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From resistance to resilience

– Understanding employee perceptions and supporting technological adaptation process of artificial intelligence

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From resistance to resilience

- Understanding employee perceptions and supporting technological adaptation process of artificial intelligence

Artificial intelligence (AI) has emerged as a pivotal topic in recent years, and rightfully so. According to the Future of Jobs Report by the World Economic Forum (2023), it is projected that 23% of jobs will undergo significant changes in the next five years, and six out of ten workers will require training before 2027. Although, it is expected that just half of the workforce will have access to appropriate training opportunities. In light of this information, the aim of this thesis is to investigate employees perceptions of technological adaptation abilities and the support provided by employers, as well as to explore how companies could benefit from these insights. The focus is on individual perceptions and experiences. Adapting to technology is approached from the point of view of artificial intelligence.

The first we establish a foundational understanding of existing research related to individual learning and adaptation models, alongside insights into artificial intelligence. Next, we will gather data through a survey. Finally, we will analyze the research findings in conjunction with the collected data to identify best practices for companies.

Keywords:

artificial intelligence, technological adaptation, individual learning models, learning perceptions

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Eveliina Liias

Vastustuksesta sopeutuvaan oppimiskokemukseen

- Työntekijöiden yksilöllisten käsitysten ymmärtäminen ja teknologisen sopeutumisen tukeminen tekoälyn käyttöönottamisessa

Tekoäly (artificial intelligence) on noussut keskeiseksi aiheeksi viime vuosina, ja syystäkin. Maailman talousfoorumin (2023) Työpaikkojen tulevaisuus -raportin mukaan 23 % työpaikoista tulee kokemaan merkittäviä muutoksia seuraavan viiden vuoden aikana, ja kuusi kymmenestä työntekijästä tarvitsee koulutusta ennen vuotta 2027. Kuitenkin, vain puolella työntekijöistä on riittävät mahdollisuudet kouluttautua kehityksen vaatimassa tahdissa. Tähän tietoon peilaten, opinnäytetyön tavoitteena on tutkia työntekijöiden kokemuksia teknologisista oppimisvalmiuksistaan sekä työnantajien tarjoamasta tuesta erityisesti tekoälyn käytön ja opettelun suhteen. Tässä tutkimuksessa lähestytään aihetta työntekijöiden yksilöllisten havaintojen ja kokemusten näkökulmasta.

Ensiksi perehdymme nykyiseen tutkimustietoon yksilöllisistä oppimis- ja sopeutumismalleista sekä määrittelemme mitä tekoälyllä tarkoitetaan. Seuraavaksi keräämme vartailevaa tietoa kyselytutkimuksen avulla. Lopuksi vertaamme teoriaa tutkimustuloksiin. Lopputuloksena tunnistamme yksilöllisiä eroavaisuuksia oppimis- ja sopeutumismalleista sekä käytäntöjä, joilla yritykset voivat lisätä uuteen teknologiaan, kuten tekoälyyn sopeutumista.

Asiasanat:

tekoäly, yksilöllinen oppimismalli, yksilöllinen teknologian hyväksymismalli, teknologian käyttöönotto

Content

Appendices

Figures

Tables

Click here to enter text.

1 Introduction

1.1 Background of the study

Digitalisation is increasingly becoming an integral part of daily life and stands as a significant megatrend worldwide (Dufva & Rekola, 2023). It impacts various aspects of work, including work pace, social relations, monitoring, control, and transparency (Sutela et al., 2019). As organizations embrace digitalisation, employees are challenged to gradually acquire new skills, familiarise themselves with new programs, adapt to novel communication methods, and modify daily routines to maintain their competence.

However, individuals are unique, possessing varying interests, capabilities, and previous experiences, which influence their adaptability to learn new technologies (Jundt et al., 2014). Several factors, including age, job position, gender, and education, serve as predictors of an individual's readiness for change and ability to learn new technologies (Sutela et al., 2019; Wang et al. , 2008). For instance, a significant percentage, approximately one-third, of workers aged 50-64 express uncertainty regarding their job adequacy in the context of digitalisation. Moreover, among this cohort, the perception of a threat posed by potential layoffs is prevalent, with nearly half of these workers feeling uncertain about their job security (Sutela et al., 2019)

In the contemporary workplace, learning is no longer solely the employer's responsibility. Employees are increasingly expected to take initiative in updating their competencies, necessitating self-management and proactive engagement in their professional development (Keyriläinen & Sutela, 2018). Nevertheless, employers have significant influence on the processes that ensure their employees' skills remain up-to-date. While training employees involves significant investment in terms of resources and time, it ultimately contributes to sustained productivity and organizational effectiveness in the long term (Kokkinen, 2020).

Recognizing the urgency of this issue, Kokkinen (2020) has identified technological change as one of the key challenges anticipated in the upcoming years. Effective strategies and support systems must be implemented to address these challenges, ultimately fostering a workplace environment that promotes continuous learning and adaption to technological advancements.

1.2 Aim of the study and the research questions

The aim of this study is to examine the individual differences that influence the new technology adaptation process, and to identify ways to facilitate this process. The research questions are as followed:

- What is employees perception of learning new technologies (i.e. artificial intelligence) in their workplaces?
- What are the individual characteristics that influence into technological adaptation process?
- How companies can tackle the barriers and eaze the technological adaptation process (i.e. implementing artificial intelligence applications)?

First, individual differences in the technological adaptation process and artificial intelligence are examined from a theoretical perspective to establish a foundational knowledge base. Various theories have been gathered to identify the main factors that influence an individual's technological adaptation process. Different technological profiles are defined through the research of Sutela et al. (2019). The UTAUT adaptation model developed by Venkatesh et al. (2003) serves as the foundation for the technological adaptation models.

Next, the theory is reflected into practice, based on answers of a survey which was conducted to Finnish employees regarding their perceptions of artificial intelligence and possibilities of competence development. Final, the theory and survey results are summarized into the best practices for companies how to eaze the technological adaptation process and take into account individual differences. Additionally, AI has been employed in this thesis as a supportive tool for proofreading and enhancing the clarity of the text.

2 Literature review

2.1 Different spaces affecting to learning experience

In organization, an individual operates in three spaces which merges through human action: physical, social, and mental (Hernes, 2004). According to theory of Hernes, physical space is all the materials and physical spaces where person is operating (Table 1). Social space is referring to the social relationships, coraporate culture and norms, bounding and collective identity form. Mental space is defined as individuals' thoughts, beliefs and previous experiences.

Table 1. Examples of spaces based the theory of Hernes (2004).

	Physical space	**Social space**	**Mental space**
Type of space	Tangible structures and rules (including virtual)	Interaction between people and norms	Knowledge, learning ideas and beliefs
Examples	Rules, plans, resources, platforms, spaces (i.e. offices and meeting rooms)	Identity, trust, collaboration, relationships, roles, power dynamic	Assumptions, expectations, mental models, shared meanings, organizations historical background

These spaces are not separate, but interact with each other making organization as a space which is continuously reconsructed, dynamic space (Hernes, 2004). Personal learning experience occurs in the social and mental spaces, but physical space is giving conditions for learning. When a person faces changes, decision-making and learning do not occur solely in the rational mind; rather, they are a combination of the individual's own thoughts and the reactions and opinions of close team members (Laiho & Vähämäki, 2021). In this way, individuals and communities reshape one another.

The social space is an important factor when team members are learning new skills. A work community is built by individuals, and top management has limited power to influence it, as it is shaped by individuals and their interrelated dynamics. In this way, community plays a prominent role when considering the practice of learning new skills. For example, individuals can motivate each other to learn new things and strengthen their self-esteem (Laiho & Vähämäki, 2021).

2.2 Individual differencies in technological adaptation process

2.2.1 Technostress

Adaptive performance is an essential skill for employees to thrive in an ever-evolving work environment. It serves as a frame of reference that assesses how well an individual can adapt to continuous change and ambiguity. Adaptive performance manifests when an employee responds to external changes in work conditions, such as taking on a new role, acquiring new skills, or modifying established work behaviours. Additionally, it occurs when an employee integrates new skills into their existing work practices and alters their approach to tasks (Jundt et al., 2014).

Technostress have negative impact on employee productivity and adaptive performance (Wang et al., 2008). Wang et al. (2008) define technostress as *"A reflection of one's discomposure, fear, tenseness, and anxiety when one is learning and using computer technology directly or indirectly, that ultimately ends in psychological and emotional repulsion and prevents one from further learning or using computer technology."* Focusing on the origins of technostress, Hendrix, Summers, Leap, and Steel (1995) categorised technostress into three categories based on its nature: organisational external factors, organisational internal factors and individual characteristics. External factors refers to factors which a coming from outside of the organization, including new technologies or rapid technological change. Internal factors refers to organisations own practices and systems, including inadequate training and

support or poor communications. Individual characteristics are personal trait or abilities, including attitudes, earlier experiences or technology self-efficacy.

Based on the literature, Wang et al. (2008) has defined five components which creates technostress:

1) Techno-overload; continuous push to improve efficiency
2) Techonology invades personal life
3) Complexity of new ICT's which manifest as individuals feel of incompetence
4) Insecurity of job or role
5) Constant changes in ICT field i.e. upgrades, bug fixes, new programs

Findings of Laiho & Vähämäki (2021) supports this theory: changes in working conditions typically create uncertainty and stress, which can weaken adaptive performance. When technology-based changes are too extensive, employees may struggle to keep pace with new demands or feel that their job security is threatened (Laiho & Vähämäki, 2021; Keyriläinen & Sutela, 2018; Wang et al., 2008). Consequently, employees may experience feelings of inadequacy regarding their skills and uncertainty concerning the outcomes of these changes (Keyriläinen & Sutela, 2018).

If technostress is confined to individual characteristics and how individuals cope with technology-based stress, studies have shown that there are two primary coping methods: problem-focused and emotion-focused strategies (Wang et al., 2008). Those who employ problem-focused coping actively seek information on how to resolve the situation, avoid impulsive reactions, or confront challenging circumstances. In contrast, emotion-focused coping centres on alleviating the impact of stress, such as by denying or avoiding stressful situations, or by employing humour. While this strategy does not resolve the underlying stressful situation, it mitigates feelings of stress and fosters a sense of well-being. As a result, the stressful situation may feel less overwhelming. By utilising either coping method, individuals can experience a greater sense of control, which ultimately reduces anxiety and enhances well-being. Conversely, feelings of

inadequacy and failure can increase stress and anguish, particularly among older employees, who often experience more negative emotions in relation to learning new technologies (Keyriläinen & Sutela, 2018).

Organisations can also take action to prevent technostress. Study of Wang et al. (2008) have shown that when employees participate in the decision-making process, and when managers are supportive and communicate a clear vision of change, employees report lower stress levels. Supportive management that communicates transparently about the vision for change can enhance employees' adaptive performance and make them more receptive to changes (Wang et al., 2008). Although these actions occur at the organisational level, they prepare individuals for upcoming changes, whether those changes involve implementing small operational adjustments, such as a new program, or large-scale organisational transformations, such as a new strategy.

2.2.2 Demographic differences affecting to technological adaptation

Study of Sutela et. al. (2019) has shown that employees can be categorised based on their demographics, metaskills, and life situations when considering adaptive performance. Women, in particular, are more likely to experience a faster-paced work environment and often feel a greater sense of inadequacy. Sutela et al. (2019) found that women tend to evaluate their own competence and skills lower than men, even within the same occupation. Furthermore, women report that digitisation has had more negative effects on their workload and pace of work compared to men, who perceive that digitalisation has streamlined their tasks. Specifically, 49% of women, compared to 32% of men, indicated that they lack the time to focus on new initiatives or further education (Sutela et al., 2019).

Forces of change impacting the world of work are creating new expectations for career progression. These situation are for example the retirement of baby boomers, a more educated workforce than ever before, and the ongoing process of digitalisation. Employers are striving to enhance efficiency by

digitising tools and streamlining processes, which establishes new standards for employees. Older workers, in particular, are feeling an increased workload due to the demands of digitalisation and the pressure to update their skills (Sutela et al., 2019). According to the Sutela et al. (2019) the fear of inadequately adapting to new technologies becomes more prevalent after the age of 45.

Younger employees tend to be more agile and adaptive in using digital tools, which provides them with a distinct advantage in the workplaces compared to older generations (Sutela et al., 2019). Although, while elder workers are often more resistant to adopting new technologies compared to younger generations, this generational divide appears to be diminishing as older employees gain more experience of the new technology.

