruitment processes, better recognition of foreign qualifications and stronger collaboration between universities and industry. Several emphasized that while language requirements are understandable from an employer perspective, expectations should be realistic and accompanied by supportive and encouraging measures. Respondents also expressed a need for opportunities to demonstrate their skills, as illustrated by the following comment:

> *"Please give us some chance for professional growth and to show our expertise, not keep it within language."*

Respondents whose employment is affected by residence and work permit issues were evenly divided between those who perceived these requirements as barriers and those who felt they facilitate working in Finland. Respondents also expressed a need for more information about hidden job opportunities, as well as interest in internship-like or trial work arrangements. There was a clear expectation that the ideas, perspectives and creativity of international students should be more actively sought and valued. Furthermore, respondents indicated that studies could better support employment in some areas. They highlighted the need for more information about recruitment processes, as well as stronger and more effective collaboration between companies and academia. When reflecting on skills insufficiently addressed in their studies, respondents most commonly identified networking and professional relationship-building, industry-specific digital tools and Finnish language skills as the most important gaps. These findings further highlight

the need and demand for more comprehensive Finnish language education as well as improved opportunities for networking. The following presents one respondent's suggestion on how to improve the employment of international talent.

> *"Equalise hiring by recognising foreign qualifications, reducing unnecessary language requirements, promoting bias-free recruitment, offering paid traineeships, and incentivizing employers to value international skills in the national workforce strategy."*

When describing their future career aspirations, some respondents identified a specific job role or company, while others focused on a particular field or geographic location. A few respondents expressed their goals in broader and more general terms. Nevertheless, it is evident that the respondents have professional ambitions and clear career goals, many of which they would prefer to pursue in Finland if given the opportunity. Respondents showed a strong interest in research and the development of new materials when identifying the most appealing sectors within the forest industry. This highlights the potential of international talent to contribute to innovation and to support the long-term development and renewal of the forest industry. As many as 80% of respondents consider it likely that they would work in the Finnish forest industry (Figure 27). This relatively high share suggests that many are interested to stay in Finland if suitable jobs are available and are interested in the forest industry.

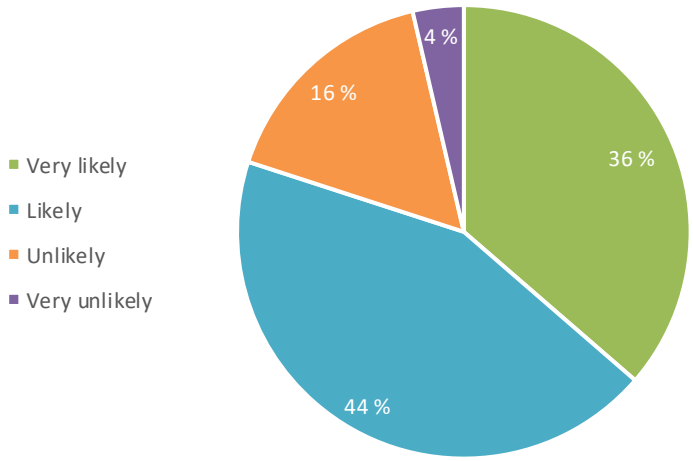


Figure 27. Respondents' likelihood of working in the forest industry in Finland.

Having a mentor or a close industry contact was strongly desired. Almost 40% of respondents reported having such a connection, while nearly all others expressed a wish to have one. Such contacts can be established, for example, through mentoring programmes, studies and events organized through collaboration with higher education institutions and student organisations. Time spent in Finland did not significantly increase

the likelihood of forming these connections, highlighting a structural gap in supported networking opportunities. The need for mentoring was particularly emphasised in the case of doctoral students, as is also reflected in the following response:

> *"It would be highly beneficial for PhD students to receive mentorship from industrial partners during their studies. Such guidance would provide clearer insight into industry expectations and help students align their skills and expertise with the needs of Finnish forest-sector companies, ultimately improving their employment prospects."*

4.1.4 Support, Integration and Experiences of Discrimination

The survey answers highlight a strong interconnection between the support received by international students, their level of integration and their experiences of discrimination, all of which influence their employment outcomes and decisions to remain in Finland. Respondents consistently emphasised that limited job opportunities, combined with discrimination and linked to language barriers, significantly affect their future. As one respondent noted:

> *"I know many international students who leave Finland immediately after their studies, often due to a lack of job opportunities and discrimination linked to language barriers."*

Integration was widely understood by respondents as closely linked to Finnish language proficiency, as well as to the availability of support for developing such skills. While language competence was seen as essential for integration, respondents also recognised that responsibility for integration is shared between international students and the surrounding society. In addition to language, respondents highlighted the need for more structured and effective support mechanisms, particularly during the early stages of their stay in Finland. This is reflected in the following suggestion:

> *"There could be communities and classes where we are told how to act on our first year in Finland to make it easy to integrate well but not just words, in an effective way."*

Support for integration was perceived as fragmented across multiple actors, including universities, student organizations, employers and public services. Support needs were most frequently directed toward higher education institutions, which were expected to play a more active role in bridging the gap between education and employment. Re-

spondents emphasised the importance of career guidance, mentoring and increased co-operation between universities and industry, particularly through internships and studies. Such measures are closely linked to academic integration, as they support students' ability to connect their studies with future career paths. At the same time, participation in networks, student organisations and community activities was recognised as crucial for social integration, enabling access to professional networks and informal job opportunities.

In addition to universities, respondents identified employers and public sector actors as important providers of support. These included language education, integration services and guidance related to employment and everyday life. Informal support networks, such as family and friends, were also acknowledged as significant. However, some respondents pointed out inequalities in access to support, noting that integration services are often more readily available for individuals with families than for those coming alone. This highlights potential gaps in the current support system that may affect integration outcomes.

Support for studies was most commonly provided by higher education staff, but assistance from international peers was reported nearly as frequently. This was followed by support from family members and, to a lesser extent, from Finnish friends. The different sources of support and the proportion of respondents receiving assistance from each are presented in Figure 28. These findings highlight the significant role of close social networks and friendships in supporting studies. Family support is particularly important, also in the context of covering tuition fees and thereby enabling study opportunities.

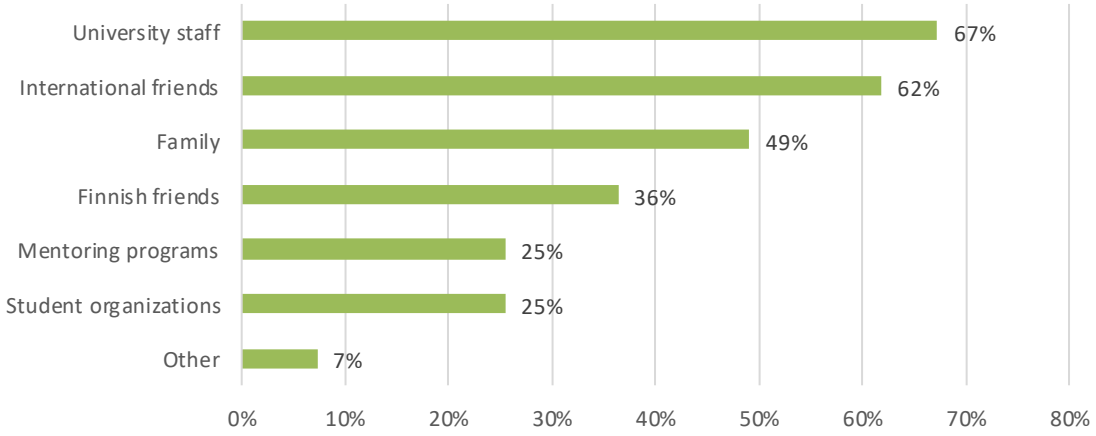


Figure 28. Share of respondents who reported receiving support from different sources during their studies.

Experiences of discrimination emerged as a major concern and were directly linked to employment opportunities. Respondents reported that discrimination influences recruitment decisions and access to jobs, often in subtle or indirect ways. Experiences of discrimination were reported by a substantial share of respondents. Half of the respondents indicated that they had experienced discrimination related to their ethnic background (Figure 29), highlighting the significance of the issue. Discrimination was also identified by respondents as one of the reasons for leaving Finland, further emphasising its impact on international students' decisions regarding their future.

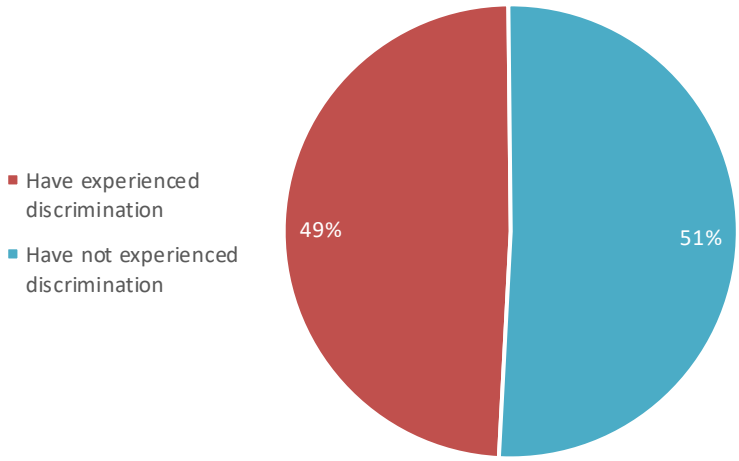


Figure 29. The proportion of respondents who have experienced ethnic discrimination.

Figure 30 shows the proportion of respondents who have experienced discrimination in different situations or contexts. One in four respondents have experienced discrimination in public places and during job application processes. Discrimination was also reported within work and educational contexts, including universities and student organizations. Respondents associated these experiences with reduced employment opportunities and feelings of exclusion. The forest industry has also clearly failed in this regard, as the proportion of individuals who have experienced discrimination remains significant, both during the recruitment process and in working life.

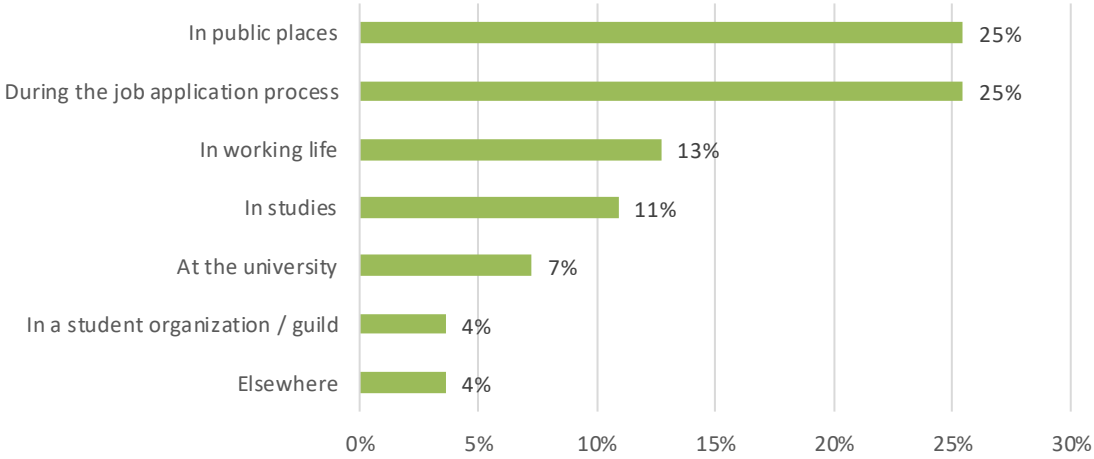


Figure 30. Situations in which respondents have experienced discrimination.