The impact of digitalisation varies across different levels of employees. Managers appear to be the most influenced group by digitalisation. They perceive increased working efficiency, fast pacing, creativity, transparency as well as workload compared to other employee groups (Sutela et al., 2019). According to the Sutela et al. (2019) managers also rated their digital skills higher than other representatives from different job positions and expressed greater satisfaction with the opportunities that digitalisation has provided.

2.2.3 Skills management in digitalised working environment

While it is essential to identify demographic differences, it is equally important to view employees as individuals and to emphasise supporting their self-control and career management (Kokkinen, 2020). By fostering the development of metaskills such as adaptability, problem-solving skills, cooperation and interaction skills, as well as stress and uncertainty tolerance, employees can enhance their ability to adapt to a fast-paced working environment in a meaningful way (Keyriläinen & Sutela, 2018). Metaskills and generic

competencies are also among the most challenging to replicate in a digitalised work environment (Kokkinen, 2020).

Metaskills, particularly a strong sense of responsibility, willingness to embrace change, and emotional steadiness, have been linked to improved adaptive performance, according to studies (Jundt et al., 2014). Furthermore, the orientation towards learning plays a significant role; research of Jundt et. al. (2014) indicates that mastery goal orientation predicts better adaptive performance compared to performance-oriented approaches. Jundt et al. (2014) have categorised individual cognitive abilities into five categories (Figure 1) that predict adaptive performance: Individual differences; Training techniques and learning strategies; Job, task & contextual factors; Cognitive processes & behavioural strategies; Motivation and Self-regualation.

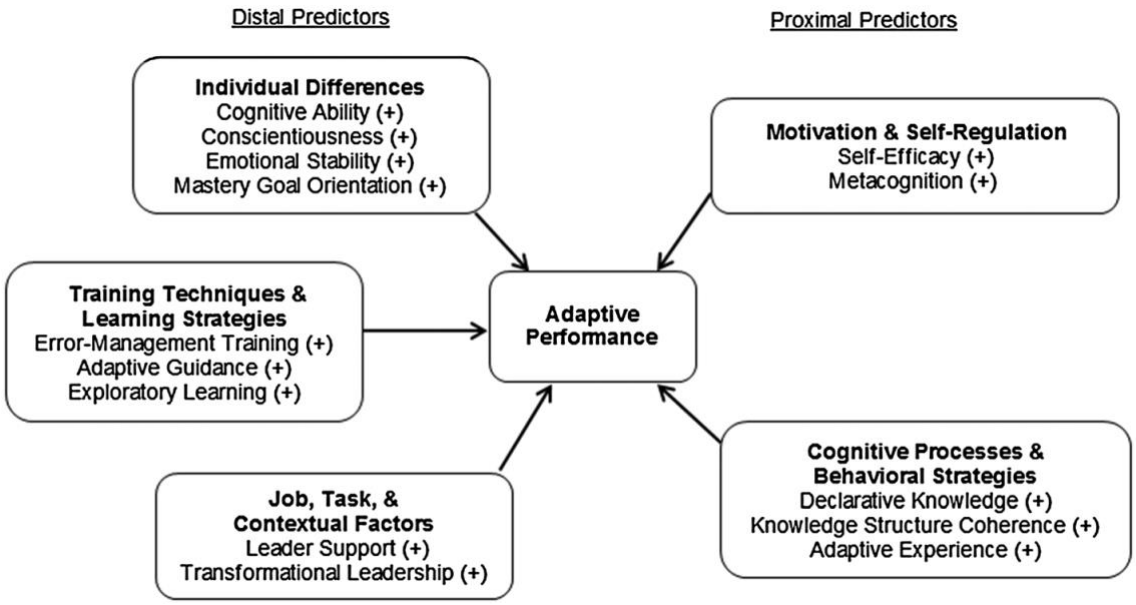

Figure 1. Supported antecedents of individual adaptive performance (Jundt, Shoss & Huang, 2014).

As previously mentioned, while career management is crucial, it is equally important to recognise individuals who may be at risk of experiencing decreased adaptive performance. Notably, employees in their rush years and

those with long career at the same employer are often at a disadvantage position when it comes to adopting new technologies and skills (Kokkinen, 2020).

2.2.4 Technology profiles

Based on research (Keyriläinen & Sutela, 2018; Sutela et al., 2019), four distinct technology profiles can be identified based on digital skills and the willingness to learn new digital skills:

Digital Experts

Digital Experts excel in mastering all work-related devices and systems. They display enthusiasm for teamwork and actively seek opportunities for learning in their own time. This profile is particularly common among information and technology experts and leaders.

Skilled Professionals

Skilled Professionals are characterised as individuals who are proficient in using the devices and systems necessary for their work. They actively strive to learn new skills and adapt to changes in technology.

Survivors

Survivors, in contrast, only master the essential skills needed to perform their job, learning only the basic programmes or systems required for their tasks. They often struggle to accurately assess their own skill levels.

Strugglers

Strugglers exhibit digital skills that are insufficient for their roles and commonly feel that they have fallen behind in the digital landscape.

Notably, the most competent group comprises individuals under 30 years of age, with a noticeable decline in perceived competence as age increases. According to the research, an individual's digital profile also influences their

willingness to retire (Sutela et al., 2019). According to the research of Sutela et al. (2019) specifically, those with higher digital skills are more inclined to postpone retirement, with around half of respondents expressing this sentiment. Conversely, among Survivors, only one in four indicated a willingness to delay retirement.

2.2.5 Technological adaptation model: UTAUT

Venkatesh (2003) developed the Unified Theory of Acceptance and Use of Technology (UTAUT) model in 2003. This model synthesises eight earlier technology adaptation models into one comprehensive theory (Venkatesh et al., 2003). UTAUT serves as a valuable tool for companies to predict individuals' likelihood of embracing and using new technology, as well as to understand the drivers of acceptance.

The model of Venkatesh identified four direct determinants of user acceptance and usage behaviour (Figure 2): Performance expectancy, Effort expectancy, Social influence, and Facilitating conditions, with gender, age, experience, and voluntariness of use serving as key moderators (Venkatesh et al., 2003)

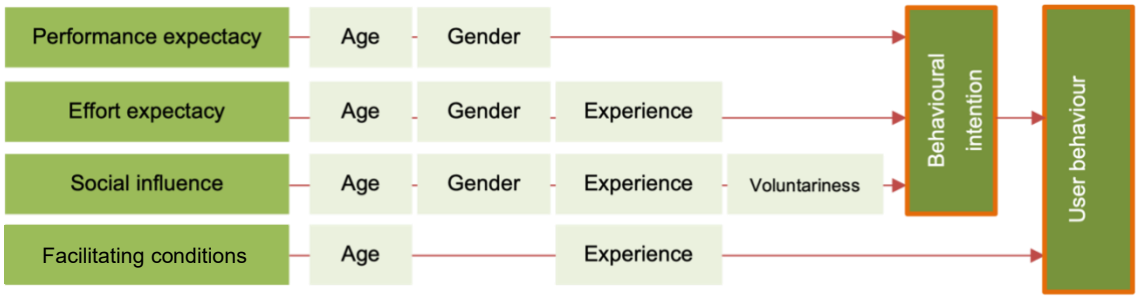

Figure 2. UTAUT theory: four determinants and key moderators. Based on research of Venkatesh et. al. (2003).

Performance expectancy

Performance expectancy is defined as an individual's perception of how much a system enhances job performance. Research suggests that younger workers place greater importance on external rewards (Venkatesh et al., 2003). Gender and age are particularly linked to one another at different life stages (e.g., rush years vs. pre-family years). As a result, Venkatesh found that performance expectancy tends to be somewhat higher among men, especially those in younger age groups (Venkatesh et al., 2003).

Sutela et al. (2019) reached similar conclusions, noting that men perceive digitalisation to have enhanced their work more than women (men 61% vs. women 54%). Additionally, the same study found that older employees perceive that digitalisation has had a lesser impact on their work compared to younger employees, with a noticeable drop in agreement after the age of 45 (Digitalisation has enhanced work: agree: 15-24 years: 65%; 25-34 years: 61%; 35-44 years: 60%; 45-55 years: 54%; 55-67 years: 51%) (Sutela et al., 2019).

Effort expectancy

Effort expectancy refers to the perceived ease of use and is particularly relevant during the early stages of adopting new behaviours, becoming less significant over time. This factor is notably salient for women, particularly those who are older and have relatively little experience with the system (Venkatesh et al., 2003).

Social influence

Social influence is defined as the perception of the new system by reference groups, including their internal culture and beliefs about the system, as well as how one is expected to handle it (Venkatesh et al., 2003). Social influence may not play a crucial role in voluntary contexts; however, it becomes significant when use is mandated, particularly during the initial stages of experience. Venkatesh (2003) suggested that social influence is strongest for women,

especially older workers, particularly in mandatory contexts where experience is limited.

Faciliating conditions

Facilitating conditions are defined as the perceived organisational and technical infrastructure support available for using a system. Organisational psychologists have noted that older workers often require assistance and low-threshold support (Venkatesh et al., 2003). Consequently, age and experience significantly influence facilitating conditions, with older workers who have less experience exhibiting the strongest effects.

Research by Sutela et al. (2019) has not indicated significant differences in facilitating conditions based on age or gender. However, Sutela et al. (2019) compared workers and managers, finding that workers were more satisfied with the support they received. This result can be explained by managers using a wider range of digital platforms and spending more time on them, thus requiring additional support to master the necessary skills.

Other determinants

Venkatesh et al. (2003) concluded that computer self-efficacy, computer anxiety, and attitudes toward using technology have no significant influence on behavioural intentions to use technology.

2.3 Artificial intelligence

2.3.1 Defining artificial intelligence

Artificial intelligence (AI) refers to technological systems that allow machines and computers to mimic human-like actions, including learning, solving problems, making decisions, being creative, and functioning independently (Stryker & Kavlakoglu, 2024). One widely referenced explanation of AI comes from McCarthy (2007), who is often credited with shaping the foundational understanding of the field: *"It is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable."*

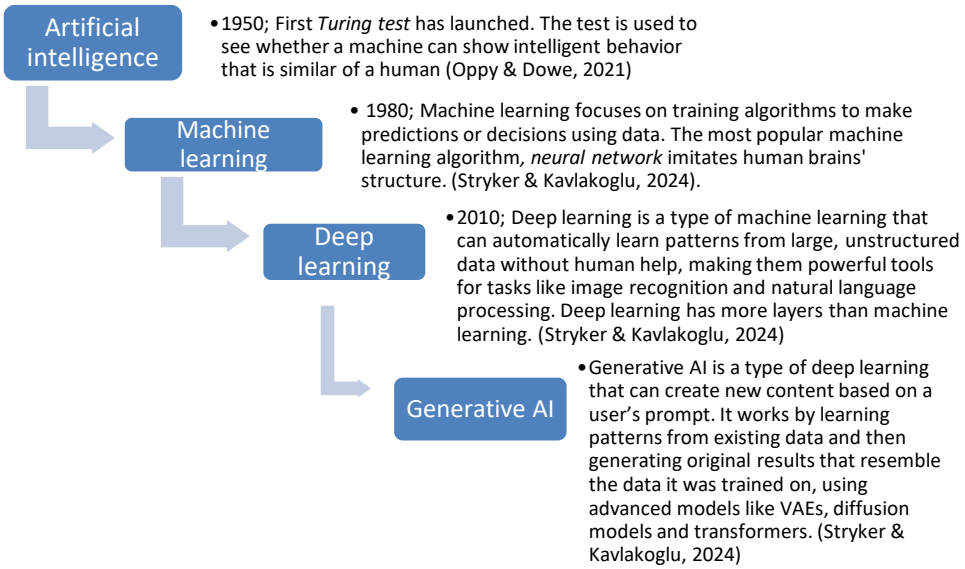

Figure 3. Different artificial intelligence evolution stages are relative to each other.

AI is not a new technology; however, it has gained popularity in recent years due to significant advances in computational power, which now enable computers to process more complex data types (Stryker & Kavlakoglu, 2024;

Ergen, 2019). To gain a better understanding of AI, it is important to consider its developmental history (Figure 3).

Currently, the best-known AI tools are based on generative AI's deep learning transformer models, which include such as ChatGPT, GPT-4, Copilot, BERT, Bard, and Midjourney. Later in this thesis, the term "artificial intelligence" specifically refers to generative AI.

2.3.2 Possibilities of artificial intelligence (AI)

AI's ability to learn patterns from large, unstructured data offers various benefits across multiple industries and applications. One significant advantage is AI's capacity to execute routine and repetitive tasks, such as data collection and processing, which typically consume substantial time for human workers (Stryker & Kavlakoglu, 2024). These tasks also carry a high potential for human errors, an issue that AI can mitigate when properly trained. As a machine, AI can operate continuously and deliver consistent performance, a feat that is unattainable for humans.

Some real-world applications of artificial intelligence include i.e.:

- customer service and support
- fraud detection
- personalized content
- screening files and proposing optimal outcome based on ´ data (i.e. in hiring process)
- content creation (coding, images, texts etc.)

The benefits for companies utilizing AI include streamlined operations, increased efficiency, and the minimisation of human errors (Belvic & Stryker, 2025). Despite its numerous advantages, the use of AI also presents several risks that warrant consideration.

2.3.3 Risks of artificial intelligence (AI)

Key risks associated with the use of AI in the workplaces include job displacement, inequality, biases, privacy violations, cybersecurity threats and a lack of transparency (Belvic & Stryker, 2025).

AI has been predicted to replace positions that involve routine tasks and require low to medium skill levels, which are amenable to automation (Kokkinen, 2020; Belvic & Stryker, 2025). Simultaneously, it is anticipated that new positions will emerge, focusing on specialist tasks that demand higher skills and knowledge (Kokkinen, 2020; Belvic & Stryker, 2025).

Inequalities and biases may arise in situations where AI is directly or indirectly employed. For instance, AI may produce biased outcomes in contexts involving employee data, such as hiring processes (Belvic & Stryker, 2025). Additionally, disparities in access to, utilisation of, and learning opportunities related to AI can place individuals in unequal positions relative to one another (Belvic & Stryker, 2025; OECD, 2025).

Concerns about privacy and cybersecurity are paramount whenever information is transmitted over the internet and through applications. Privacy violations may occur at both personal and organisational levels when employees input confidential data into publicly accessible AI platforms. Some generative AI services utilise input data, which can be reviewed, shared with third-party providers, and used for developing AI models unless users explicitly opt out (Tähtinen, 2023). Additionally, research by Sutela et al. (Sutela et al., 2019) highlights employees' concerns that digitalization has increased the amount of monitoring and control. Employers has more possibilities than ever to monitor the efficiency of employees. When monitoring is used correctly encouragingly and transparently, it might provide clear goals for the employee. However, additional reporting systems increase the workload and might rise negative emotions of employees (Sutela et al., 2019).

3 Methodology

3.1 Research methods

This study explores how employees perceive and integrate artificial intelligence (AI) into their daily working lives, focusing on individual experiences, learning processes, and adaptation to the new technology. The research aims to identify the factors that influence successful technological adoption and to provide practical insights for organizations supporting this transition.

In the beginning of the study, was not clear what is the right approach to the wide topic. So this study follows an exploratory research design, which is commonly used when investigating phenomena that are not yet well understood. Exploratory research helps gain initial insights, identify patterns, and formulate more precise research questions or hypotheses for future studies (Saunders et al., 2023). Based on gathered data from a survey, the topic was remained wide because the respondent group was only 80 respondents. Although, analysis was focused on the reflecting technological profiles excluding out further employee perceptions of artificial intelligence and reflecting differencies between employees and entrepreuners.

By the survey was collected both qualitive and quantitive data. Therefore the study employed a mixed-methods approach, which integrates both quantitative and qualitative data collection and analysis techniques within the same research framework. Mixed-methods research allows for a more holistic understanding by leveraging the strengths of both data collection methods. It also acknowledges a third research approach, the research paradigm, which takes into account researchers' views and beliefs that influence not only how research is designed, but also how results are interpreted and applied (Johnson et al., 2007).

3.2 Data collection

The primary method of data collection was a structured survey distributed online to employees across various industries and job roles in Finland. Survey was open to answers 1.6.-5.7.2024. The survey was shared through LinkedIn and to email to selected Finnish organizations. Aim was to use so called convenience sampling method to gather various answers from wide range of employee backgrounds. Convenience sampling method is non-propability sampling method where survey is launched and shared, but participants self-select if they wish to participate (Stratton, 2021). As the participation pool is less objective than propability techniques, answers cannot be generalized to the entire population, in this case for the all employees on Finland.

The survey consisted of likert-scale questions for measuring attitudes and opinions along a scale of agreement, multiple-choice questions for collecting wider selection of data, but narrowing the possibilities to answer (versus open-ended qustions) and open-ended questions to collect qualitative insights about the participants' thoughts of learning enablers. The combination of these formats supports the mixed-methods approach by enabling both quantitative analysis and qualitative thematic interpretation.

Survey was composed into three main categories:

- Basic background questions
- Employees’ learning profile and competence development possibilities
- Perception and usage of artificial intelligence

As the research was exploratory, final research questions were clarified after data collection. Survey included targeted questions for entrepreneurs only which were not considered in the analysis. In total, 80 responses were collected.

3.3 Data analysis

After data collection, responses were categorized into three key groups which helped to reflect the data with technological profiles and find differencies/similarities:

- AI usage time (No use, 1-6 months, 6-12 months, 12-24 months, over 2 years)
- Usage of artificial intelligence (In freetime, in work, work and freetime, no use)
- Demographic variables (Age and gender)

The quantitative data were tabulated and summarized using Microsoft Excel and Webropol -surveyplatform. Data analysis compared the means and standard deviations of responses across key groups to identify patterns related to different technology profiles and individual differences. The open-ended responses were analyzed using thematic analysis, a method for identifying, organizing, and interpreting patterns within qualitative data (Braun & Clarke, 2006). Patterns were identified from the open-ended responses and formed into coherent groups.

While the total number of respondents (n = 80) offers a solid basis for exploratory analysis, it is important to note that validity and reliability was limited when the dataset is broken into smaller subgroups. For example, some demographic groups had as few as three responses, which affected the stability and generalizability of subgroup comparisons. However, mixed-methods research can enhance overall validity.

Based on the theoretical framework, it was expected to find similarities to technology profiles, as well as to the UTAUT theory. By studying the links between theory and data, it was expected to delineate varying technological adaptation profiles. By understanding these profiles, organisations can streamline the adaptation process for individuals who require additional support in adopting new technologies, such as artificial intelligence. The conclusion was

expected to provide a framework for companies to identify these profiles and the recommended actions to facilitate their adaptation processes.

Data was reviewed as follows:

1. **Different technology profiles**
   Profiles are based on digital skills and willingness to learn digital skills. The ideal outcome was to identify the same profiles as those identified by Sutela et al. (2019): digital experts, skilled professionals, survivors, and strugglers.

   Results were reviewed through the following questions in questionare:
   - *Gender*
   - *Industries*
   - *Freqvency of AI usage*
   - *Perceived saved time in month*
   - *Perception how openly new learnings are shared in company*
   - *Variable in all questions: How long AI has been used*

2. **Research findings reflected to UTAUT theory**

   Based on the data, target was to identify same direct determinants and facilitating conditions as UTAUT theory has (Venkatesh et al., 2003).

   Results were reviewed through the following questions:
   Performance:
   - *Using artificial intelligence is beneficial*

   Effort expextacy:
   - *Using artificial intelligence has been easy for me*
   - *Learning new programs and technologies is easy for me*

   Social influence:
   - *I am happy to share my knowledge with others*
   - *My employer is interested in developing employees' skills*

- *My supervisor is supporting developing my competence*

Faciliating conditions:

- *What learning opportunities employees has*
- *How employees are learned to use AI*
- *Where AI has been used (work/freetime)*
- *What are the main barriers for learning new skills in a company*
- *My employer supports training financially*
- *My employer supports training during working hours*

Additionally, employees had the opportunity to respond to open-ended questions regarding the best ways they learn. From these responses, it was expected to derive conclusions to develop technological adaptation in companies:

3. **Guidelines how companies should support competence development**

   Results were reviewed through the following questions:

- *How would you develop continuous learning and the adoption of new technologies in your workplace/company?*
- *I learn new things best...*

3.4 Ethical Considerations

Ethical standards were carefully maintained throughout the study. Participants were informed the purpose of the study, researcher's contact details and that their responses would be used anonymously. No personal data was collected. As such, the study complied with key principles of ethical research, including informed consent, voluntary participation, and confidentiality (Bhandari, 2021). Anonymity and data protection were ensured by not collecting personal information.

4 Results

4.1 Description of the data

In total, 80 responses were collected. The sample is not statistically representative to draw generalizable conclusions about all Finnish employees, given that there are approximately 2.5 million employed people in Finland (Työvoimatutkimus, 2024). However, this number of respondents is adequate for identifying indicative trends and making observations, particularly in exploratory research, which aims not to generalize, but to uncover phenomena, formulate questions, and capture individual experiences.

The sample of employees was balanced and represented well in different ages (Figure 4) and genders. 60% (n=48) of respondents were women and 40% (n=48) were men. Although, younger generation (under 24 years old) was not represented in the respondents.

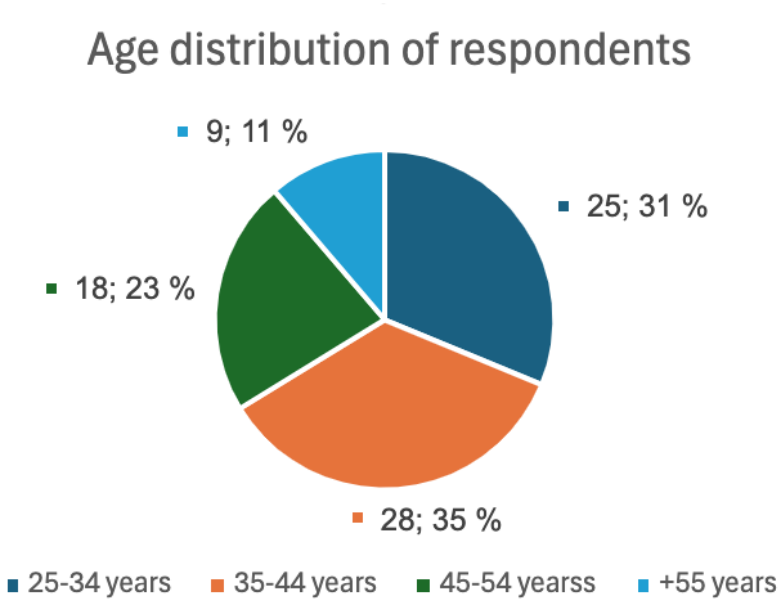

Figure 4. Age distribution of respondents

Respondeds has opportunity to choose their field of business from the list or define other field of business. List of business areas were the ones (Healthcare, education/teaching, technology/IT, customer service, finance, marketing, sales) which were expected to be the main fields affected by artificial intelligence. However, as a positive surpise respondents had more variety in the business fields than expected (Figure 5):

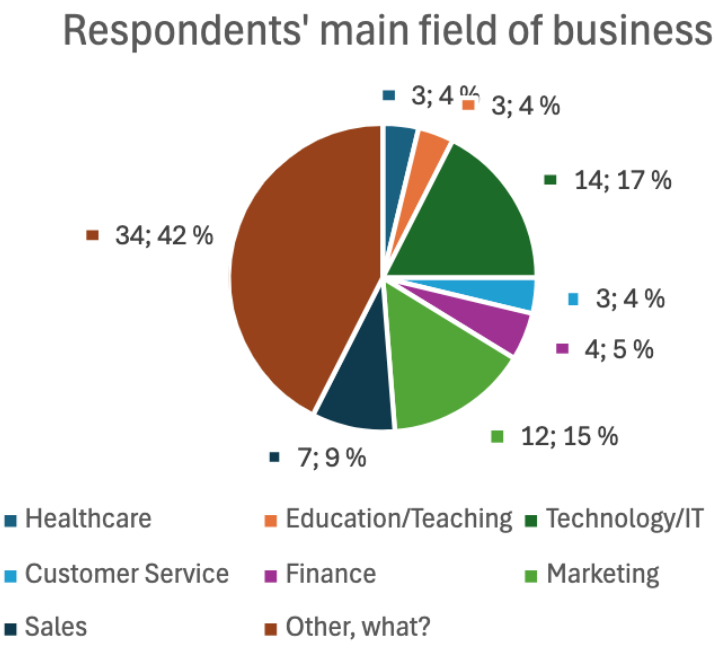

Figure 5. Respondents main field of business

However, respondents' profile also has some distortion with educational levels and job descriptions. Respondents with master degree is overrepresented while respondents with primary school background are not occurred (Figure 6).