More severe forms of perceived discrimination were also reported, including the devaluation of foreign education and experience. These experiences suggest that discrimination may operate both at the level of individual interactions and within broader organisational structures. One respondent described how structural inequalities and potential bias within recruitment and workplace practices can happen:

> *"Former studies are mocked and not considered as good because are done in a different country, as a foreigner one needs to run ten times faster and still hear "lazy", "unskilful" etc, especially the pulp and paper system as I know it is a big caste system, can get in mostly if there some family already working there, besides cultural discrimination, there also a gross age discrimination for younger workers, even with Finnish background and native language skills."*

The lack of transparency in recruitment processes further reinforces these challenges. Respondents noted that they often do not receive clear feedback when applying for positions matching their qualifications, leaving them uncertain about the reasons for rejection. This creates a perception that both conscious and unconscious bias may influence hiring decisions. Additional concerns included language-related assumptions and the need for international candidates to repeatedly prove their competence in both language and education.

4.1.5 Reasons to Stay in or Leave Finland

Slightly over half of the respondents plan to remain in Finland after graduation, while 11% intend to leave the country. The remaining slightly over one-third are still uncertain about their future in Finland, as illustrated in Figure 31. This uncertainty may stem from several factors, most notably challenges related to integration and especially employment prospects. Even among those who express a willingness to stay, remaining in Finland cannot be taken for granted, as the necessary conditions and opportunities must be actively ensured. Achieving the target set during the Marin government, according to which 75% of international graduates would remain in Finland, appears unlikely unless these outcomes and their underlying causes are addressed more effectively.

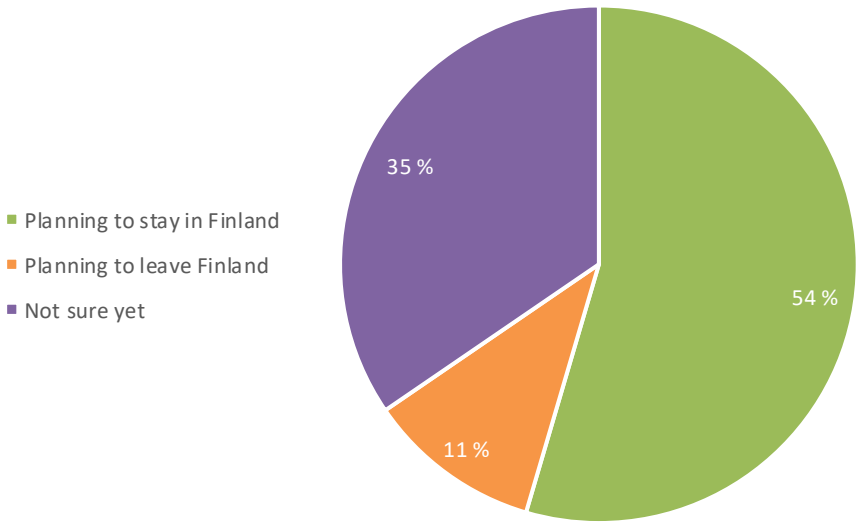


Figure 31. Respondents' intentions to stay in or leave Finland after graduation.

The reasons for staying in or leaving Finland identified by the respondents were largely consistent with those reported in previous studies and literature. Among the given options, the following were most frequently selected. The main reasons for staying in Finland, in order of importance, were work–life balance and overall quality of life, career opportunities, opportunities for career growth and development, and competitive salary and benefits. In addition to these predefined options, respondents highlighted several further factors in the open-ended responses, including high-quality education, safety, societal stability and the presence of strong research and sustainability-oriented sectors.

In contrast, the primary reasons for leaving Finland, also listed in order of importance, were a lack of job opportunities in one's field, language barriers, difficulties related to social integration and limited career advancement possibilities. Additionally, in the open-

ended responses, discrimination and the political climate were mentioned as further factors influencing decisions to leave. Main reasons to stay and leave are listed in Table 10. Many respondents expressed a strong willingness to build long-term careers in Finland, provided that structural barriers to employment and integration could be reduced. Family or a relationship may, depending on the respondent, be either a reason to stay or to leave.

Table 10. The four most frequently named reasons for staying in and leaving Finland among international students.

Main reasons to stay in Finland:	Main reasons to leave Finland:
Work-life balance and quality of life	Lack of job opportunities in my field
Career opportunities (e.g. job availability in my field)	Language barrier
Opportunities for career growth and development	Difficulties with social integration
Competitive salary and benefits	Limited career advancement possibilities

Although there is a desire to remain in Finland, it is not always feasible in practice due to various constraints. The decision is influenced by a combination of personal, external and structural factors, as illustrated by the following respondents:

> *"The decision often balances opportunity, belonging and long-term professional growth"*
>
> *"The current political climate is very anti-immigration, often blaming foreigners for social and economic issues. This has made me feel unwanted and unwilling to plan a future in Finland."*

4.2 Student Association Survey

The associations that responded to the survey represent either domestic students or both domestic and international students. In Table 11 is listed the responding associations, their fields of study and their institutions. Three of them are from UAS and seven from universities. Each association provided one response, given by individuals selected by the chair of that association. All these associations collaborate or have collaborated with PI.

Table 11. The responding associations, their fields of study and institutions.

Student Association	Field of study	University
Elba ry	Process and materials engineering	Turku University of Applied Sciences
Kemistklubben vid Åbo Akademi rf	Chemistry and engineering	Åbo Akademi University
Kemiantekniikan Kilta ry (KeTeK)	Chemical engineering	LUT University
Puumekanistikerho ry	Mechanical wood processing	Aalto University
Materiaali-insinöörikilta ry (MIK)	Materials science and engineering	Tampere University
Paperikerho ry	Bioproduct engineering	Tampere University of Applied Sciences
Puunjalostajakilta ry (PJK)	Bioproduct engineering	Aalto University
Oulun yliopiston Prosessikilta ry	Process engineering	University of Oulu
Prosessiteekkarit ry	Chemical engineering	Aalto University
Savonlinnan Insinööriopiskelijat SAIO ry	Engineering (including bioproduct engineering)	Xamk (Savonlinna campus)

One student association operating at a university of applied sciences reported that they do not have any international degree students, only exchange students. Therefore, they did not answer the questions beyond the background information. When reviewing the results and referring to the number of respondents, the analysis is based on nine student associations.

4.2.1 International Students as a Part of Student Associations

The number of English-speaking members varies considerably between student associations, ranging from none to several dozen. International members are most commonly concentrated among master's students, although this distribution differs across associations. Only three associations reported that international students typically join as members, others indicated that international participation remains limited. In some cases, doctoral students are not eligible for membership at all. As a result, international students are not consistently involved in student association activities, highlighting the need to improve inclusion across different degree levels.

All associations that reported having international members stated that they aim to involve them in their activities, and that some level of participation already exists. Eight associations aim to recruit international students as members and seven seek to encourage them to take part in events. Six associations aim to integrate international students

into student community. Three reported that they support international students in employment-related matters and in advocacy issues concerning them. These ways student associations aim to support international students are listed in Figure 32.

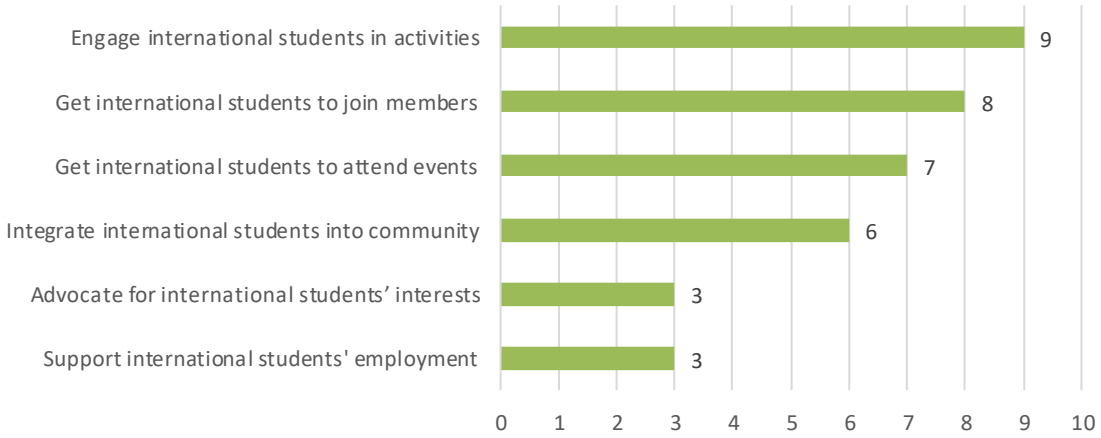


Figure 32. Objectives that student associations aim to do and the number of associations pursuing them.

The survey focused on international students. However, comparable data on domestic students would have provided a valuable point of reference. It can nevertheless be assumed that most organisations aim to do objectives illustrated in Figure 32 also to their domestic students. This raises the question of why international students are treated differently, or why their role within organisations differs from that of domestic students.

Approximately half of the student associations identified the main barriers to international students' integration as limited language skills, low participation in activities and a lack of interest in interacting with domestic students. Two respondents also identified the same factors from the opposite perspective, noting that the language skills and willingness of domestic students to interact play a role as well. One respondent described language-related challenges as follows:

> *"Integration is actively supported through bilingual practices. Challenges to integration are partly caused by Finnish -speaking students' stress related to their own [English] language skills and engaging in informal conversations in event settings. As an association, we aim to enable students' integration into the community; however, individual tensions and preconceived concerns about one's own language proficiency remain a significant challenge."*

All respondents agreed that activities supporting the integration of international students already exist in some form. All student associations aim, in one way or another, to take international students into account in their activities. However, the methods used, as well as their level of activity and effectiveness, may vary considerably between associations.

The ways student associations take international students into account are listed in Table 12.

Table 12. Ways student associations take international students into account and how many do each thing. (N=9)

Ways to take international students into account	Share
Our association has a designated person responsible for international student affairs	67%
All communication of our association is also in English or entirely in English	67%
All our events are open and worth to participate for international students	56%
Our association introduces itself to international students at the beginning of the semester	44%
We organize events or activities where members with different language background can get to know one another	44%
International students have a genuine opportunity to apply for and be elected to the board/official positions	33%
We organize events specifically targeted at international students	11%

Only three associations enable international students to genuinely apply for and participate in board and official positions. In all these associations, an international student has either held or is currently holding such a role. This indicates that when international students are offered a genuine opportunity to participate in organizing and decision-making, they are willing to do so. Most student associations have a designated person responsible for international students. In many cases this person, with the help of tutors, is also the one who is in contact with international students and is the first and main link between association and international students.

The inclusion of international students in activity and event planning varies between associations. Three student associations reported that international students are not considered at all in this context. Only one association indicated that doctoral students are included in activity and event planning. As a result, doctoral students remain outside the communities created by student associations and are thus placed in an unequal position compared to bachelor's and master's students. While the nature of doctoral studies differs, opportunities for participation or, alternatively, a clearly defined responsible for connecting doctoral students should be established. The importance of such structures becomes increasingly evident as the number of doctoral students has grown, and similar communities already exist, as discussed in the theoretical framework. International bachelor-level students are considered most frequently, with seven associations reporting that they actively consider them when planning activities and events.

Only one student association reported that international students participate in events on a regular basis. According to two respondents, international students almost never attend events. The remaining six indicated that international students participate occasionally. This is visualized in Figure 33. In some higher education institutions, international students have their own associations. They often prefer to participate in events organized by these associations. These associations may be better resourced to address the needs of international students. However, this can also lead to the separation of domestic and international students into separate groups. One reason named for the lower level of activity among international students is that many international students are in later stages of their studies, such as the master's or doctoral phase. In one association, international students are also located in a different city than the association itself, which makes organizing events and activities more challenging.