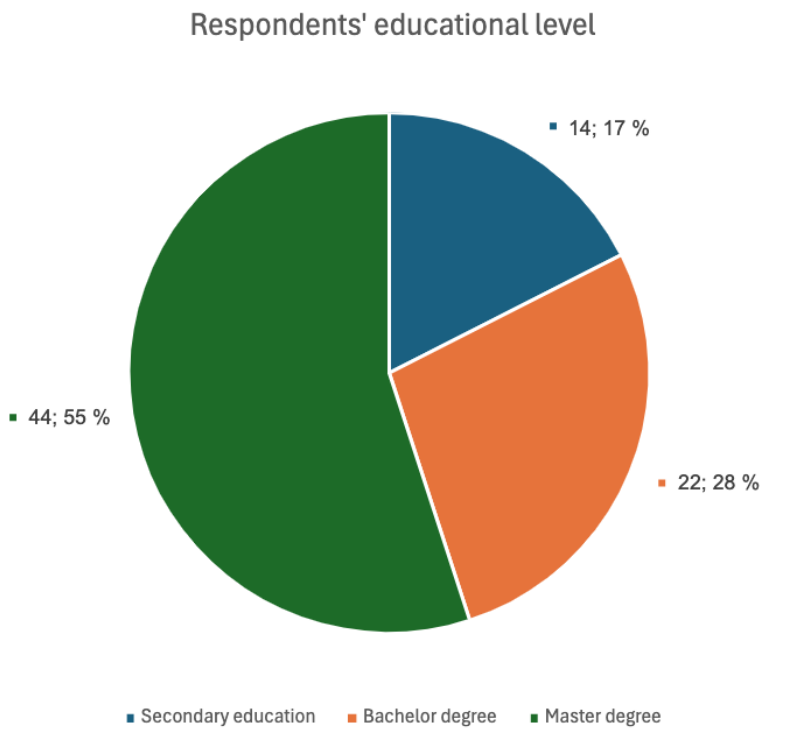

Figure 6. Respondents' educational level

As well, specialist are overrepresented in the data compared to other job decription groups (Figure 7) while other job decription profiles are in balance.

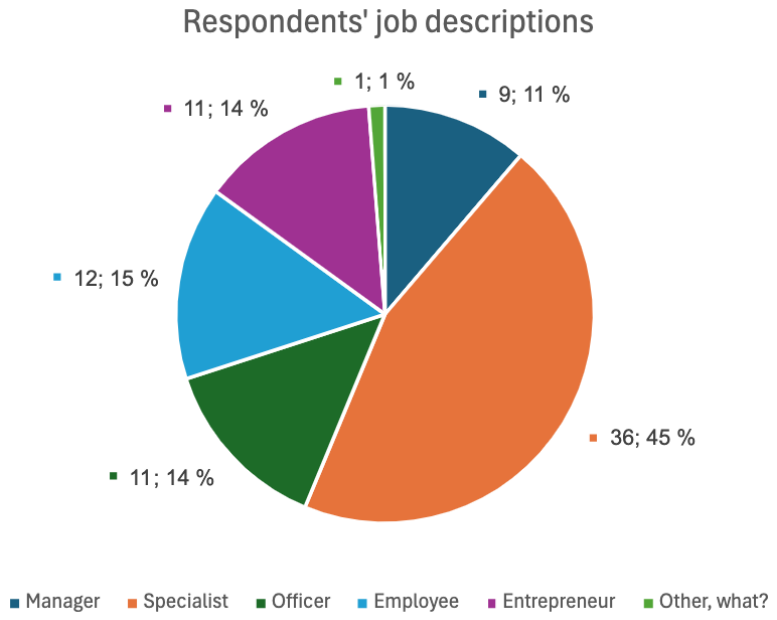

Figure 7. Respondents job description

4.2 Different technology profiles

Digital Experts / skilled professionals

As expected, younger employees has adopted artificial intelligence (AI) earlier than older employees (Table 2). Among those who have used AI for over two years, 67% are under 34 years old. Men adopted AI earlier than women (Table 3), with 67% of men using AI for more than two years (vs. women 33%) and 58% of men using it for 1 to 2 years (vs. women 42%)

Table 2. Artificial intelligence usage time relation with age.

Age Group	**No use**		**1–6 months**		**6–12 months**		**12–24 months**		**+2 years**		**Total**
	n	%	n	%	n	%	n	%	n	%	n
25–34 years	4	22.2%	8	30.8%	7	33.3%	4	33.4%	2	66.7%	25
35–44 years	1	5.6%	13	50.0%	7	33.3%	6	50.0%	1	33.3%	28
45–54 years	7	38.9%	4	15.4%	6	28.6%	1	8.3%	0	0.0%	18
55+ years	6	33.3%	1	3.8%	1	4.8%	1	8.3%	0	0.0%	9
Total	18		26		21		12		3		80

Table 3. Artificial intelligence usage time relation with gender.

Gender	**No use**		**1–6 months**		**6–12 months**		**12–24 months**		**+2 years**		**Total**
	n	%	n	%	n	%	n	%	n	%	n
Man	7	38.9%	9	34.6%	7	33.3%	7	58.3%	2	66.7%	32
Woman	11	61.1%	16	61.5%	14	66.7%	5	41.7%	1	33.3%	47
Other	0	0.0%	1	3.9%	0	0.0%	0	0.0%	0	0.0%	1
I don't want to tell	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Total	18		26		21		12		3		80

Specialists reported to have used AI more frequently in both work and personal use (Table 4). They adopted AI earlier than employees from other industries, with 67% of IT workers having used AI for over two years.

Table 4: How long AI has been used relation with industries

Industry	No use		1–6 months		6–12 months		12–24 months		+2 years		Total
Health care	2	11.1%	0	0.0%	1	4.8%	0	0.0%	0	0.0%	3
Education	1	5.5%	2	7.7%	0	0.0%	0	0.0%	0	0.0%	3
Technology / IT	3	16.7%	1	3.9%	2	9.5%	6	50.0%	2	66.7%	14
Customer service	1	5.5%	1	3.8%	1	4.8%	0	0.0%	0	0.0%	3
Finance	0	0.0%	1	3.8%	3	14.3%	0	0.0%	0	0.0%	4
Marketing	3	16.7%	4	15.4%	3	14.3%	1	8.3%	1	33.3%	12
Sales	1	5.6%	4	15.4%	2	9.5%	0	0.0%	0	0.0%	7
Other	7	38.9%	13	50.0%	9	42.8%	5	41.7%	0	0.0%	34
Total	18		26		21		12		3		80

Interestingly, those who have used AI for more than one year expressed over all greater satisfaction with their learning opportunities, working community, and employer support.

Among users of AI for over two years, 67% reported using it daily, while 59% of those who have used it for 1 to 2 years used it 1 to 3 times per week, and 33% still used it daily (Table 5).

Table 5. How long AI has been used relation with usage freqvency.

Usage Frequency	No use		1–6 months		6–12 months		12–24 months		+2 years		Total
	n	%	n	%	n	%	n	%	n	%	n
Daily	0	0.0%	1	3.8%	3	14.3%	4	33.3%	2	66.7%	10
1–3 times per week	0	0.0%	3	11.5%	10	47.6%	7	58.4%	0	0.0%	20
1–3 times per month	0	0.0%	8	30.8%	7	33.3%	0	0.0%	0	0.0%	15
Less often	0	0.0%	14	53.9%	1	4.8%	1	8.3%	1	33.3%	17
Total			26		21		12		3		62

When employees were asked how they perceived their time savings from using AI, those with over one year of experience reported greater time savings compared to their less experienced counterparts (Table 6).

Table 6. How long AI has been used relation to perceived saved time in month.

Usage Duration	n	Min. value	Max. value	Average	Median	Std
No use	0	0.0	0.0	0.0	0.0	0.0
1–6 months	21	0.0	20.0	2.7	1.0	4.7
6–12 months	21	-5.0	40.0	6.8	5.0	9.1
12–24 months	11	3.0	100.0	17.5	5.0	29.3
+2 years	2	0.0	40.0	20.0	20.0	28.3

In the summary, skilled profesionals or experts are most often IT specialists, who are proactive to learn new skills and use the skills regularly in freetime and work. They perceive that they will gain advantage of using technology (ie. AI). Skilled professionals are satisfied the possibilities that company provide to maintain their skills. Usually skilled professional or expert is relatively young (younger than 34 years old) and most propably man.

Strugglers

72% of the ones who has never used artificial intelligence were over 45 years old, more often women (61%) than men (39%). Those who have used artificial less than 6 months or never, perceived more often negatively on developing their skills compared to ones who has used artificial intelligence longer time. They also perceived more often that their working environment is not supporting learning new skills. The ones who has never used or used less than 6 months perceived that there is not open environment for sharing the knowledge in their working place (Table 7).

Table 7. New learnings are shared openly relation to how long AI has been used.

	Totally disagree		Disagree		Neither agree nor disagree		Agree		Totally agree		Total	Mean	Std
	n	%	n	%	n	%	n	%	n	%			
No use	0	0.0%	6	37.5%	3	18.7%	3	18.8%	4	25.0%	16	3.3	1,2
1–6 months	0	0.0%	8	33.3%	5	19.1%	7	28.6%	5	19.0%	25	3.3	1,1
6–12 months	2	11.8%	2	11.8%	2	11.8%	10	47.0%	4	17.6%	18	3.5	1,2
12–24 months	0	0.0%	2	16.6%	2	16.7%	3	25.0%	5	41.7%	12	3.9	1,1
+2 years	0	0.0%	0	0.0%	0	0.0%	2	66.7%	1	33.3%	3	4.3	0,5
Total	2		18		12		25		19		74		

The ones who has used less than 6 months artificial intelligence were uncertain their skills. 84% disagreed or totally disagreed when asked if they *can use artificial intelligence platforms effectively.* Also 35% disagreed or totally disagreed when asked *if using artificial intelligence has been easy.*

In the summary, strugglers are more often women than men and usually over 45 years old. They perceive that their company is not supporting their learning path enough and they are uncertain their skills of using technology (ie. AI).

Survivors

Based on the data, it is easy to identify experts/professionals and strugglers. Survivors are something between them and based on the results they seems to be the ones, who has used artificial intelligence around 6-12kk.

Based on the data, age is not significant driver for survivors, but when looked at gender, they are slightly more often women (67%) than men (33%) (Table 3).

Survivors use artificial intelligence regularly (48% 1-3 times per week), but not as often as experts and professionals. They are not actively following the latest progress of artificial intelligence (34% disagree or totally disagee), but they perceive that using artificial intelligence has been easy (81% totally agree or

agree) and they feel comfortable to try new technologies (95% totally agree or agree).

4.3 Determinants and enablers of AI usage

Performance expectancy:

Based on the data, women were slightly more sceptical for utility of artificial intelligence, especially 35-44-year-olds. Older workers were more positive of the benefits of artificial intelligence, especially older men (Table 8).

Results are inline with previous researches. It can be noticed that women are more reluctant to new technologies, albeit only slightly. Altough, it is interesting finding that younger individuals (age 35-44) are more sceptical against the benefits of articifial intelligence (Table 8). All in all, it is interesting to notice that all answerers perceived that artificial intelligence has positive impact: none of the responses were negative (Table 8).

Table 8. Using AI is benefitial relation to gender and age.

Age / Gender	Totally disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Totally agree		Total	Mean	Std
	n	%	n	%	n	%	n	%	n	%	n		
25–34 y / M	0	0.0%	0	0.0%	1	9.1%	3	27.3%	7	63.6%	11	4.5	0,7
35–44 y / M	0	0.0%	0	0.0%	0	0.0%	6	60.0%	4	40.0%	10	4.4	0,5
45–54 y / M	0	0.0%	0	0.0%	0	0.0%	1	33.3%	2	66.7%	3	4.7	0,5
55+ y / M	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3	100.0%	3	5.0	0,0
25–34 y / W	0	0.0%	0	0.0%	0	0.0%	3	33.3%	6	66.7%	9	4.7	0,5
35–44 y / W	0	0.0%	0	0.0%	1	5.9%	10	58.8%	5	29.4%	16	4.1	0,6
45–54 y / W	0	0.0%	0	0.0%	0	0.0%	3	37.5%	5	62.5%	8	4.6	0,5
55+ y / W	0	0.0%	0	0.0%	0	0.0%	2	50.0%	2	50.0%	4	4.5	0,5
Total	0		0		2		28		34		64		

Effort expextancy:

Based on the data, women generally report lower confidence in using artificial intelligence (AI), with an average rating of approximately 3.9 out of 5 across all age groups (Table 9). As expected, the perceived ease of use decreases with

age for both genders. Notably, the data indicates a significant drop (average 2.7 our of 5) in confidence among men aged 45 to 54 (Table 9), compared to other age groups. However, it is important to acknowledge the small demographic size in this category (n=3), which may distort the overall results.

Interestingly, the perception of the ease of using artificial intelligence is not related to the overall confidence in learning new technologies (Table 9 vs. Table 10). All in all, the demographic groups that perceived AI usage to be harder for them (45–54 y / M = 2.5 out of 5, 35–44 / W = 3.4 out of 5, 55+ y / W = 3.0 out of 5), felt more confident to learn new techonologies (45–54 y / M = 4.3 out of 5, 35–44 / W = 4.3 out of 5, 55+ y / W = 4.2 out of 5). In this regard, the difference between women and men is not pronounced. In fact, older women (55+ years old) report feeling more confident in learning new technologies than their male counterparts (Table 10).

Table 9. Using AI has been easy for me relation to gender and age.

Age / Gender	Totally disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Totally agree		Total	Mean	Std
	n	%	n	%	n	%	n	%	n	%	n		
25–34 y / M		0.0%		0.0%	1	9.1%	6	54.5%	4	36.4%	11	4.3	2,5
35–44 y / M		0.0%		0.0%	2	20.0%	6	60.0%	2	20.0%	10	4.0	1,2
45–54 y / M	1	33.4%		0.0%	1	33.3%	1	33.3%		0.0%	3	2.7	1,2
55+ y / M		0.0%		0.0%		0.0%	3	100.0%		0.0%	3	4.0	0,0
25–34 y / W		0.0%		0.0%	2	22.2%	5	55.6%	2	22.2%	9	3.8	1,3
35–44 y / W	2	11.7%	2	11.8%	2	11.8%	9	52.9%	2	11.8%	17	3.4	1,3
45–54 y / W		0.0%	3	25.0%	3	25.0%	4	37.5%	1	12.5%	8	4.5	1,0
55+ y / W		0.0%		0.0%	2	50.0%	2	50.0%		0.0%	4	3.0	0,5
Total	2		5		13		36		11		65		

Table 10. Learning new programs and technologies is easy for me relation to gender and age.

Age / Gender	Totally disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Totally agree		Total	Mean	Std
	n	%	n	%	n	%	n	%	n	%			
25–34 y / M		0.0%	1	10.0%	1	10.0%	5	50.0%	3	30.0%	10	4.0	0,9
35–44 y / M		0.0%		0.0%		0.0%	3	30.0%	7	70.0%	10	4.7	0,5
45–54 y / M		0.0%		0.0%		0.0%	2	66.7%	1	33.3%	3	4.3	0,5
55+ y / M		0.0%		0.0%	1	33.3%	2	66.7%		0.0%	3	3.7	0,5
25–34 y / W		0.0%		0.0%		0.0%	1	11.1%	8	88.9%	9	4.9	0,3
35–44 y / W		0.0%		0.0%		0.0%	12	71.4%	5	28.6%	17	4.3	0,5
45–54 y / W		0.0%	2	14.3%	1	7.1%	6	42.9%	5	35.7%	14	3.0	1,0
55+ y / W		0.0%		0.0%		0.0%	3	80.0%	1	20.0%	4	4.2	1,5
Total	0		3		3		34		30		70		

Social influence:

As observed in the technology profiles, individuals who have used artificial intelligence (AI) for less than six months also tend to struggle overall with adapting to new technologies. This group is predominantly composed of women and individuals over the age of 45.

When examining the relationship between the timeline of AI learning experience and the perception of knowledge sharing in the workplace, it is evident that those with less experience with technology also perceive a lack of support from their employer or collagues. Specifically, 70% of respondents who either have not used AI or have used it for less than six months somewhat disagreed with the statement that new learnings are shared openly in their workplace (Table 7).

Interestingly, despite these earlier perceptions, all respondents expressed a strong willingness to share their learnings with colleagues, with ratings exceeding 4.4 out of 5 across all groups (Table 11). This suggests that employees are generally open to sharing their knowledge with coworkers when given the opportunity.

Table 11. I am happy to share my knowledge with others relation to usage time of AI.

Usage Duration	Totally disagree		Somewhat disagree		Neutral		Somewhat agree		Totally agree		Total	Mean	Std
	n	%	n	%	n	%	n	%	n	%			
No use		0.0%		0.0%	1	6.3%	5	31.2%	10	62.5%	16	4.6	0,6
1–6 months		0.0%		0.0%	2	9.5%	8	38.1%	11	52.4%	21	4.4	0,7
6–12 months		0.0%		0.0%		0.0%	5	29.4%	12	70.6%	17	4.7	0,5
12–24 months		0.0%		0.0%	1	8.3%	3	25.0%	8	66.7%	12	4.6	0,6
+2 years		0.0%		0.0%		0.0%		0.0%	3	100.0%	3	5.0	0,0
Total	0		0		4		21		44		69		

Furthermore, when analyzing the usage of AI in the context of work versus free time, it is noteworthy that a perception of workplace support for skill development does not correlate with AI usage (Table 12). In fact, employees who the most agreed with the sentence *“My employer is interested in developing employees skills”* used AI only during their free time.

Table 12. My employer is interested in developing employees' skills relation to AI usage place.

AI usage place	Totally disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Totally agree		Total	Mean	Std
	n	%	n	%	n	%	n	%	n	%			
No	2	12.5%	1	6.3%	2	12.5%	6	37.5%	5	31.2%	16	3.7	1,3
Yes, work only	1	14.3%	1	14.3%	1	14.3%	3	42.8%	1	14.3%	7	3.3	1,3
Yes, freetime only		0.0%	1	10.0%	3	30.0%	1	10.0%	5	50.0%	10	4.0	1,1
Yes, work & freetime	1	2.8%	5	13.9%	7	19.5%	16	44.4%	7	19.4%	36	3.6	1,0
Total	4		8		13		26		18		69		

Based on these findings, it can be concluded that eventhough Finnish employers are supportive of competence development, the development of skills related to artificial intelligence (AI) might not be emphasized at the time of the survey.

Table 13. My supervisor is supporting developing my competence relation to usage of AI in freetime or work.

AI usage place	Totally disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Totally agree		Total	Mean	Std
	n	%	n	%	n	%	n	%	n	%			
No	2	12.5%	1	6.3%	4	25.0%	3	18.7%	6	37.5%	16	3.6	1,4
Yes, work only		0.0%		0.0%		0.0%	5	71.4%	2	28.6%	7	4.3	0,5
Yes, freetime only		0.0%		0.0%	3	30.0%	2	20.0%	5	50.0%	10	4.2	0,9
Yes, work & freetime	2	5.6%	1	2.8%	5	13.9%	12	33.3%	16	44.4%	36	4.1	1,1
Total	4		2		12		22		29		69		

Moreover, a positive relation exists between good supervisory support and the use of AI, particularly when it is utilized exclusively in the workplace (Table 13). Respondents who rated their supervisors' support for learning new skills significantly higher, averaging over 4.1 out of 5 was used AI in their work or/and freetime. In contrast, those who reported a much lower level of perceived support, averaging approximately 3.6 out of 5, have never used AI.

Faciliating conditions:

Upon analyzing the methods by which employees acquire new skills in relation to their use of artificial intelligence (AI) — whether at work, in their free time, or not at all — it becomes evident that those who utilize AI at *work* or in both *work and free time* tend to have greater access to learning opportunities, such as online courses and external training programs (Table 14). Conversely, employees who use AI exclusively in their free time or not at all are more likely to engage in skill development through internal training programs provided by their organizations.

Table 14. Usage of AI in work/freetime relation to What learning opportunities employees has.

Learning Opportunity	Yes, work		Yes, work & freetime		Yes, freetime		No		Total
	n	%	n	%	n	%	**n**	**%**	n
Online courses	6	85.7%	26	72.2%	6	60.0%	10	62.5%	48
Internal trainings	4	57.1%	30	83.3%	9	90.0%	14	87.5%	57
Workshops	3	42.9%	11	30.6%	3	30.0%	8	50.0%	25
Mentoring or sparring	2	28.6%	7	19.4%	3	30.0%	5	31.3%	17
Self-study materials (e.g., PDFs)	4	57.1%	20	55.6%	5	50.0%	8	50.0%	37
External training	5	71.4%	24	66.7%	5	50.0%	10	62.5%	44
Conferences or other professional events	3	42.9%	17	47.2%	3	30.0%	7	43.8%	30
Other, what?	0	0.0%	3	8.3%	0	0.0%	0	0.0%	3
Total	27		138		34		62		261

When asked about how employees specifically learned artificial intelligence (Table 15), the most common response among all users was *by trying.* Among those who utilized AI both *at work* and in their *free time*, *self-learning* was also notably prevalent, with approximately 63% of respondents indicating this as a key method of learning. Noteworthy, 100% of employees who used AI only in *work* response that they learned AI *by trying*.

Table 15. How employees are learned to use AI relation to Usage of AI in work/free time.

Learning Method	Yes, work		Yes, work & freetime		Yes, freetime		No		Total
	n	%	n	%	n	%	**n**	**%**	n
By experimenting	10	100.0%	36	87.8%	10	90.9%	0	0.0%	56
Self-study (e.g. internet, YouTube)	3	30.0%	26	63.4%	2	18.2%	0	0.0%	31
Internal training	1	10.0%	9	22.0%	1	9.1%	0	0.0%	11
External training	3	30.0%	10	24.4%	1	9.1%	0	0.0%	14
A colleague or acquaintance taught me	2	20.0%	6	14.6%	4	36.4%	0	0.0%	12
Other, how?	0	0.0%	1	2.4%	0	0.0%	0	0.0%	1
Total	19		88		18		0		125

Based on these results, it can be concluded that employees perceive themselves as primarily responsible for learning new technologies, as opposed to relying on their employers for this development.

In examining the duration and context of artificial intelligence (AI) usage among employees (Table 16), it is observed that those who have used AI for more than 12 months, engage with it during both *free time* and *work*. Conversely, employees using AI exclusively for *work* have accumulated fewer than 12 months of usage.

Table 16.How long employee has used AI relation to Usage of AI work/free time.

Usage Duration	**Yes, work**		**Yes, work & freetime**		**Yes, freetime**		**No**		**Total**
	n	%	n	%	n	%	**n**	**%**	n
1–6 months	6	60.0%	14	34.2%	6	54.5%	0	0.0%	26
6–12 months	4	40.0%	14	34.1%	3	27.3%	0	0.0%	21
12–24 months	0	0.0%	11	26.8%	1	9.1%	0	0.0%	12
Over 2 years	0	0.0%	2	4.9%	1	9.1%	0	0.0%	3
Total	10		41		11		0		62

Based on these results, it can be said that individuals who embrace new technologies are primarily motivated by personal interests in their free time, with the application of such technologies for work-related purposes following subsequently.

When asked about the most significant barriers to learning new skills, specifically regarding competence development in their workplace, all groups identified lack of support from employers or supervisors as the primary issue (Table 17). This manifests through insufficient time or resources allocated for skill development. These barriers were confirmed by responses in the open-ended questions where employees raised up concerns that their

employer/supervisor does not see training and learning as worth for allocate resources and time.

Table 17. What are the main barriers for learning in your company relation to How long AI has been used.

Barrier to Training	No use		1–6 months		6–12 months		12–24 months		+2 years		Total
	n	%	n	%	n	%	n	%	n	%	n
Employer does not allow time for training	5	31.3%	5	23.8%	4	23.5%	5	41.7%	1	33.3%	20
Difficult to arrange substitute/time for training	7	43.8%	6	28.6%	5	29.4%	4	33.3%	1	33.3%	23
I don’t see the need for training	0	0.0%	1	4.8%	0	0.0%	0	0.0%	0	0.0%	1
I can’t find suitable training	4	25.0%	6	28.6%	3	17.6%	2	16.7%	0	0.0%	15
Other, what?	3	18.8%	6	28.6%	4	23.5%	3	25.0%	0	0.0%	16
No obstacles	3	18.8%	3	14.3%	2	11.8%	2	16.7%	1	33.3%	11
Total	22		27		18		16		3		86

When analyzing how different demographic profiles perceive barriers to skill development, two key observations emerge (Table 18): all men over 55 years old reported challenges in finding replacement workforce. In contrast, 67% of men aged 45-55 perceived no barriers at all to competence development.