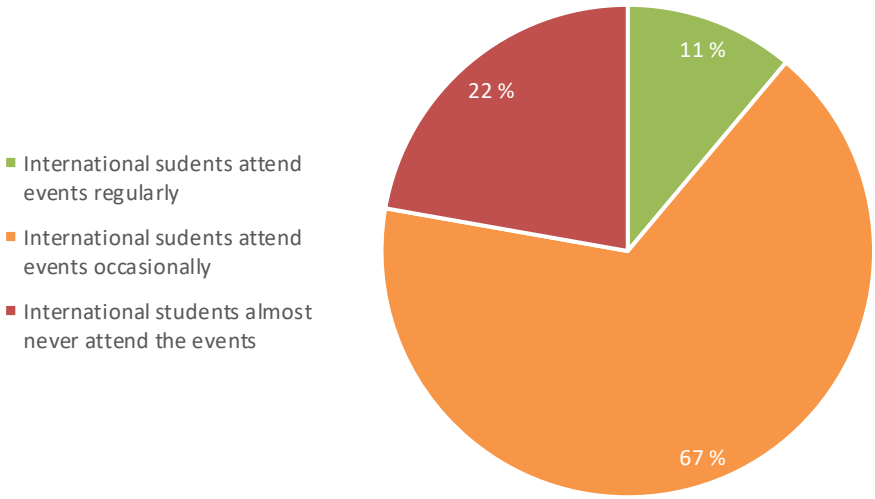


Figure 33. Activity of international students participating in the events.

Events by these associations provide international students with an important opportunity to meet and network with students from different year groups and with domestic students as well as with other international students. However, for events to be genuinely accessible and appealing, language issues must be considered, and international students must be effectively informed about upcoming events and encouraged to participate. Student associations recognize the need to further develop the participation of international students in activities and events, as well as the provision of events specifically targeted at international students. At the same time, international students themselves need to show interest in the activities and priorities time for participation.

4.2.2 Importance of Student Associations

Almost all respondents reported playing a significant role in tutoring international students and thereby supporting their integration into the student community and wider society. The contribution of student associations to the integration of international students can be both positive and substantial. Eight associations are responsible for international tutoring, either through selecting tutors, providing tutor training or both. In addition, six associations consider themselves responsible for supporting international students' integration into the student community and five help with practical matters. One example of practical help is starter kits with essential household items that can be shared with international students. Practical help can also relate to studies or housing otherwise. However, not all associations fully recognize or acknowledge the importance of their role in this integration process. Distributions of these are visualized in Figure 34.

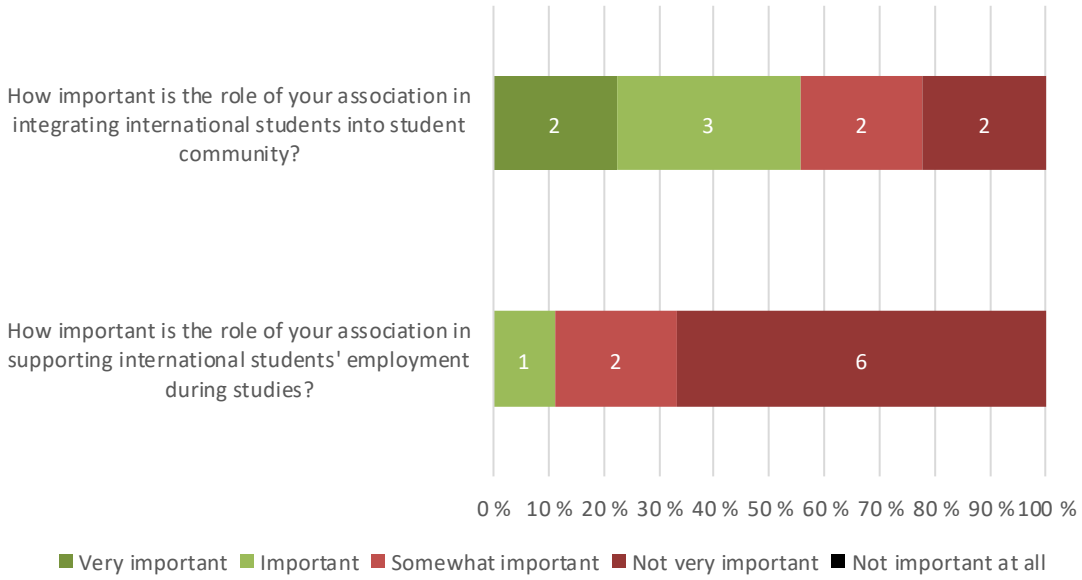


Figure 34. Perceived importance of student associations' role in international students' integration and employment support.

Only one respondent considered their role in supporting international students' employment to be important. Six respondents viewed their role as not very important. In contrast, five respondents considered their role in promoting the integration of international students into the student community to be important or very important. Accordingly, student associations perceive their role as more significant in supporting integration than employment. Nevertheless, at their best, student associations can have a significant positive impact on both. Not all fully recognise that building networks and engaging in collaboration with companies can also significantly support employment outcomes.

Board and officials of student association change typically each year. As a result, documentation as well as long-term planning and development are particularly important for ensuring continuity and the high-quality implementation of activities. Six respondents stated that they document activities related to international students to make development and implementation easier. Five indicated that their action plan or activity descriptions include a section addressing activities related to international students, and three reported that international students are mentioned in their strategy. International students appear to be only partially considered in the long-term planning of organisational activities. As student association work is a form of voluntary work, the role and contribution of individual actors are highlighted. Documentation and systematic planning can therefore be seen as factors that support continuity and help ensure more consistent and high quality activities.

4.2.3 Support Needs of Student Associations

Student associations would like to receive more support from both higher education institutions and student unions. From higher education institutions, they wish for better information about the arrival of international students and access to their contact details, which would make reaching them easier. Higher education institutions and their staff could also support the organization of company visits by providing contacts or financial support. Company visits should be diverse and organized frequently, but some associations arrange them only rarely due to costs. From student unions, student associations hope for increased support for the integration of international students. Especially smaller subject associations lack sufficient resources to address all needs. Overall, more financial support is needed from both higher education institutions and student unions. One respondent commented on company visits as follows:

> *"We would like more support for company visits. It would be beneficial to have them more frequently, but due to costs they are currently quite rare."*

4.3 Company Survey

A total of 16 company representatives responded to the survey. The survey was anonymous, meaning that the exact number of individual companies represented cannot be identified. The forest sector consists of companies of highly varying sizes, including very large corporations, which may also show considerable internal variation depending on business area and geographic location. For this reason, the number of responses per company was not restricted. The data were otherwise considered appropriate. However,

one representative from a large company provided a few inappropriate comments regarding integration and discrimination. These responses were acknowledged but were not examined in further detail. Nevertheless, they reflect existing attitudes and challenges within the industry.

The distribution of responses by company size is presented in Figure 35. Eight of the responses were provided by very large companies with more than 1,000 employees, three by large companies (250–999 employees), one by a medium-sized company (50–249 employees) and four by small companies with fewer than 50 employees. The responding companies operate across Finland, and all have activities at least in Southern Finland. This highlights that, despite the geographical distribution of industrial operations across Finland, many key activities and opportunities remain concentrated in the Helsinki metropolitan area. Many operate both in remote, smaller locations and in central, larger cities. Apart from one case, all companies either export, operate subsidiaries or offices abroad and form part of an international corporate group. This further illustrates the industry's global nature and supports the idea that international talent is needed in the sector.

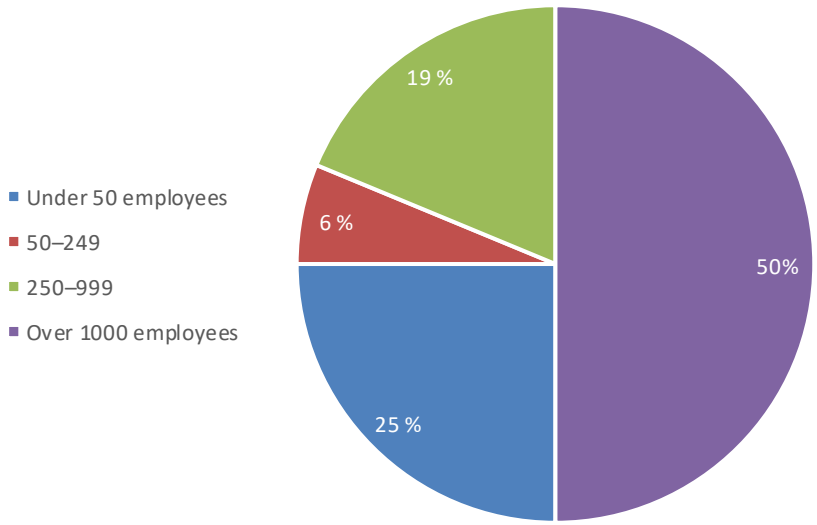


Figure 35. Distribution of responses by company size.

The companies represent a wide range of business areas, indicating that they collectively employ a broad group of professionals and experts within the field. The most strongly represented area within respondents is the pulp and paper industry, but respondents also operate in forest management and wood procurement, sawmilling, packaging materials, other bioproducts and new materials, automation systems, equipment manufacturing, chemicals, research, as well as design and consulting. The number of each specific field represented in Table 13. All other groups were represented, except for one field

of operation: measurement and analysis. Consequently, the survey successfully captured perspectives from a diverse set of forest industry companies.

Table 13. The number of respondents representing each business area, with respondents allowed to select multiple options.

Company's/Department's specific field of operation	Share
Pulp and paper industry	50%
Design and consulting	31%
Packaging materials	31%
Other bioproducts or new materials	31%
Other	25%
Sawmill industry	25%
Forest management and wood procurement	19%
Chemicals	13%
Automation systems	13%
Research	13%
Equipment manufacturing	6%

4.3.1 Employees' Language Skills and Requirements

Based on the responses, the language skills of current employees do not appear to be directly linked to company size in this sample. Therefore, no conclusions can be drawn about language requirements or the prevalence of international employees solely based on company size. Over 80% of respondents reported having some employees who are unable to work in English, and nearly 70% reported having some employees who are unable to work in Finnish. Conversely, this means that nearly 20% of respondents reported that all their employees are proficient in English, while just over 30% stated that all employees can work in Finnish. Figure 36 illustrates graphically the share of companies in which employees can work in each language and the share of those who cannot work with that language.