The responses from older women indicated a split opinion, with concerns primarily focused on time constraints and difficulties in finding replacement workers. Similarly, individuals aged 45-55, both women and men, expressed difficulty in locating suitable training courses.

These findings may be attributed to the perception that older workers possess competencies that are difficult to replace, even for short time periods. Additionally, although they express a desire to develop their skills, particularly those aged 45-55 who still have many years remaining in their careers, face challenges in identifying relevant training opportunities to enhance their competencies.

Table 18. What are the main barriers for learning new skills relation to Gender and age.

Barriers to training	**25–34 y / M**		**35–44 y / M**		**45–54 y / M**		**55+ y / M**		**25–34 y / W**		**35–44 y / W**		**45–54 y / W**		**55+ y / W**		**To-tal**
	n	%	n	%	n	%	**n**	**%**	**n**	**%**	n	%	n	%	n	%	**n**
Employer does not allow time for training	4	40.0%	4	40.0%	0	0.0%	1	33.3%	3	33.3%	3	21.4%	3	21.4%	2	40.0%	20
Difficult to arrange substitute/time for training	2	20.0%	5	50.0%	0	0.0%	3	100.0%	2	22.2%	4	28.6%	4	28.6%	2	40.0%	22
I don’t see the need for training	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	11.1%	0	0.0%	0	0.0%	0	0.0%	1
I can’t find suitable training	2	20.0%	1	10.0%	1	33.3%	0	0.0%	3	33.3%	3	21.4%	4	28.6%	1	20.0%	15
Other, what?	1	10.0%	1	10.0%	0	0.0%	0	0.0%	4	44.4%	4	28.6%	4	28.6%	2	40.0%	16
No obstacles	2	20.0%	2	20.0%	2	66.7%	0	0.0%	1	11.1%	2	14.3%	2	14.3%	0	0.0%	11
Total	11		13		3		4		14		16		17		7		85

This conclusion is also reinforced by responses to questions regarding *whether employers support skill development financially* (Table 19) or *allocated working time* (Table 20). Both questions received notably low agreement ratings, averaging below 4 out of 5 across all groups.

The level of satisfaction with employer support does not directly reflect the duration of artificial intelligence usage. The employees who had never used artificial intelligence perceived the highest levels of disagreement or uncertainty, with an average rating of approximately 2.9 out of 5 regarding available financial resources (Table 19) and 3.4 out of 5 concerning time allocation (Table 20). Similarly, individuals who had used artificial intelligence for 1-2 years reported average ratings of approximately 2.8 out of 5 for financial resources (Table 19) and 3.5 out of 5 for time (Table 20). Interestingly, those who have used AI for the longest time (over 2 years) and those who have recently started using it (1-6 months) reported the highest levels of satisfaction with the support received from their employers.

Table 19. My employer supports training financially relation to Usage duration.

Usage Duration	Totally disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Totally agree		Total	Mean	Std
	n	%	n	%	n	%	n	%	n	%	n		
No use	2	12.5%	4	25.0%	4	25.0%	5	31.2%	1	6.3%	16	2.9	1,1
1–6 months	1	4.8%	1	4.8%	5	23.8%	9	42.8%	5	23.8%	21	3.8	1,0
6–12 months	4	23.5%	2	11.8%		0.0%	6	35.3%	5	29.4%	17	3.4	1,6
12–24 months	2	16.6%	2	16.7%	5	41.7%	2	16.7%	1	8.3%	12	2.8	1,1
+2 years		0.0%	1	33.4%		0.0%	1	33.3%	1	33.3%	3	3.7	1,2
Total	9		10		14		23		13		69		

Table 20. My employer supports training during working hours relation to Usage duration.

Usage Duration	Totally disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Totally agree		Total	Mean	Std
	n	%	n	%	n	%	n	%	n	%	n		
No use	1	6.3%	3	18.7%	3	18.7%	7	43.8%	2	12.5%	16	3.4	1,1
1–6 months		0.0%	1	4.8%	4	19.0%	10	47.6%	6	28.6%	21	4.0	0,8
6–12 months	1	5.9%	3	17.6%	1	5.9%	5	29.4%	7	41.2%	17	3.8	1,3
12–24 months		0.0%	2	16.7%	4	33.3%	4	33.3%	2	16.7%	12	3.5	1,0
+2 years		0.0%		0.0%	1	33.4%	1	33.3%	1	33.3%	3	4.0	0,8
Total	2		9		13		27		18		69		

When comparing responses from different demographic profiles regarding employer support for competence development through financial allocation (Table 21), it is evident that individuals aged 45-55 years are particularly dissatisfied. Specifically, 42.8% of women in this age group totally disagree or somewhat disagree with the statement that their employer supports skill development financialy. Additionally, 66.7% of men over 55 years old found it challenging to evaluate the support provided.

Table 21. My employer supports training financially relation to Gender and age.

Age / Gender	Totally disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Totally agree		Total	Mean	Std
	n	%	n	%	n	%	n	%	n	%			
25–34 y / M	1	10.0%	2	20.0%	3	30.0%	3	30.0%	1	10.0%	10	3.1	1,1
35–44 y / M		0.0%		0.0%	3	30.0%	5	50.0%	2	20.0%	10	3.5	0,7
45–54 y / M		0.0%		0.0%		0.0%	2	66.7%	1	33.3%	3	3.7	0,5
55+ y / M		0.0%	2	66.7%		0.0%		0.0%	1	33.3%	3	2.3	1,4
25–34 y / W	3	33.3%		0.0%		0.0%	4	44.5%	2	22.2%	9	3.2	1,6
35–44 y / W	2	14.3%	1	7.2%	1	7.1%	5	35.7%	5	35.7%	14	3.7	1,4
45–54 y / W	3	21.4%	3	21.4%	2	14.3%	5	35.7%	1	7.2%	14	2.9	1,3
55+ y / W		0.0%		0.0%		0.0%	3	60.0%	2	40.0%	5	4.0	0,5
Total	9		8		9		27		15		68		

A similar pattern emerges when analyzing perceptions of the time allocated by employers for skills development (Table 22). The most dissatisfied groups again consist of 45-55-year-old women, with 21.4% expressing somewhat disagreement, alongside 33% of men over 55 years old who totally disagree.

Interestingly, younger women aged 25-35 also reported dissatisfaction regarding the time their employer provides for learning, with 33% disagreeing or somewhat disagreeing with the statement. However, this dissatisfaction was not mirrored in responses from younger men.

Table 22. My employer supports training during working hours relation to Gender and age

Age / Gender	Totally disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Totally agree		Total	Mean	Std
	n	%	n	%	n	%	n	%	n	%			
25–34 y / M		0.0%	2	20.0%	1	10.0%	4	40.0%	3	30.0%	10	3.8	1,1
35–44 y / M		0.0%	1	10.0%	3	30.0%	4	40.0%	2	20.0%	10	3.7	0,9
45–54 y / M		0.0%		0.0%	1	33.3%	1	33.3%	1	33.3%	3	4.0	0,8
55+ y / M	1	33.3%		0.0%		0.0%	2	66.7%		0.0%	3	2.3	1,4
25–34 y / W	1	11.1%	2	22.2%	1	11.1%	3	33.4%	2	22.2%	9	3.3	1,3
35–44 y / W		0.0%	1	7.2%	3	21.4%	5	35.7%	5	35.7%	14	4.0	0,9
45–54 y / W		0.0%	3	21.4%	2	14.3%	7	50.0%	2	14.3%	14	3.6	1,0
55+ y / W		0.0%		0.0%		0.0%	3	60.0%	2	40.0%	5	4.4	0,5
Total	2		9		11		29		17		68		

4.4 Factors supporting the adaptation process

Employees were surveyed by open-ended question regarding their suggestions for improving continuous learning and the adoption of new technologies in their workplace. The responses revealed four main categories: *Social, Management & strategy, Time for learning,* and *Trainings*. Notably, demographic profiles did not show significant differences in responses.

Social

Approximately 12% of employees emphasized the importance of support from colleagues and supervisors. One respondent articulated, "*Generally speaking, an atmosphere that encourages continuous learning. Here, the example of colleagues and superiors often plays a big role."*

Employees highlighted the significance of peer learning and fostering a positive atmosphere that encourages knowledge sharing. Several responses noted the need for clarity regarding training opportunities available within the company, with supervisors playing a crucial role in this communication.

Management & strategy

17% of employees indicated that alignment between management practices and company strategy is essential for supporting continuous learning. Many responses emphasized the need for a faster implementation of learning loops and the establishment of a positive learning culture rooted in strategic focus areas. Employees expressed that continuous learning should be part of the company DNA, with one employee summarizing, *"Cultural change is needed to make competence development a higher priority in everyday life."*

Time for learning and training plan

The third category, which covered for 15% of responses, focused on the time allocated for learning. Employees expressed a desire for more dedicated time for learning, with some suggesting weekly or monthly hours specifically reserved for acquiring new practices and technologies. All employees who raised this topic expressed a preference for these learning hours to occur during work hours.

Several employees recommended a more systematic training plan, including competence assessments and scheduled learning objectives. As one employee articulated, "*We should define the trainings we will attend for the next year and put the dates on the calendar well in advance so that the calendar doesn't fill up with other things."*

Another added*, "I would set aside an hour a week for employees to learn on their own. This was previously used in the company but was discontinued due to low activity. However, I was involved in the program myself."* This underscores the importance of how companies communicate learning opportunities and ensure that learning hours are utilized effectively to benefit both the organization and the employees.

Trainings

The most frequently mentioned method for supporting learning, noted by 26% of respondents, was through internal and external trainings. Employees perceived

various types of training as impactful, including internal sessions, external workshops, information briefings, and sharing best practices. Additionally, several respondents rised up the need for applying new practices into action soon after training, reflecting a significant observation in the responses regarding how employees believe they learn most effectively: primarily through *“trying in practice.”.*

4.5 Best learning methods

Employees were asked on how they perceive they learn best. Based on the open-ended responses, three primary learning methods were inferred: *Learning by doing, Learning together with others,* and *Studying*. Notably, demographic profiles did not reveal significant differences in these preferences.

Learning by doing. This method emerged as the overwhelmingly preferred approach, with 58% of employees indicating a preference for hands-on learning. Respondents highlighted the importance of "low-threshold learning," which suggests that creating accessible learning opportunities is beneficial.

Learning together with others. Approximately 14% of respondents expressed a preference for collaborative learning experiences. Notably, 8% indicated that this collaborative approach was often combined with *learning by doing*, showcasing the interconnectedness of these methods.

Studying. Around 16% of employees preferred traditional studying methods, with 13% combining this preference with *learning by doing*. This indicates that theoretical knowledge is still valued, particularly when it is integrated with practical application.

Several employees mentioned the advantages of observational learning, noting that they learn effectively when they can observe colleagues, engage in discussions, and share best practices. One respondent summarized this perspective well: *“By trying things out in practice and hearing new ideas, either from colleagues or internal/external training."*

Overall, the responses suggest that employees perceive their most effective learning occurs when theoretical concepts are applied in practice, alongside opportunities for experimentation. Additionally, facilitating low-threshold discussion sessions for sharing best practices and seeking assistance is essential for enhancing the learning environment.

5 Discussion and practical implications

5.1 Lowering stress and resistance

Change can be a stressful process for employees, rising both negative and positive emotions. Individual reactions to change often depend on personal characteristics and previous experiences. However, organizations can facilitate a smoother transition. Specifically, when employees perceive new technology as useful and easy to use, resistance to change is less likely to occur (Keyriläinen & Sutela, 2018). Wang et al. (2008) further emphasize the organization's responsibility to provide sufficient resources and guidelines, which can mitigate technostress and resistance to change. This includes fostering a culture of continuous learning, appropriately assigning tasks, and offering comprehensive training (Wang et al., 2008).

Employee responses in the survey corroborate these theories, indicating a strong belief that continuous learning should be integrated to the company's identity and strategy. Additionally, employees expressed the need for competence assessments and structured learning plans. Kokkinen (2020) support this point of view by stating, "*Employees and employers must cooperate in developing the employee's skills: the employee is responsible for their own development plan, and the employer supports the plan by providing tools and time to develop their own skills.*"

In addition, research of Wang et. al. (2008) indicates that employee involvement in the decision-making process, combined with supportive management and clear communication of a change vision, significantly contributes to reduced stress levels among employees.