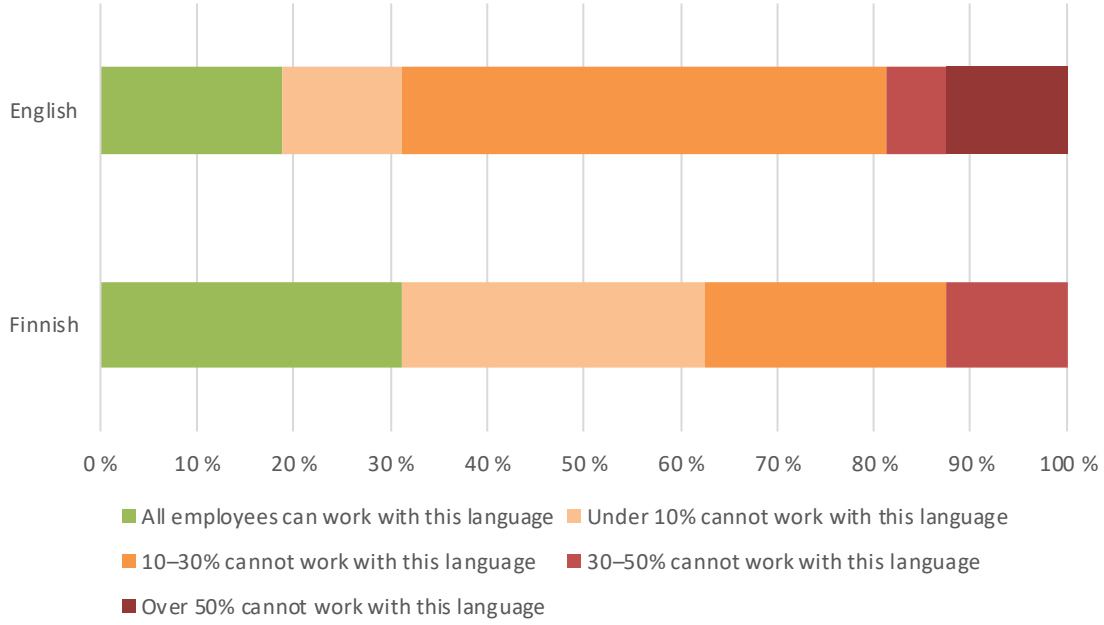


Figure 36. The percentage of employees that can or cannot work with English/ Finnish by each respondent.

In international industry, particularly in multinational companies and diverse work environments, the use of English as a working language is both expected and increasingly common. However, the role of the Finnish language in workplaces must also be understood, especially in situations where a significant proportion of employees are not able to work in English. Among the survey respondents, 13% reported that more than half of their employees are unable to work in English. Such a large proportion of non-English-speaking employees has a significant impact on whether a workplace can operate bilingually and makes the integration of English-speaking employees into the work community more challenging. Developing an effective English or bilingual working environment and workplace culture is therefore an important factor in improving employment opportunities for international talent in the Finnish forest industry.

However, all companies reported having positions that do not require Finnish skills. One small company stated that none of its positions require Finnish at all. Otherwise, companies were distributed relatively evenly regarding language requirements. Notably, five respondents indicated that Finnish is required in more than 80% of their positions. Figure 37 shows how many companies and jobs require English/Finnish and the percentage of those.

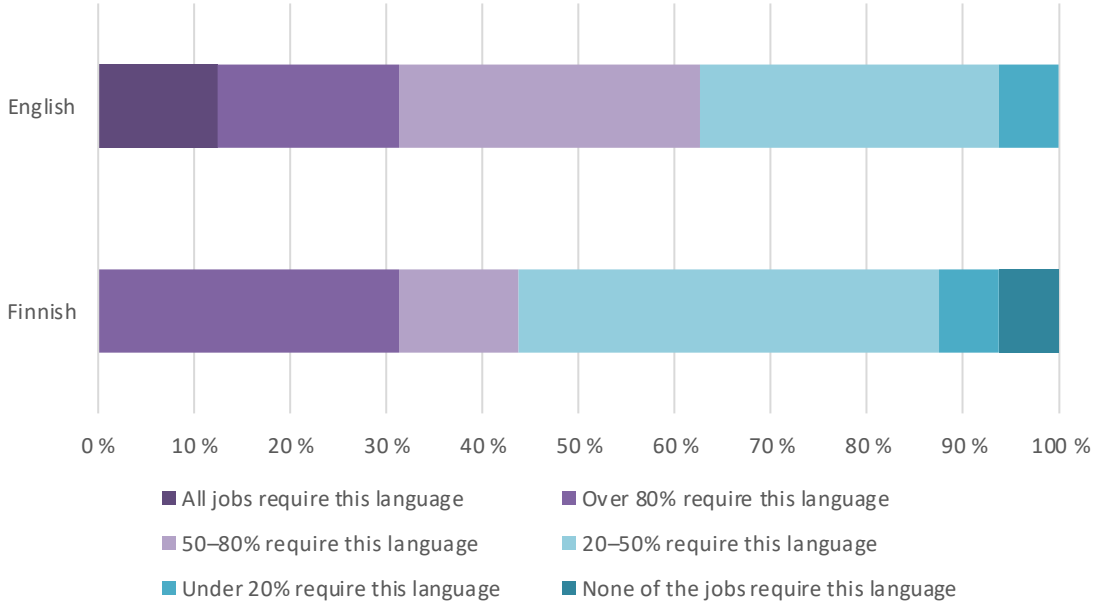


Figure 37. The percentage of jobs that require English/Finnish by each respondent.

According to several respondents, the requirement for Finnish relates to occupational safety, to the fact that not all colleagues speak English and the need to communicate with customers or stakeholders in Finnish. Almost 20% acknowledged that Finnish is sometimes required even when it is not strictly necessary for the job. The barriers created by Finnish language requirements were also identified:

> *"We need to more accommodate ourselves as there are many great talents who we could hire if we wouldn't have the language barrier."*

Some companies also stated that Finnish requirements are done because internal communication is mainly conducted in Finnish or even historical aspects, and in one case because collaboration with elected employee representatives must take place in Finnish or Swedish. English, on the other hand, is required in at least some tasks in all responding companies, and in two companies English is required for all positions. One respondent described the reasons for Finnish language requirements as follows:

> *"Deciding on the language requirements of the position comes a lot from the history of the position. Many of the positions have been back in the day only in the local language, but now due the global set up and globalization, English has been very important part of the role requirements. But due to the historical aspect, the local language requirement has not vanished fully."*

The skills most desired in applicants, beyond hard skills, include teamwork and collaboration skills, practical problem-solving ability, self-leadership and time management,

adaptability and readiness for change, as well as intercultural competence and language skills. Companies identified a lack of basic professional skills in areas such as paper and process technology, maintenance competence, occupational safety, natural sciences, languages and AI-related skills, especially those concerning collaboration between humans and AI.

4.3.2 Recruitment from a Company Perspective

Only one respondent reported that they are currently using anonymous recruitment, and one stated they plan to adopt such practices in the future. For the remaining nearly 90% of companies, anonymous recruitment is neither in use nor planned (Figure 38). One respondent argued that anonymous recruitment may burden applicants and noted that their company instead focuses on developing inclusivity through other means. This largely depends on how anonymous recruitment is implemented. The use of anonymous recruitment does not exclude other measures, and such approaches should be actively used to support it. If companies have identified effective practices for promoting equality and inclusivity, sharing these best practices across companies would benefit all parties involved.

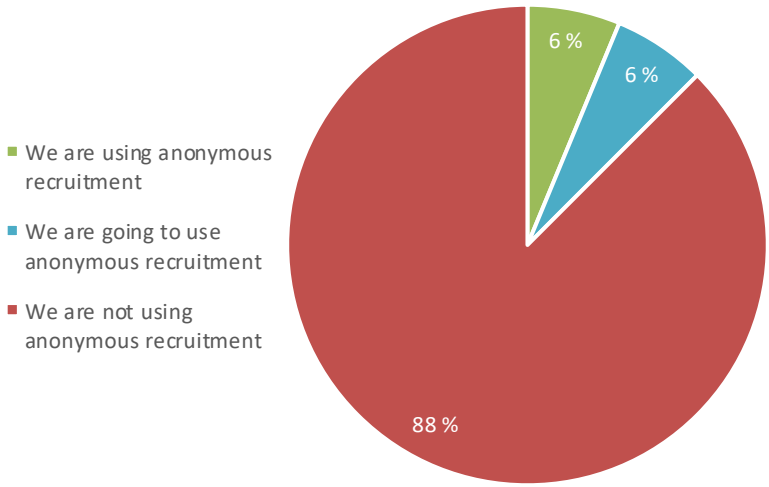


Figure 38. Share of companies using anonymous recruitment.

At least half of the companies foresee a particular or critical future need for the following types of expertise: process, mechanical and automation engineering, digitalization and data analytics, and bioproducts and new materials. One way to secure future skills is to recruit international talent. Companies should therefore proactively build attractive and

supportive workplaces for international professionals, including functional language practices. Previous research shows that diverse work communities benefit employers, although not all respondents shared this view in all aspects. One respondent noted that the company currently prefers Finnish and Finnish-speaking professionals for international roles. However, no reasons for this approach were provided.

> *"At the moment, more Finnish and Finnish-speaking experts are wanted in the company's international tasks."*

Over the past five years, the talent shortage has varied among companies. Some reported no shortage of any type of expertise, while others struggled to find entry-level workers for remote locations, as well as electrical and automation specialists and maintenance personnel. Regarding the target group of this thesis, shortages were noted especially in technical experts in selected fields and international project professionals.

Recruitment efforts to reach international candidates include English-language job advertisements distributed across various channels and countries. Three out of four respondents offer suitable summer jobs for international students and professionals. Blue-collar tasks usually require good Finnish skills, in white-collar roles the emphasis typically shifts, and English becomes more important. However, entering these white-collar roles may still be difficult without prior blue-collar experience.

4.3.3 Support for International Students and Talents

Companies can support international students and talents in various ways, both before and during their employment. Most respondents offer summer jobs, thesis opportunities and company visits suitable for international students and talents. Additionally, some provide networking events, internships, mentoring and trainee programs. However, English-speaking students are not always considered in collaborations, and some companies do not engage with student organizations at all.

Employers can also support their employees' Finnish language learning. Approximately half of the respondents provide such support in some form. None of the companies with fewer than 250 employees offer Finnish language support, meaning that in this sample, only large companies provide it. This is potentially due to available resources or employee demographics. Support for studying Finnish can vary depending on employer. Support types and numbers are shown in Figure 39.

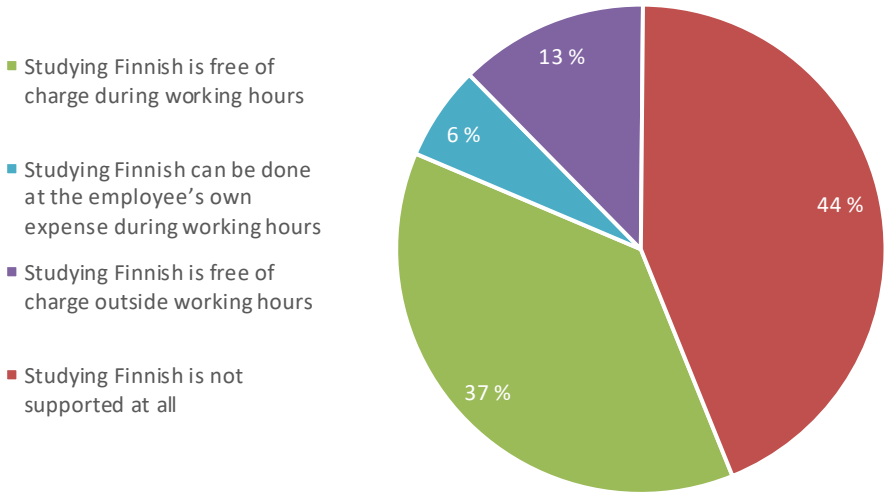


Figure 39. Ways employers can support employees' Finnish language studies.

Some companies do not have practices to support the integration of international talents at workplace. However, more than 60% assist with work and residence permits as well as finding housing. The type of support varies, with one respondent relying on an external service provider for administrative matters and real estate agents for housing issues. Nearly half offer support for broader societal integration. The support forms mentioned are a local buddy for all new employees and organize activities that support integration, such as joint breakfasts, coffee breaks or leisure events. Fewer than 20% extend this support to employees' family members, even though family integration can play a significant role in retention. The number of respondents that offer help for international employees and/or their families to integrate into society are shown in Figure 40. Respondents generally emphasized the importance of supporting international students and talents, noting their increasing importance for the sector's future.

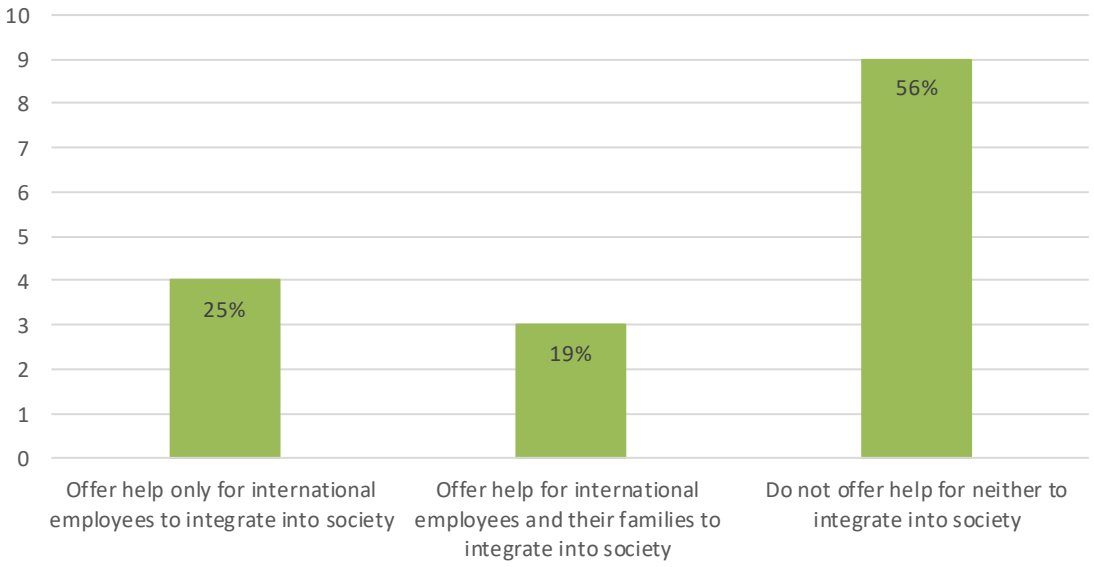


Figure 40. The share of respondents that offer help for internation employees and/or their families to integrate into society.

4.3.4 Addressing Discrimination

Companies described a variety of practices aimed at preventing and addressing discrimination within their organizations. Some emphasized that diversity is considered throughout the recruitment process and people from different backgrounds are involved in the interview stage. Several companies reported having a clear zero-tolerance policy towards discrimination, supported by formal guidelines, established procedures and/or defined consequences in cases of inappropriate behaviour. They also highlighted the importance of fostering an inclusive work environment by ensuring that communication is conducted in a language understood by all employees and by actively supporting the integration of new staff members into the work community. One respondent listed effective measures for preventing discrimination as follows:

> *"Ways to avoid discrimination based on ethnicity: Policies and trainings in place, channels available to report and clear sanctions. In general training on unconscious bias and concrete workshops on how we together create the culture of inclusion"*

In addition, some organizations have implemented policies and training related to diversity, equity and inclusion (DEI). These may include training on unconscious bias, workshops aimed at strengthening inclusive workplace practices and dedicated channels for

reporting concerns, such as anonymous reporting hotlines. Overall, the responses suggest that while approaches vary between companies, there is a shared intention to address discriminatory behaviour promptly and to promote a work culture where all employees feel respected and included.

Half of the companies, however, did not respond to the question regarding ethnic discrimination and its prevention in the workplace. This raises concern, as the absence of a response may indicate that these companies lack established practices for preventing or addressing such issues. These types of practices are valuable both within the company and when interacting with external stakeholders. One company noted that they train managers specifically on how to identify and intervene effectively in situations involving discrimination, but only in some of their business units. Effective practices should be shared both within companies and between them.

> *"In some of our business units train the managers on how to intervene in cases of discrimination."*

5. CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the key findings, discussion and directions for future research. In section 5.1, there is a table for each target group with recommended actions to support the integration and employment of international students in the Finnish forest industry.

5.1 Key Findings

The number of international students in Finland has increased significantly in recent years, driven by policy choices and strategic decisions. Although this growth may stabilise due to factors such as stricter immigration policies and rising full-cost tuition fees, the presence of international students and talents is expected to remain substantial. At the same time, challenges related to their integration, employment and long-term retention in Finland have been widely recognised in both research and practice.

While national-level strategies focus on long-term objectives and outcomes, for individual students these challenges are immediate and have a direct impact on life decisions. Despite diverse backgrounds, international students often face similar barriers in integrating into Finnish society and accessing employment opportunities. These include language-related constraints, limited professional networks and structural barriers in the labour market, as well as experiences of discrimination in academic, professional and everyday contexts.

Language proficiency emerges as a critical factor influencing both integration and employment. The requirement for Finnish language skills in many positions complicates access to jobs that align with students' educational backgrounds. The findings further indicate that many students are willing to remain in Finland if suitable employment opportunities are available. The study period functions as an important pathway to integration. However, its potential is not fully realised for all students. While international students show strong interest in staying in Finland and entering the forest industry, actual outcomes depend on the availability of opportunities and appropriate support structures. Together, these factors shape international students' well-being, integration processes and ultimately their willingness and ability to remain in Finland.

Improving employment outcomes requires coordinated actions at multiple levels, including enhanced language support, stronger connections between studies and working life and more inclusive recruitment practices. These findings also highlight that integration is not solely the responsibility of individuals, but rather a shared process that requires active

involvement from students, organisations and society. Actions supporting the integration and employment of international students are presented in Tables 14–16. Table 14 outlines recommended actions for international students themselves.

Table 14. Recommended actions for international students.

Key findings and notes:	**Recommended actions:**
Finnish language proficiency has a significant impact on both integration and employment.	1. Get familiar with available teaching and different ways of learning Finnish (university, apps, language cafes etc.). 2. Start learning Finnish (including Finnish culture) as early as possible and use the language. 3. Aim for a diverse approach, ideally integrating language learning into studies and daily life.
Networking is key to both integration and access to the labour market.	4. Build both social circles and professional network already during studies. Such networks may include, for example, fellow students, university staff, as well as representatives from companies. 5. Networks can be developed by being open and active in lectures, events and everyday interactions or by participating mentoring programmes.
Building both international and Finnish networks is beneficial for integration.	6. Take an active role in your student community: attend events, join a student association and participate in study-related activities also together with Finnish students. Apply this also at workplace.
All prior work experience is valuable and helps with employment after graduation.	7. Aim to work during studies or at least during summer periods. Apply for internships and summer jobs in the field and outside of it. 8. If possible, aim to complete your thesis in collaboration with a company.
Awareness of recruitment practices supports employment. Many jobs in Finland are part of the hidden job market. Recognise the importance of soft skills and actively develop them.	9. Identify available sources of support and information for job seeking, such as universities, municipalities and career services. Use your networks. 10. Participate in workshops that help you articulate and present your skills, such as CV and LinkedIn training, organised by different stakeholders. 11. Recognise the importance of soft skills and actively develop them.
Participation and action are required from all stakeholders.	12. Do your part but also expect and encourage the same from others. 13. Seek support and give feedback.

Key findings highlight the important role of student associations in supporting the integration of international students. At their best, these organisations facilitate social integration, provide peer support and act as a bridge between international and domestic students, higher education institutions and industry, particularly through collaboration with companies and networking activities. However, their impact varies, and not all international students perceive them as accessible or inclusive. Participation of international students in activities remains limited, partly due to language barriers and the challenges related to engaging international students as active members. In addition, doctoral students are often excluded from student association activities.

Tutoring and events were identified as the most visible forms of support from student associations, but the continuity and long-term development of these activities are challenged by the changing volunteer-based nature of associations. Encouraging international students to actively participate requires targeted efforts, such as involving them directly in organising activities or systematically collecting their needs and expectations. Currently, only a few student associations enable international students to take part in board activities in English, and communication practices, particularly the language used in events, play a crucial role in whether international students are reached. Importantly, language-related challenges do not concern only international students but also the English language proficiency of domestic students.

Some student associations also underline that language barriers, cultural differences, limited interaction with Finnish students and insufficient support from student associations can hinder both integration and employment outcomes. Student associations hold significant potential to support the integration of international students, and Table 1 5 outlines recommended actions to help realise this potential.

Table 15. Recommended actions for student associations.

Key findings and notes:	Recommended actions:
Student associations can play an important role in supporting the integration of international students into the student community and broader society. For this reason, international students should be encouraged to become active members of student associations.	1. Be welcoming and accessible for international students. Actively address and prevent discrimination. 2. Promote membership to international students and take them into account when planning activities. 3. Provide them with meaningful opportunities to participate also through responsible roles. 4. Organise events in English or bilingually. 5. Ensure clear and English/bilingual communication about events, including their purpose, content and language.

Integration is a two-way process, and active participation from both international and Finnish individuals is required to build connections and networks.	6. Encourage domestic students to engage with international students and participate in (shared) activities. 7. Emphasise the importance and value of international students within the community. International students provide a valuable opportunity for domestic students to build international networks and develop their English language skills.
Student associations can support the employment of international students by enabling contact with companies and providing opportunities to build professional connections.	8. Organise events that combine social and professional elements, such as company interactions, career-related content or networking. 9. Introduce the industry more broadly. It can help international students better understand their study paths and shape more realistic career aspirations. For example, alumni career stories can serve as a concrete way to illustrate this.
Finnish language proficiency is a key factor influencing both integration and employment. Student associations can contribute to supporting the development of language skills.	10. Consider and implement ways to support language learning, for example by organising peer mentoring or events that encourage language practice and discussions related to Finnish culture.
Engaging international students in organisational activities can be challenging. Organisations should therefore develop their activities in ways that better meet the needs and interests of international students.	11. Conduct assessments of international students' needs, expectations and perceived usefulness of associations activities and communicate these opportunities clearly. 12. Consider international students in long-term planning, including strategies and action plans.
Only some events are specifically targeted at international students, and not all study levels are consistently considered. Doctoral students are typically not included in student association activities.	13. Consider whether doctoral students could be more actively included in activities and develop targeted approaches for integrating them into activities. 14. Evaluate and clarify the role and position of international students in comparison to domestic students within activities. Are they equal?

In many companies, the role of international talent is already considered important and significant, and it is expected to become even more prominent in the future. While companies vary in size and available resources, each organisation can contribute by implementing measures that are feasible within their context. It is equally important to develop and effectively implement existing internal practices and to encourage the sharing of best practices between companies.

Employment plays a central role in determining whether international students remain in Finland after graduation and can therefore be seen as both a key barrier and an enabler.

Employers thus carry significant responsibility in recruitment processes to ensure that international students and graduates are fairly considered when defining job requirements and are not discriminated against during the process. Notably, one in four survey respondents reported having experienced discrimination during job search.

Companies can support international students even before employment by taking an active role early on. This means giving students opportunities to get to know the company, build professional networks and gain relevant work experience during their studies. Working together with student organisations and universities, as well as offering internships, summer jobs and thesis projects, are effective ways to do this. Once employed, companies can further support integration by helping employees learn Finnish, ensuring an inclusive work environment and providing support in practical everyday matters. These recommended actions are described in more detail in Table 16. It is recommended that actions addressing the identified challenges are implemented as soon as possible.

Table 16. Recommended actions for companies.