5.2 Individual learning paths and goals

Employees are unique individuals with diverse learning curves and needs. Consequently, one-time, generic training programs often fail to meet employees

requirements; a more personalized and practical approach to training is essential (Laiho & Vähämäki, 2021). This claim is further supported by research results indicating that employees benefit from a combination of internal and external training sessions, opportunities for self-exploration, and subsequent "best practices" training to share experiences and insights.

Offering a broad variety of learning methods allows individuals to identify approaches that best suit their personal learning styles. Notably, survey data indicates that external training programs are often perceived more effective for acquiring new technological skills.

Companies should be proactive in identifying individuals who may struggle to adapt to new technology (ie. AI). Especially, employees over the age of 45, who may have had less experience to recent technological advancements, most likely face challenges. Additionally, it is important to recognize that women tend to perceive their technological abilities lower than their male counterparts, even when their baseline knowledge is comparable.

5.3 Managerial work

Supportive supervisor that communicates transparently about the vision for change can enhance employees' adaptive performance and foster receptiveness to changes (Wang et al., 2008). While it is essential for organizations to reduce resistance to change by providing necessary resources and guidelines for competence development, survey responses indicate that support from supervisors is more critical for learning new skills than overall company support.

Supervisors directly influence the workload and objectives set for employees, which is why employees have heightened expectations for their supervisors' involvement in their development. Supervisors play a crucial role in ensuring that employees have adequate time and access to the right resources for learning.

Moreover, it is vital for supervisors to recognize experienced employees who have long career behind yet remain open to developing their competencies. These employees often face challenges in finding temporary substitutes and relevant training opportunities that align with their specific needs.

Survey responses also indicated a strong need for clear guidelines regarding the company's possibilites for competence development. Supervisors can assist employees in navigating these opportunities, utilizing the guidance of Human Resources and company management to effectively communicate available resources and support.

5.4 Receipe for successful implementation

Based on the theory and survey results, it is possible to draw comprehensive best practices for effectively integrating new technologies at workplace which consider individual need and basis (Table 23). This practices are ensuring that employees are informed, motivated and supported thoughout the process.

Table 23. Practical implementation.

Stage	*Best practice*
Prepare for implementation	- Make learning part of the company identity o Systematic skills assessment and development plan o Involve supervisors - Motivate and inspire: highlight why the change or the new practice is meaningful to conduct - Involve Experts and Innovators
First workshop: launch	- Introduction o Best practices and real life examples = make it personal for employees o Motivate and inspire: highlight *why* the change is meaningful = low effort expectancy, high performance expectancy, keep promises! - Time to sparring with team or coworkers
Continuous support	- Low threshold help o Mentor who helps on low-treshold o Easy to access guides and trainings - Encourage and remind to try new practice - Make time for learning on working time
Second workshop: best practices	- Best practices in own company and team - Sparring with collagues - Encouraging to try new practice

Preparing for implementation:

Organizations should embed continuous learning into their identity. This involves creating a systematic skills assessment and development plan that identifies employees' current competencies and recognizes pathways for growth. By prioritizing learning as a part of the company culture, employees are more likely to view skill development as a shared responsibility.

Based on the survey results, supervisors has seen to play a important role in the successful implementation of new technologies. It is essential to involve them early in the process, motivating them to communicate why the change or new practice is meaningful. By presenting a vision of how the new technology will enhance performance and streamline processes, supervisors can help reduce resistance and promote a supportive environment for learning into their team.

Experts and Innovators are often enthusiastic about new technologies, making their involvement in the implementation process invaluable. Engaging these individuals early on allows them to test new tools and provide feedback on best practices. Their insights can help refine the technology and ensure it meets the needs of employees. Furthermore, once they have become familiar with the new technology, Experts and Innovators can serve as ambassadors for their coworkers. By sharing their experiences and enthusiasm, they can encourage others to embrace the changes and foster a positive attitude towards the new practices being introduced. This peer influence can significantly enhance employee buy-in and facilitate a smoother transition to the new technology.

First workshop: Launching new technology or platform

The first workshop should begin with a brief introduction to the new technology or platform. This session should include best practices and real-life examples, making the information relatable and personal to the participants. Additionally, it is important to motivate participants by clearly explaining *why* the change is meaningful. Focusing on low effort expectancy and high performance expectancy will help employees understand the benefits of the new technology and encourage them to use it.

Encourage participants to engage in sparring sessions with their teams or coworkers. This collaborative approach allows employees to share their thoughts, rise up concerns and brainstorm ways to integrate the new technology into their daily routines. By couraging open communication, organizations can create a supportive atmosphere that promotes adaptability.

Continuous support

To ensure success, organizations is good to provide low-threshold help through mentorships. Assigning mentors who can offer guidance and support encourages employees to seek assistance when needed. Additionally, easy-to-access guidelines and resources should be made available to further self-learning.

Organizations should actively encourage employees to experiment with the new technology and remind them to try new methods. This action ensures that new practice is implemented into daily routines and learning does not remain just an activity that takes place in training sessions. Essential part of this is to allocate dedicated time for learning within the worktime. By allowing employees to train and develop their skills during work hours, organizations signal their commitment to employees competence development.

Second workshop

The second workshop should focus on sharing best practices. Participants can discuss their experiences with the new technology, highlighting successes and challenges encountered along the way. This peer support system can help strengthen learning experience and a sense of community.

Finally, continually encourage employees to experiment and try out new features and functionalities of the technology. Providing a safe space for trial and error will enable employees to gain confidence and develop their skills effectively.

6 Conclussions

This thesis has explored at how Finnish employees perceive about their ability to adapt to new technologies and the support they receive from their employers, especially regarding artificial intelligence (AI). The findings show that while employees understand the need for continuous learning and adapting to new technologies, their experiences and feelings vary based on factors like age, gender, and previous experience with technology.

The survey results align with existing theories that suggest individual differences play a significant role in how well someone can adapt to change (Jundt et al., 2014; Sutela et al., 2019). For example, older employees, particularly women, often perceive less confident about their technical skills and worry about their ability to adapt to new technologies. This highlights the need for organizations to provide tailored support and training, as one-size-fits-all programs may not work for everyone. In addition, results support that organizations should provide versatile learning platforms and materials, and not forgetting low-treshold support from working community.

The reliability of this research is supported by using different methods to collect data, including qualitive and quantity data. However, it is important to recognize some potential biases, such as inaccuracies in self-reported data and the small size of certain demographic groups. Ethical considerations were respected throughout the research, ensuring the confidentiality of participants and treating their responses with care.

This thesis successfully met its objectives, offering valuable insights into how employees adapt to artificial intelligence. The findings suggest that companies should create structured training programs, allow dedicated time for learning during work hours, and promote a culture of ongoing learning. Additionally, it is crucial for supervisors to provide the necessary support and resources to help their teams.

Further research could examine how employees in specific industries perceive the impact of new technologies and their ability to adapt to and master these tools. Organizations could benefit from a clear framework that identifies the biggest barriers to implementing new technology and provides guidance on how to integrate comprehensive platforms, like artificial intelligence, effectively. Additionally, after 5 to 10 years, it would be valuable to reflect on which learning strategies and practices have been most successful in companies utilizing artificial intelligence.

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Työelämä ja jatkuva oppiminen

Hei,

Kiitos, että olet ottanut aikaa osallistuaksesi tähän kyselytutkimukseen!

Tämän kyselyn tavoitteena on selvittää, miten erilaiset työympäristöt ja työmuodot vaikuttavat oppimismahdollisuuksiin ja -motivaatioon. Kysely keskittyy erityisesti teknologiaosaamiseen ja AI:n hyödyntämiseen. Kyselyn tuloksia tullaan hyödyntämään osana opinnäytetyötä, joka tullaan julkaisemaan avoimesti Theseus-tietokannassa loppuvuodesta 2024.

Kyselyn täyttäminen vie noin 5-10 minuuttia, ja kaikki vastaukset käsitellään täysin nimettöminä ja luottamuksellisina. Tutkimukseen osallistuminen on täysin vapaaehtoista. Osallistuminen tutkimukseen katsotaan suostumukseksi tutkimuksessa kysyttyjen tietojen tutkimuskäyttöön.

Kyselyn lopussa on tilaa avoimille kommenteille, joten ole hyvä ja jaa ajatuksiasi ja ehdotuksiasi siitä, miten työpaikkojen tulisi edistää jatkuvaa oppimista ja mitä ajatuksia kyselylomake herätti.

Kysely on avoinna 5.7.2024 asti.

Kiitos jo etukäteen vastauksistasi ja ajastasi!

Ystävällisin terveisin,
Eveliina Liias,
Maisteriopiskelija, Master of Business Administration
Turun Ammattikorkeakoulu

Perustiedot

1. Ikäryhmä *

- ◯ Alle 24 vuotias
- ◯ 25-34 vuotta
- ◯ 35-44 vuotta
- ◯ 45-54 vuotta

- ◯ 55 tai yli

2. Sukupuoli *

- ◯ Mies
- ◯ Nainen
- ◯ Muu
- ◯ En halua ilmoittaa

3. Koulutustaso *

- ◯ Peruskoulu
- ◯ Toisen asteen tutkinto
- ◯ Alempi korkeakoulu
- ◯ Ylempi korkeakoulu
- ◯ Muu, mikä? _____

4. Työkokemus vuosina *

- ◯ Alle 5 vuotta
- ◯ 5-10 vuotta
- ◯ 11-20 vuotta
- ◯ 21-30 vuotta
- ◯ Yli 30 vuotta

5. Missä työtehtävissä työskentelet pääasiassa? *

- ◯ Terveydenhuolto
- ◯ Koulutus / opettaminen
- ◯ Teknologia / IT
- ◯ Asiakaspalvelu
- ◯ Taloushallinto

- ◯ Markkinointi
- ◯ Myynti
- ◯ Muu, mikä? _____

6. Mikä on pääasiallinen työroolisi? *

- ◯ Johtaja
- ◯ Asiantuntija
- ◯ Toimihenkilö
- ◯ Työntekijä
- ◯ Yrittäjä
- ◯ Muu, mikä? _____

7. Kuinka monta työntekijää on yrityksessä, jossa työskentelet?

- ◯ 1-10
- ◯ 11-50
- ◯ 51-100
- ◯ 100-250
- ◯ Yli 250

Osaaminen ja uuden oppiminen

8. Osaaminen ja uuden oppiminen:

Mitä mieltä olet seuraavien väittämien kanssa? *

	Täysin eri mieltä	Osittain eri mieltä	En samaa enkä eri mieltä	Osittain samaa mieltä	Täysin samaa mieltä
Kehitän mielelläni osaamistani	◯	◯	◯	◯	◯
Seuraan aktiivisesti miten alani kehittyy	◯	◯	◯	◯	◯
Osaamiseni on ajantasalla	◯	◯	◯	◯	◯

	Täysin eri mieltä	Osittain eri mieltä	En samaa enkä eri mieltä	Osittain samaa mieltä	Täysin samaa mieltä
Tarvitsen lisäkoulutusta lähivuosina	○	○	○	○	○
Opin helposti uudet ohjelmat ja käyttöjärjestelmät	○	○	○	○	○
Työni antaa mahdollisuuksia käyttää uusia opittuja taitoja	○	○	○	○	○
Työpaikallani on jatkuva oppimisen kulttuuri	○	○	○	○	○
Olen osallistunut myös muihin kuin oman alani koulutuksiin	○	○	○	○	○

9. Työnantaja ja osaamisen kehittäminen:

Mitä mieltä olet seuraavien väittämien kanssa? *

	Täysin eri mieltä	Osittain eri mieltä	En samaa enkä eri mieltä	Osittain samaa mieltä	Täysin samaa mieltä
Työnantajani tukee kouluttautumista rahallisesti	○	○	○	○	○
Työnantajani tukee kouluttautumista työajalla	○	○	○	○	○
Työpaikallani jaetaan uusia oppeja avoimesti	○	○	○	○	○
Jaan osaamistani mielelläni muille työntekijöille	○	○	○	○	○
Työnantajani on kiinnostunut kehittämään työntekijöiden osaamista	○	○	○	○	○
Esimieheni tukee uusien taitojen oppimista	○	○	○	○	○
Esimieheni antaa mahdollisuuksia hyödyntää oppimaani työssäni	○	○	○	○	○

10. Mitä oppimismuotoja työpaikkasi tarjoaa osaamisen kehittämiseen? *

☐ Verkkokursseja

- [ ] Sisäisiä koulutuksia
- [ ] Työpajoja
- [ ] Mentorointia tai sparrausta
- [ ] Itseopiskelumateriaaleja (esim. pdf-tiedostot)
- [ ] Ulkoisia koulutuksia
- [ ] Konferensseja tai muita ammattilaistapahtumia
- [ ] Muuta, mitä? _____

11. Minkälaisia esteitä työpaikallasi on liittyen osaamisen kehittämiseen? *

- [ ] Työnantajani ei anna aikaa kouluttautumiselle
- [ ] Kouluttautumisen ajaksi ei löydy sijaista tai se on vaikea järjestää
- [ ] En näe tarvetta kouluttautumiselle
- [ ] En löydä sopivia koulutuksia
- [ ] Muuta, mitä? _____
- [ ] Ei mitään esteitä

Tekoäly ja teknologia

12. Käytätkö työssäsi tietokonetta tai puhelinta? *

- ◯ Päivittäin
- ◯ Viikoittain
- ◯ Muutaman kerran kuukaudessa
- ◯ Harvemmin
- ◯ En koskaan

13. Mitä ohjelmia käytät työssäsi <u>päivittäin</u>? *

- [ ] Tekstinkäsittely (esim. Word)
- [ ] Kuvan- tai videonkäsittely (esim. Photoshop)

- [ ] Datan käsittely (esim. Excel)
- [ ] Datan seuranta (esim. Power BI)
- [ ] Asiakas- tai potilashallinta (esim. CRM)
- [ ] Taloushallinto
- [ ] Viestintä (esim. Teams)
- [ ] Asiakaspalaute
- [ ] Muita, mitä? _____

14. Oletko hyödyntänyt tekoälyä työssä tai vapaa-ajalla? *

- ○ Kyllä, työssä
- ○ Kyllä, työssä ja vapaa-ajalla
- ○ Kyllä, vapaa-ajalla
- ○ En, kummassakaan

15. Mitkä ovat suurimmat esteet sille, ettet ole vielä kokeillut tekoälyä? *

_____

_____

_____

_____

_____

16. Missä tilanteessa näkisit, että voisit kokeilla tekoälyä? *

_____

_____

_____

_____

_____

17. Tekoäly ja uudet teknologiat:
Mitä mieltä olet seuraavien väittämien kanssa? *

	Täysin eri mieltä	Osittain eri mieltä	En samaa enkä eri mieltä	Osittain samaa mieltä	Täysin samaa mieltä
Tulevaisuudessa tulen käyttämään tekoälyä työssäni	○	○	○	○	○
Tulevaisuudessa tulen käyttämään tekoälyä vapaa-aikanani	○	○	○	○	○
Tekoäly tulee tehostamaan työskentelyäni tulevaisuudessa	○	○	○	○	○
Tekoäly tulee korvaamaan työpaikkoja	○	○	○	○	○
Tekoäly tulee luomaan uusia työpaikkoja	○	○	○	○	○

18. Kuinka kauan olet käyttänyt tekoälyä? *

- ○ 1-6 kk
- ○ 6-12 kk
- ○ 12-24 kk
- ○ yli 2 vuotta

19. Kuinka usein käytät tekoälyä?

- ○ Päivittäin
- ○ 1-3 krt viikossa
- ○ 1-3 krt kuukaudessa
- ○ Harvemmin

20. Miten olet opetellut tekoälyn käyttöä? *

- ☐ Kokeilemalla
- ☐ Itseopiskelu (esim. internet, Youtube, some,..)
- ☐ Sisäinen koulutus
- ☐ Ulkopuolinen koulutus
- ☐ Työkaveri tai tuttu on opettanut
- ☐ Muuten, miten? _____

21. Mihin tarkoitukseen käytät tekoälyä? *

- [ ] Kuvien/videoiden tuottamiseen
- [ ] Tekstin tuottamiseen
- [ ] Ideoimiseen
- [ ] Tiedon hakuun
- [ ] Datan käsittelyyn
- [ ] Muuhun, mihin? _____

22. Mieti niitä tehtäviä, joita olet tekoälyn avulla suorittanut työssä tai vapaa-ajalla. Arvioi, kuinka monta tuntia tekoälyn hyödyntäminen on säästänyt aikaasi viimeisen kuukauden aikana verrattuna siihen, että et olisi käyttänyt tekoälyä:

Tuntia: _____

23. Mitä tekoälyohjelmia olet käyttänyt? Listaa kaikki mitkä muistat. *

_____
_____
_____
_____
_____

24. Missä tehtävissä tekoäly on ollut kaikista hyödyllisin? *

_____
_____
_____
_____
_____

25. Tekoäly ja uudet teknologiat:
Mitä mieltä olet seuraavien väittämien kanssa? *

	Täysin eri mieltä	Osittain eri mieltä	En samaa enkä eri mieltä	Osittain samaa mieltä	Täysin samaa mieltä
Tekoälyn käyttäminen on hyödyllistä	○	○	○	○	○
Osaan käyttää tekoälyalustoja tehokkaasti	○	○	○	○	○
Tekoälyn käyttäminen on ollut minulle helppoa	○	○	○	○	○
Seuraan aktiivisesti mihin tekoälyalustat kehittyvät	○	○	○	○	○
Kokeilen mielelläni uusia teknologioita ja digitaalisia alustoja	○	○	○	○	○
Tekoäly tulee korvaamaan työpaikkoja tulevaisuudessa	○	○	○	○	○
Tekoäly tulee luomaan uusia työpaikkoja	○	○	○	○	○

Työsuhde ja työskentelymalli

26. Työskenteleletko pääasiassa *

- ○ Etänä
- ○ Yrityksen tiloissa
- ○ Yhdistelmä molempia

27. Valitse kaikki työsuhteen muodot, jotka vastaavat tämän hetkistä tilannettasi: *

- ☐ Työsuhteessa, kokoaikainen
- ☐ Työsuhteessa, osa-aikainen
- ☐ Yrittäjä, kokoaikainen
- ☐ Yrittäjä, osa-aikainen
- ☐ Kevytyrittäjä
- ☐ Opiskelija
- ☐ Muu, mikä? _____

28. Miten koet, että yrittäjyys on vaikuttanut osaamiseesi? *

	Täysin eri mieltä	Osittain eri mieltä	Ei samaa eikä eri mieltä	Osittain samaa mieltä	Täysin samaa mieltä
Kehitän mielelläni osaamistani	○	○	○	○	○
Seuraan aktiivisesti miten alani kehittyy	○	○	○	○	○
Löydän helposti kouluttautumiselle aikaa	○	○	○	○	○
Pystyn kustantamaan haluamani koulutukset helposti	○	○	○	○	○
Löydän sopivia alani koulutuksia helposti	○	○	○	○	○
Olen osallistunut myös muihin kuin oman alani koulutuksiin	○	○	○	○	○
Jaan osaamistani mielelläni muille henkilöille maksutta (esim. muille yrittäjille)	○	○	○	○	○
Saan maksutta apua tarvittaessa muilta henkilöiltä muihin kun omaan osaamiseeni liittyvissä kysymyksissä (esim. muilta yrittäjiltä)	○	○	○	○	○
Osaamiseni on ajantasalla	○	○	○	○	○
Tarvitsen lisäkoulutusta tulevina vuosina	○	○	○	○	○
Otan helposti haltuun uudet teknologiat ja digitaaliset alustat	○	○	○	○	○
Työni antaa mahdollisuuksia käyttää uusia opittuja taitoja	○	○	○	○	○

29. Kuinka monta tuntia <u>kuukaudessa</u> käytät kouluttautumiseen tai osaamisesi ylläpitämiseen keskimäärin? *

Tuntia kuukaudessa: _____

30. Kertoisitko vielä lyhyesti, miksi olet yrittäjä?

_____

_____

_____

Palaute ja kehittäminen

31. Miten kehittäisit työpaikallasi/yrityksessäsi jatkuvaa oppimista ja uusien teknologioiden käyttöönottoa? *

32. Opin uusia asioita parhaiten...

33. Avoin palaute kyselylomakkeesta

Kiitos ajastasi! Muistathan painaa vielä lopuksi "Lähetä"-nappia.

TURKU AMK
TURKU UNIVERSITY OF APPLIED SCIENCES

Tiedote tutkimuksesta

Päiväys 30.05.2024

TIEDOTE TUTKIMUKSESTA

Tutkimuksen nimi:
Työelämä ja jatkuva oppiminen: Työympäristöjen ja työmuotojen vaikutus teknologiseen osaamiseen

1. **Pyyntö osallistua tutkimukseen**
   Teitä pyydetään mukaan tutkimukseen, jossa tutkitaan jatkuvan oppimisen toteutusta suomalaisilla työpaikoilla sekä sitä, miten erilaiset työmuodot tukevat jatkuvaa oppimista ja valmiuksia mukautua työelämän muutoksiin. Tutkimus tutkii erityisesti teknologisen osaamisen kehittämistä. Tämä tiedote kuvaa tutkimusta ja tutkimukseen osallistuvan osuutta.

2. **Vapaaehtoisuus**
   Tutkimukseen osallistuminen on täysin vapaaehtoista. Osallistuminen tutkimukseen katsotaan suostumukseksi tutkimuksessa kysyttyjen tietojen tutkimuskäyttöön. Voitte myös keskeyttää tutkimuksen koska tahansa syytä ilmoittamatta.

3. **Tutkimuksen tarkoitus**
   Tämän tutkimuksen tarkoituksena on löytää tapoja, miten työnantaja voi tunnistaa ja tukea eri tilanteissa olevia työntekijöitä kehittämään ammatillista osaamistaan, erityisesti teknologisen osaamisen suhteen.

4. **Tutkimuksen toteuttajat**
   Tutkimus on osa opinnäytetyötä, joka toteutetaan osana maisteritutkintoa (Master of Business Administration, MBA) Turun Ammattikorkeakoulussa. Tutkimuksen toteuttajana on Eveliina Liias.

5. **Tutkimusmenetelmät ja toimenpiteet**
   Tutkimusosuus toteutetaan sähköisenä kyselytutkimuksena Webropol-kyselytyökalulla. Kyselytutkimus sisältää kysymyksiä liittyen työelämään, kouluttautumiseen sekä teknologiseen osaamiseen. Kysely on avoinna 30.5.-30.6.2024 välisen ajan.

   Linkki kyselytutkimukseen: https://link.webropolsurveys.com/S/C6F53F9427F0A1AD

6. **Tutkimuksen mahdolliset hyödyt osallistujalle**
   Kyselyyn osallistuvilla organisaatioilla on mahdollisuus saada kyselyn tulosten pohjalta koostettu blogiteksti tai artikkeli, jonka on kirjoittanut tutkimuksen tekijä. Tästä sovitaan erikseen tutkimukseen osallistuvien organisaatioiden kanssa.

7. **Kustannukset ja niiden korvaaminen osallistujalle**
   Tutkimukseen osallistuminen ei maksa teille mitään. Osallistumisesta ei myöskään makseta erillistä korvausta.

8. Tutkimustuloksista tiedottaminen

Kyseessä on opinnäytetyö, joka julkaistaan avoimesti Theseus-tietokannassa.

Kaikki vastaukset käsitellään täysin nimettöminä ja luottamuksellisina. Tutkimuksessa ei kerätä henkilötietoja, joista yksittäisiä henkilöitä on mahdollista tunnistaa. Kyselystä kerättyjä tietoja käsitellään yhtenä kokonaisuutena ja siitä ei ole mahdollista erottaa myöskään erillisen organisaation vastaajien vastauksia.

9. Tutkimuksen päättyminen

Myös tutkimuksen suorittaja voi keskeyttää tutkimuksen tarvittaessa.

Tutkimukseen osallistuvilla organisaatioilla ja henkilöillä on mahdollista saada opinnäytetyön julkistamisesta tieto sovitulla tavalla. Tästä toiveesta on ilmoitettava erikseen tutkimuksen toteuttajalle.

10. Lisätiedot

Pyydämme teitä tarvittaessa esittämään tutkimukseen liittyviä kysymyksiä opinnäytetyötä tekevälle tutkijalle, jonka yhteystiedot ovat alla.

11. Tutkijoiden yhteystiedot

Tutkija, opinnäytetyötekijä
Nimi: Eveliina Liias
Puh.
Sähköposti: eveliina.liias@edu.turkuamk.fi