Key findings and notes:	**Recommended actions:**
A stronger connection between studies and working life is needed to ease the transition, as supporting international students during their studies promotes integration, employment and ultimately their retention in Finland.	1. Strengthen collaboration with higher education institutions and student organisations through company visits, guest lectures, and events, while also enhancing mentoring opportunities (especially for doctoral students), industry contact within courses, and professional networking initiatives to support students' career development and access to employer references. 2. Ensure that international students are consistently included in collaboration activities and recruitment pipelines.
Work experience gained during studies improves future employment opportunities and helps employers recruit more work-ready graduates.	3. Support international students' transition to working life already during their studies by offering accessible entry-level opportunities such as internships, summer jobs and thesis projects. 4. Develop and provide structured introductory work experiences (e.g. short trial periods or "TET-type" placements, real company cases) that are meaningful, fair and beneficial for students. 5. Publish all positions publicly; avoid relying only on internal networks.
Finnish language skills may be required without clear justification. Even basic Finnish proficiency should be valued, and its development should be actively supported.	6. Critically review and ensure that Finnish language requirements are justified and do not unnecessarily limit international applicants.

	7. Recognise and value even basic Finnish language skills, while actively supporting further language development through workplace learning.
Recruitment practices should be equal, and requirements should be based on actual skill needs. One in four respondents reported experiencing discrimination during the job application process.	8. Involve diverse stakeholders in recruitment processes, including individuals from different backgrounds at the interview stage and use anonymous recruiting. 9. Communicate clearly and transparently the reasons behind recruitment decisions.
Discrimination occurs during studies, in working life and in everyday life. It should be actively prevented and addressed at all levels.	10. Maintain and enforce zero-tolerance policies towards discrimination, supported by clear procedures, guidelines and consequences. This should be done in recruitment process and at workplaces in general.
Support for integration should not end after graduation but continue into working life, where employers can also play an important role in facilitating this process.	11. Support employees' integration into the workplace through structured onboarding practices such as buddy systems and social activities. 12. Foster inclusive work environments by ensuring communication are conducted in a language understood by all employees and by actively promoting diversity in recruitment and workplace practices. 13. Explore ways to support employees' family integration, recognising its influence on long-term retention.
Greater progress can be achieved through collective effort, as the contribution of all stakeholders is required.	14. Share best practices across companies related to inclusion, integration and recruitment of international talent.

In addition to these three stakeholders, higher education institutions have a key role in supporting the integration and employment of international students. Improving the availability, quality and relevance of Finnish language education is essential, including integrating language learning into subject-specific teaching through practical methods such as bilingual materials and terminology. The need to consider students with families in study scheduling was also raised, and a diploma-type programme for language studies was suggested. Interaction between international and Finnish students should be strengthened through collaborative teaching practices, while accurate pre-arrival information and continuous support through different teacher tutoring systems can ease transitions. Student organisations could be supported both financially and through measures such as providing facilities and utilising staff networks. Closer cooperation with industry, through guest lectures, company projects and visits, can further enhance international

students' professional connections and employment opportunities. Education development should also align more closely with labour market needs. It should be noted that higher education institutions were not part of the target groups of this thesis, and their role was therefore not examined in detail. However, these themes emerged clearly from the data, suggesting that future research could explore the role of higher education institutions in greater depth.

5.2 Discussion

The findings of this study highlight a structural mismatch between the growing pool of international technology students and their actual employment outcomes in the Finnish forest industry. While international students demonstrate a strong willingness to remain in Finland and enter the sector, this intention does not consistently translate into employment. This gap suggests that the primary challenge is not motivation at the individual level, but rather the conditions that enable or constrain successful integration and labour market entry.

Although many of the challenges identified—such as language requirements, limited networks and recruitment barriers—have been widely recognised in previous research, this study emphasises how these factors interact and reinforce one another within a specific industrial context. In the forest industry, where operations are geographically dispersed and, in some cases, rooted in long-standing institutional practices, informal recruitment channels and local familiarity may be particularly influential. As a result, international graduates may face structural disadvantages despite possessing relevant qualifications.

From the perspective of Berry's acculturation framework, the findings suggest that the conditions required for integration are only partially fulfilled. While international students actively participate in academic settings, their limited interaction with Finnish students indicates that engagement with the host society remains constrained. The prevalence of primarily international social circles suggests a shift toward separation rather than integration. Importantly, this should not be interpreted as a lack of willingness to integrate, but rather as an outcome shaped by structural and social barriers, including language, communication practices and limited opportunities for meaningful interaction.

This interpretation is further supported by Tinto's theory of student integration, which distinguishes between academic and social integration. In this study, academic integration appears relatively strong, as students successfully navigate their studies and show clear career aspirations. However, social integration remains weaker, particularly in relation to student communities and informal networks. This imbalance is critical, as Tinto

argues that social integration plays a key role in shaping long-term commitment and retention. In this context, insufficient social integration during studies may weaken students' connection to Finnish society and reduce their likelihood of remaining in the country after graduation, even when initial intentions are positive.

Language proficiency emerges as a central factor that connects multiple dimensions of integration. While Finnish language skills significantly enhance employment opportunities, the expectation of high proficiency at early stages creates a structural barrier. This reveals a tension between labour market expectations and realistic language learning timelines. On the one hand, employers' preference for Finnish-speaking employees is understandable, particularly in roles requiring communication and safety. On the other hand, rigid language requirements may limit access to entry-level positions which are vital for future employment and career development. In other words, language skills grow as part of integration, not just before it.

The findings also point to the importance of networks as a connecting factor between education and employment. In the Finnish labour market, where a significant number of opportunities are not publicly advertised, access to both formal and informal networks become particularly important. The limited interaction between international and domestic students therefore has direct implications for employment outcomes. Without access to these networks, international students may remain excluded from information and opportunities, regardless of their competencies.

In terms of implementation, the study highlights a clear difference between actions that are relatively easy to implement and those that require longer-term structural change. Measures such as improving bilingual communication, organising inclusive events and strengthening cooperation between universities, student organisations and companies can be realised relatively quickly and may produce immediate improvements in accessibility and participation. In contrast, changes related to recruitment practices, organisational culture and language expectations are more complex and require sustained commitment at multiple levels.

Another critical observation is the fragmentation of responsibility. While international students are often expected to take an active role in their own integration, the findings demonstrate that integration is inherently a shared process. The outcomes are shaped not only by individual actions but also by the openness of communities, the inclusiveness of organisational practices and the equal treatment in the labour market. Focusing solely on individual responsibility risks overlooking systemic barriers and may lead to ineffective or incomplete solutions.

Overall, the findings suggest that integration and employment outcomes are best understood as the result of interacting structural, social and individual factors. Addressing these challenges requires a shift from isolated actions toward coordinated efforts, where different stakeholders recognise their interdependent roles. In this context, successful integration and employment should not be seen merely as individual achievements, but as the outcome of a broader system that either enables or constrains participation and opportunity.

Ultimately, the success of integration and employment largely depends on the priorities, resources and capabilities of different stakeholders to implement the necessary actions. Initial conditions also play a significant role, as not all actors operate in the same context. For example, location and level of study may influence the types of support available and the opportunities for engagement. Similarly, companies and student organisations differ in their capacity to provide support and facilitate participation, which leads to variation in outcomes.

5.3 Future Research

This study identifies several areas where further research is needed to deepen understanding of international students' integration and employment in the Finnish forest industry and at the national level, and to enhance the ability to address these challenges effectively. While many of the issues identified are already well recognised, more targeted and context-specific research would support the development of more effective policies and practices. In particular, the role of higher education institutions in supporting the integration and employment of international students emerged as a key topic warranting further investigation.

Second, future research could examine the development of education in the forest industry related fields in Finland and its alignment with future labour market needs. Research should address how demographic changes and broader transformations in working life affect workforce demands and the role of international talent in the Finnish forest industry. The study would provide information that supports the availability of the workforce needed in the future. Ideally, this would guide the development of education in the required direction, supply companies with the expertise they need in the long term and, once these elements are in place, make it easier for students (including international students) to find employment and build their career paths in the field.

Third, comparative studies between Finland and other countries would provide valuable insights for the integration and employment of international students from the perspective

of language barriers. For example, examining how language requirements are approached in countries such as Germany or Sweden could highlight alternative models for balancing national language use, proficiency and requirements. Such research should also explore the underlying factors shaping these approaches, including linguistic identity, cultural attitudes and practical considerations related to workplace communication. Future research could also examine the quality, accessibility and effectiveness of Finnish language education, as well as the feasibility of integrating language learning more closely with studies or residence or work permit policies. Such research could provide a basis for more structured and impactful integration measures.

Fourth, there is a need for more research specifically focusing on integration and employment of doctoral students, the majority of whom are international students. This includes assessing the number of doctoral students, their role in the labour market and the factors influencing their decision to remain in Finland after graduation. Given the increasing importance of highly skilled labour, understanding how to better integrate doctoral students into both academia and Finnish forest industry is particularly relevant.

Moreover, there is a need for practical pilot projects and experimental initiatives, such as structured internship or work trial programmes connecting companies and students. Evaluating these initiatives and systematically collecting experiences and best practices would provide concrete evidence on what works in facilitating employment and integration.

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APPENDIX A: SURVEY FOR INTERNATIONAL STUDENTS

Section 1: Background

This survey is for international higher education students who are completing their degree in Finland and who may pursue a career in the forest industry. You can also be a recent graduate from Finnish higher education institution. Exchange students are not part of the survey target group.

Survey is a part of master's thesis aiming to collect experiences from international bachelor's/master's/doctoral students regarding integration, transition to working life and employment within the Finnish Forest Industry context. Thesis is commissioned by the Finnish Forest Products Engineers' Association (PI).

1. Nationality:
2. Age:
3. Gender:
4. Select the options that best apply to you:

   Bachelor’s student
   Master’s student
   PhD student
   Graduated
   Working part-time
   Working full-time
   Unemployed / Looking for a job

5. Higher education institution where you study/studied in Finland:

   Aalto University
   University of Oulu
   South-Eastern Finland University of Applied Sciences (XAMK)
   Tampere University
   Tampere University of Applied Sciences (TAMK)
   Åbo Akademi University
   LUT University
   Turku University of Applied Sciences
   Other

6. Field of study:

   Process Engineering
   Chemical Engineering
   Biochemical Engineering
   Materials Engineering
   Mechanical Engineering
   Bioproduct Engineering
   Other

7. Major field of study:
8. Minor field of study:
9. Start date of your studies in Finland:
10. Estimated graduation date (or indicate if recently graduated):
11. What was your educational background when you started your studies in Finland? (level, major and school/country)

Section 2: Language

12. Describe your English language skills:

    Beginner – I know a few words and basic phrases
    Basic user – I can understand and use simple sentences in everyday situations
    Independent user – I can manage most conversations related to studies and daily life
    Proficient user – I can speak, write and understand English fluently
    Native speaker – English is my first language

13. Has your English language skills influenced your integration or employment?

    Strong positive impact
    Some positive impact
    No impact
    Some negative impact
    Strong negative impact

14. Describe your Finnish language skills:

    I don't speak Finnish at all
    Beginner – I know a few words and basic phrases
    Basic user – I can understand and use simple sentences in everyday situations
    Independent user – I can understand and communicate in everyday situations with some difficulty
    Proficient user – I can speak, write, and understand Finnish fluently

15. Has your Finnish language skills influenced your integration or employment?

    Strong positive impact
    Some positive impact
    No impact
    Some negative impact
    Strong negative impact

16. Do you study Finnish? If yes, where? (Select all that apply)

    Yes, at the university
    Yes, at work
    Yes, at a language school etc.
    Yes, in an online course
    Yes, self-study
    No, I do not study Finnish

17. Do you receive enough support for your Finnish studies?

    Yes, I receive enough support
    Somewhat, but I would need more support
    No, I do not receive enough support
    I don't know

18. What kind of support would you need for studying Finnish?
19. What does the possible lack of Finnish skills affect the most?

Section 3: Finland and studying

20. How many years have you lived in Finland?
21. The original reason why you moved to Finland:

    Job
    Studies
    Relationship/Family
    Refugee/asylum seeker
    Other

22. What influenced your choice to study a forest industry-related field especially in Finland?
23. From which sources have you received support with your studies in Finland?

    University staff
    Student organizations
    Finnish friends
    International friends
    Family
    Mentoring programs
    Other

24. How well do you feel that the content of your studies has prepared you for working life in the Finnish forest industry?

    Very well
    Quite well
    Somewhat
    Poorly
    Not at all

25. Which skills do you think are most important for this industry but were not sufficiently covered in your studies?

    Hands-on technical skills
    Project management
    Networking and building professional relationships
    Industry-specific software and digital tools
    Communication skills
    Finnish language
    Understanding workplace culture and practices
    Other (you can specify in the next question)

26. Here you can specify, how could your studies better support your transition into the working life?
27. How do you pay tuition fees for your studies in Finland? (Select all that apply)

    I don't need to pay tuition fees
    Self-funded / by working
    Scholarship / Grant
    Loan
    Family support
    Employer sponsorship
    None of the above

28. Are you planning to stay in Finland after graduation?

    Yes
    No
    Not sure

29. What existing factors influence the most your decision to stay in Finland after graduation? (Choose max 3)

    Career opportunities (e.g. job availability in my field)
    Competitive salary and benefits
    Opportunities for career growth and development
    Work-life balance and quality of life
    Language support and integration programs
    Social connections and community
    Permanent residency or visa options

Family considerations
Other / None of the above

30. What existing factors influence the most your decision NOT to stay in Finland after graduation? (Choose max 3)

    Lack of job opportunities in my field
    Salary level does not meet expectations
    Limited career advancement possibilities
    Language barrier
    Difficulties with social integration
    High cost of living
    Problems with residence and work permits
    Discrimination
    Political climate
    Other / None of the above

31. How do residence and work permits affect your ability to stay and work in Finland?

    Make it easy for me to stay and work in Finland
    Make it difficult to stay and work in Finland
    Those do not affect my decision significantly
    I do not need a residence or work permit

32. Here you can tell more about the reasons to stay or leave Finland:

Section 4: Integration and associations

33. Are your social circles mainly Finnish or international?

    Mostly Finnish
    Mostly international
    A mix of both
    I don’t have a social circle yet

34. How did you find your social circles in Finland? (Select all that apply)

    Through studies
    Through student organizations
    Through hobbies or events
    Through work or internships
    Through online communities
    Other / I don't have one

35. What would help your integration into Finnish society? From whom do you wish to receive more support during your integration?
36. Question about Finnish Forest Products Engineers' Association (PI). (Select all that apply)

    I haven’t heard about PI before
    I am familiar with PI
    I am a member of PI
    I have attended PI's Roadshow
    I have attended FBI Day
    I have attended some other PI event
    I have participated in PI's mentoring program
    I have received a scholarship from PI

37. Could PI support you more, how?
38. Do you feel that your student organization is welcoming and accessible for international students?

    Yes, definitely

Mostly yes
Neutral
Mostly no
No, definitely not
I don't know my student organization

39. How could your student organization be more welcoming to international students?
40. Which of these apply to you?

I have attended an excursion or other company visit
I have attended sitsi, sauna event or other that type of event
I am an active member of student association / guild / club
I have been a board member / officer
I have visited guild / club room
None of above

41. If you have not attended any student event, why so? What kind of events would you attend?

Section 5: Employment and forest industry

42. From whom have you received help with employment in Finland? (Select all that apply)

I have not received any help
Career services at your university
Friends or family
Mentors or alumni
Employers or internship supervisors
Employment services
None of the above

43. From which sources would you like to receive more help and support with employment?
44. Do you have a mentor or a close industry contact in Finland?

Yes, a mentor
Yes, a close contact
No, but I would like to have
No, I don’t feel it’s necessary

45. Do you find it difficult to get a job in Finland?

Yes
Somewhat
No
Not sure

46. What do you see as the main challenges in finding employment in Finland?

Finnish language skills
Lack of work experience
Difficulty in networking
Challenges related to work permits
Limited number of jobs in the field
Cultural bias or skepticism from employers
Other / None of the above
I don't think that there is any challenges

47. How familiar are you with the Finnish forest industry (companies, roles, career paths)?

Very familiar (I know companies and career opportunities well)
Quite familiar (basic knowledge of companies and roles)
Somewhat familiar (heard of some companies)
Not very familiar

Not familiar at all

48. Which of these apply to you?

    I have work experience in the forest industry in Finland
    I have work experience in the forest industry outside of Finland
    I don't have any work experience in the forest industry
    I have some work experience in Finland
    I have worked during studies or summers in Finland
    I have not worked during studies or summers in Finland

49. How likely are you to work in the forest industry in Finland?

    Very likely
    Likely
    Unlikely
    Very unlikely

50. Select the forest industry sectors that interest you the most: (You can select as many as you like)

    Forest management and wood procurement
    Sawmill industry
    Paper converting
    Paper and board industry
    Pulp industry
    Packaging materials
    Other bioproducts or new materials
    Automation systems
    Equipment manufacturing
    Measurement and analysis
    Chemicals
    Research
    Consulting
    None of the above interests me

51. What do you see as the main challenges or obstacles to employment in the Finnish forest industry?

    Remote job locations
    Finnish language requirement
    Limited career growth
    Lack of industry networks
    Few job openings
    Poor housing / services near jobs
    Forest industry not attractive as employer
    No jobs match my expertise
    Other

52. Where do you usually get or find information about open job positions in the industry?

    Company websites
    LinkedIn
    Other social media (e.g. Facebook, Instagram)
    University career services
    Job portals
    Personal networks / contacts
    Industry associations (e.g. PI)
    Career fairs or events
    Other

53. Which career options seem most appealing to you?

Research and academia
Industry / Corporate jobs
Entrepreneurship
Public sector
International career

54. What kind of job would you like to have in the future and where?
55. Do you feel that you have equal opportunities to find employment in Finland compared to Finnish students/professionals?

    Yes, I feel the opportunities are fully equal
    Partly, In some situations yes, but not always
    No, I feel the opportunities are weaker
    I don't know / I don't have experience

56. What do you think should be done to ensure that international professionals have the same employment opportunities as Finnish professionals?

Last section

57. From which sources would you like to receive more support in general? What kind of support (for you, your family etc.)?
58. Have you experienced discrimination based on your ethnic background? (Select all that apply)

    During the job application process
    In working life
    At the university
    In studies
    In a student organization / guild
    In public places
    Elsewhere
    Nowhere / I have not experienced discrimination

59. If you feel comfortable, could you describe the situation(s) where you experienced discrimination?
60. Is there anything you would like to add, clarify or share for example regarding your integration or working life in Finland?

APPENDIX B: SURVEY FOR STUDENT ASSOCIATIONS

Osa 1: Perustiedot

Kysely on tarkoitettu ainejärjestöille, killoille ja kerhoille, joidenka jäsenet voivat opiskella metsäteollisuuteen liittyvää alaa myös englanniksi. Kysely on osa diplomityötä, jonka tavoitteena on selvittää kansainvälisten korkeakouluopiskelijoiden kokemuksia integroitumisesta, siirtymästä työelämään sekä työllistymisestä Suomessa. Tämän kyselyosion avulla kerätään tietoja ainejärjestöjen näkökulmasta aiheeseen liittyen. Pyri antamaan vastauksillasi mahdollisimman todenmukainen kuva nykytilanteesta.

Antamasi tiedot käsitellään luottamuksellisesti ja niitä käytetään ainoastaan akateemiseen tutkimukseen osana diplomityötä, jonka toimeksiantajana toimii Puunjalostusinsinöörit ry (PI). Kyselyssä ei kerätä henkilötietoja, joista vastaaja voitaisiin tunnistaa, eikä tietoja julkaista tunnistettavassa muodossa. Jatkamalla kyselyä vahvistat lukeneesi ja ymmärtäneesi tämän.

HUOM!

Tarkastale kaikkia kysymyksiä kansainvälisten tutkinto-opiskelijoiden näkökulmasta. Kansainvälisillä eli kv-opiskelijoilla tarkoitetaan tässä kontekstissa ei suomea tai ruotsia puhuvia tutkinto-opiskelijoita, jotka suorittavat joko kandi-, maisteri- tai tohtoritason tutkintoa alallanne. Kyselyssä EI huomioida vaihto-opiskelijoita.

1. Mitä kiltaa/kerhoa edustat?

   Elba
   Kemistklubben
   KeTeK
   Mekanistikerho
   MIK
   Paperikerho
   PJK
   Prosessikilta
   Prosessiteekkarit
   SAIO
   Jokin muu

2. Kuinka monta englanninkielistä jäsentä yhdistyksellänne on? Tarkenna mahdollisuuksien mukaan, miten määrät jakautuvat ryhmittäin esim. kandi-, maisteri- ja tohtoriopiskelijoiden välillä.
3. Kuinka suuri osa alaltanne opiskelee juuri metsäteollisuuteen liittyviä kokonaisuuksia/kursseja. Anna arvio, mikäli tarkat luvut eivät ole tiedossa.
4. Mitkä kaikki kansainväliset opiskelijaryhmät otatte huomioon tapahtumianne ja toimintaanne suunniteltaessa?

   Kandi-/amk-opiskelijat
   Maisteri-/yamk-opiskelijat
   Tohtoriopiskelijat
   Emme ota kv-opiskelijoita huomioon toimintamme suunnittelussa

5. Mistä kaikesta kv-opiskelijoihin liittyvästä järjestönne vastaa? (Valitse kaikki, jotka pätevät)

   Kv-tuutorointi (tutoreiden valinta ja/tai koulutus)
   Kv-opiskelijoiden käytännön asioissa auttaminen
   Kv-opiskelijoiden integrointi opiskelijayhteisöön
   Kv-opiskelijoille suunnattujen tapahtumien järjestäminen
   Emme vastaa mistään kv-opiskelijoihin liittyvästä
   Jotain muuta, tarkenna seuraavassa mitä

6. Voit tarkentaa tässä, mistä kaikesta te vastaatte. Kerro myös kuka vastaa kaikesta siitä, mistä te ette vastaa?
7. Miten vastuu kv-opiskelijoista jakautuu kiltanne/kerhonne sisällä? Mitkä asiat ovat kenenkäkin vastuulla?

Osa 2: Kv-opiskelijat osana toimintaa

8. Mitä näistä pyritte tekemään?

   Saamaan kv-opiskelijat jäseniksi
   Saamaan kv-opiskelijat toimintaan mukaan
   Saamaan kv-opiskelijat tapahtumiin osallistujiksi
   Saamaan kv-opiskelijat integroitumaan opiskelijayhteisöön
   Tukemaan kv-opiskelijoita työllistymisessä
   Tekemään edunvalvontaa etenkin kv-opiskelijoiden näkökulmasta tai heihin liittyvissä asioissa
   Emme pyri tekemään mitään edellä mainituista

9. Mitä teette saavuttaaksenne edeltävän kysymyksen vastaukset?
10. Valitse kaikki, jotka pätevät toiminnassanne:

    Kv-opiskelijoilla on aito mahdollisuus hakea ja päästä hallitukseen/toimihenkilöksi
    Yhdistyksellämme on kv-opiskelijoiden asioihin nimetty henkilö, esim. kansainvälisyysvastaava
    Kaikki yhdistyksemme viestintä on myös englanniksi/pelkästään englanniksi
    Yhdistyksemme esittäytyy kv-opiskelijoille lukukauden alussa
    Järjestämme erikseen pelkästään kv-opiskelijoille suunnattuja tapahtumia
    Kaikki tapahtumamme ovat kv-opiskelijoille avoimia ja mielekkäitä osallistua
    Järjestämme tapahtumia tai tilaisuuksia, joissa englantia ja suomea/ruotsia puhuvilla jäsenillämme on mahdollisuus tutustua toisiinsa
    Kv-opiskelijat eivät ole mukana toiminnassamme millään tavalla
    Mikään yllämainituista ei päde

11. Kerro tarkemmin kv-opiskelijoille suunnatusta toiminnastanne. Mitä kaikkea tarjoatte ja mihin kaikkeen kv-jäsenenne osallistuvat?
12. KV-opiskelijoiden aktiivisuus toiminnassanne: (Valitse kaikki, jotka pätevät)

    On mukana hallituksessa/toimihenkilönä
    On ollut mukana hallituksessa/toimihenkilönä aiemmin
    Käyvät tapahtumissa säännöllisesti
    Käyvät tapahtumissa silloin tällöin
    Eivät käy tapahtumissa lähes koskaan
    Liittyvät yleensä jäseniksi
    Eivät yleensä liity jäseniksi, vaikka voisivat
    Eivät ole toiminnassa mitenkään mukana

13. Mikäli kv-opiskelijat eivät osallistu aktiivisesti toimintaanne, mistä tämä voisi johtua ja miten siihen saisi muutoksen?
14. Miten toimitte, jos lähtökohtaisesti suomen- tai ruotsinkieliseen tapahtumaan tulee englanninkielinen osallistuja? Onko teillä selkeästi sovittu, miten tapahtuman kielen kanssa tällöin tehdään?
15. Miten tavoitatte kv-opiskelijat ensimmäistä kertaa? Kuka heihin on yhteydessä ja miten?
16. Valitse kaikki paikkaansa pitävät kohdat:

    Dokumentoimme kv-opiskelijoihin liittyvää toimintaamme, jotta sen kehittäminen ja toteuttaminen on helpompaa
    Emme dokumentoi kv-opiskelijoihin liittyvää toimintaa mitenkään
    Toimintasuunnitelmassamme tai jatkuvan toiminnankuvauksessamme on kohta kv-opiskelijoihin liittyvästä toiminnastamme
    Toimintasuunnitelmassamme tai jatkuvan toiminnankuvauksessamme ei mainita kv-opiskelijoita
    Strategiassamme on mainittu kv-opiskelijat

Strategiassamme ei ole mainittu kv-opiskelijoita tai meillä ei ole minkäänlaista strategiaa

17. Tässä voit tarkentaa edeltävän kohdan vastauksia ja kertoa, miten varmistatte kv-opiskelijoihinne liittyvän toiminnan jatkuvuuden ja kehittämisen.

Osa 3: Integroituminen ja työllistyminen

18. Mitkä ovat suurimmat esteet kv-opiskelijoiden integroimiseen yhteisössä? (Voit valita useamman)

    Kv-opiskelijoiden vajaavainen kielitaito
    Suomenkielisten opiskelijoiden vajaavainen kielitaito
    Kv-opiskelijat eivät osoita halua tutustu suomen-/ruotsinkielisiin opiskelijoihin
    Suomen-/ruotsinkieliset opiskelijat eivät osoita halua tutustu kv-opiskelijoihin
    Kv-opiskelijat eivät osallistu toimintaan
    Kv-opiskelijoiden integroimista tukevaa toimintaa ei ole
    Jokin muu

19. Miten tuette kansainvälisiä opiskelijoita integroitumaan yhteisöönne? Onko teillä tapoja käsitellä tai torjua edellä mainittuja haasteita?
20. Kuinka tärkeäksi koette yhdistyksenne roolin kv-opiskelijoiden integroitumisessa opiskelijayhteisöön:

    Erittäin tärkeä
    Tärkeä
    Jokseenkin tärkeä
    Ei kovin tärkeä
    Ei lainkaan tärkeä

21. Miksi koette roolinne integroitumisen tukemisessa näin?
22. Kuinka tärkeäksi koette yhdistyksenne roolin kv-opiskelijoiden työllistymisessä opintojen aikana:

    Erittäin tärkeä
    Tärkeä
    Jokseenkin tärkeä
    Ei kovin tärkeä
    Ei lainkaan tärkeä

23. Miksi koette roolinne työllistymisen tukemisessa näin?
24. Missä kv-opiskelijoihin liittyvässä asiassa teillä on eniten kehitettävää?
25. Mikä kv-opiskelijoihin liittyvistä asioista toimivat teillä hyvin tai koette onnistuneenne?
26. Mitkä ovat teidän kokemuksenne perusteella kv-opiskelijoiden tyypillisimpiä haasteita integroitumisessa ja työllistymisessä?

Osa 4: Saamanne tuki

27. Missä toivoisitte enemmän tukea yliopistolta/ammattikorkeakoululta tai opetushenkilökunnalta?
28. Missä toivoisitte enemmän tukea ylioppilaskunnalta/opiskelijakunnalta?
29. Voisiko Puunjalostusinsinöörit ry (PI) tukea teitä kv-opiskelijoiden kanssa jotenkin, miten?
30. Mitä tukea saatte tällä hetkellä kv-opiskelijoihin liittyen edellä mainituilta tai muilta tahoilta?

APPENDIX C: SURVEY FOR FOREST INDUSTRY COMPANIES

Introduction

This survey is intended for companies operating in the forest industry. It is part of a master's thesis that aims to explore the experiences of international higher education students regarding integration, transition to working life and employment in Finland. This section collects information from the perspective of companies. You can either complete the survey yourself or share it within your organization, for example with HR specialists. There is no limit to the number of responses per organization.

The information you provide will be treated confidentially and used solely for academic research as part of the thesis commissioned by the Finnish Forest Products Engineers' Association (PI). The survey does not collect any personal or company data that could identify respondents, and no information will be published in an identifiable form. By continuing, you confirm that you have read and understood this.

If you are unsure of the exact answer to a question, provide the best possible estimate.

1. Number of employees in Finland:

   Less than 50
   50–249
   250–999
   More than 1000

2. Are you a start-up company?

   Yes
   No

3. Your company's/department's specific field of operation (you can select several):

   Forest management and wood procurement
   Sawmill industry
   Pulp and paper industry
   Packaging materials
   Other bioproducts or new materials
   Automation systems
   Equipment manufacturing
   Measurement and analysis
   Chemicals
   Research
   Design and consulting
   Other

4. Where in Finland do you operate? (select all that apply):

   Southern Finland
   Western Finland
   Eastern Finland
   Northern Finland
   Åland

5. Which of the following best describes your company?

   We operate in remote and/or small locations
   We operate in central and/or large locations
   We operate in both

6. International presence (select all that apply):

   We operate only in Finland
   We have exports
   We have subsidiaries or offices abroad
   We are part of an international group

Part 1: Recruitment Practices and Language Requirements

7. Do you use anonymous recruitment?

   Yes
   Not yet, but planning to implement
   No, and no plans to implement

8. What benefits and challenges have you experienced with anonymous recruitment?
9. In what proportion of all positions is Finnish language required?

   Required in all positions
   Required in more than 80%
   Required in 50–80%
   Required in 20–50%
   Required in less than 20%
   Not required in any position

10. What is the basis for requiring Finnish language skills? (select all that apply):

    Occupational safety
    Ease of communication in Finnish
    Communication with customers or stakeholders must be in Finnish
    Internal communication is only in Finnish
    Not all employees speak English
    Other (please specify below)

11. Please specify if you selected “Other”:
12. Do you require Finnish language skills only when absolutely necessary for the role?

    Yes
    No

13. In what proportion of all positions is English language required?

    Required in all positions
    Required in more than 80%
    Required in 50–80%
    Required in 20–50%
    Required in less than 20%
    Not required in any position

14. How do you take international professionals into account in your recruitment processes? For example, when planning roles, drafting job ads, deciding language requirements or choosing recruitment channels.

Part 2: Integration and Support

15. What proportion of your employees cannot work in Finnish?

    All can work in Finnish
    Less than 10% cannot
    10–30% cannot
    30–50% cannot

More than 50% cannot

16. What proportion of your employees cannot work in English?

    All can work in English
    Less than 10% cannot
    10–30% cannot
    30–50% cannot
    More than 50% cannot

17. Do you support Finnish language learning for employees?

    Yes, free of charge during working hours
    Yes, at own expense during working hours
    Yes, free of charge outside working hours
    No, we do not support

18. How do you promote the integration of international professionals into your work community?
19. Do you offer your international employees or their families help to integrate into society, for example through leisure activities? (select all that apply)

    Yes, we offer for our employees
    Yes, we offer to the families of our employees
    No, we offer neither

20. What kind of help do you offer for integration into society?
21. Do you provide support in finding accommodation?

    Yes
    No

22. Do you provide support with work and residence permits?

    Yes
    No

23. What kind of support do you provide for accommodation or permits?
24. What measures do you take to prevent ethnic discrimination in your workplace? How do you act if it occurs?

Part 3: Talent Needs

25. For which types of professionals do you foresee a critical need in the future? (select all that apply):

    Vocational-level professionals
    Higher education graduates
    Process operators
    Maintenance technicians
    Transport and logistics workers
    Process engineering specialists
    Mechanical and automation engineering specialists
    Environmental and circular economy specialists
    Digitalization and data analytics specialists
    Bioproducts and new materials specialists
    Logistics and supply chain management specialists
    Sales and customer relations specialists
    International business specialists
    Occupational safety and quality management specialists
    Communication and marketing specialists
    HR specialists
    Other (please specify below)

26. Please specify if you selected “Other” (field, education level, special expertise, etc.):
27. What skills, not typically taught in schools, would you like applicants to have? (select all that apply):

    Teamwork and collaboration skills
    Communication and interpersonal skills
    Practical problem-solving ability
    Project management and organizational skills
    Self-management and time management
    Adaptability and readiness for change
    Intercultural competence and language skills
    Negotiation skills
    Basic knowledge of economics and business
    Other (please specify below)

28. Please specify if you selected “Other”:
29. Which types of professionals have been in shortage over the past five years?
30. How do you see the role of international professionals in your company now and in the future?

Part 4: Collaboration with Universities and Students

31. Which of the following do you offer in a way that is suitable for international students and/or professionals? (select all that apply):

    Internships
    Summer jobs
    Thesis opportunities
    Mentoring programs
    Trainee/graduate programs
    Networking events for students
    Scholarships or other financial support
    Company visits
    None of the above

32. To what extent or how often do international students or professionals participate in these?
33. What kind of collaboration do you have with universities focusing on international students?
34. What kind of collaboration do you have with student organizations regarding international students?
35. Which organization do you collaborate with the most regarding international students and professionals? What does this collaboration involve?
36. Finnish Forest Products Engineers' Association (PI) events often include English-speaking participants. Which of the following PI student events have your company attended in the past two years?

    PI Roadshow
    FBI Days
    Other PI student event
    None of the PI events

37. How and where do you present your company to international students?