LUNDS UNIVERSITET

Department of Psychology

The Association Between Artificial Intelligence Anxiety and Organisation-Based Self-Esteem in Norwegian and Swedish Accountants, Auditors and Payroll Clerks: A Cross-Sectional Study

Selma A. Dahl

Master's Thesis (30 hp)

2024

Supervisor: Roger Persson

Abstract

Artificial intelligence (AI) applications change the labour market for human workers. To establish if the applications are determined positive or not, they must be researched in a specified field. One field that is affected by AI applications is the field of economics. In this study, the anxiety towards AI and organisation-based self-esteem (OBSE) in (N = 79) accountants, auditors, and payroll clerks in Norway and Sweden was investigated. The statistical tests used were a correlation Matrix (Pearson's r and Spearman's rho) and one-way ANOVA, applying post-hoc Games-Howell test. Findings showed high OBSE and relatively low anxiety towards AI (AIAS) in the sample. There was a weak but significant relationship between OBSE and socio-technical blindness, but not the total mean AIAS or other dimensions of the scale. The mean learning anxiety and the mean AI configuration anxiety of the group with high AI experience was significantly lower than that of the group with low and moderately AI-experiences, for both sub-dimensions of AIAS. When evaluating participants' characteristics, the study found no significant difference between gender, age, education level, organisation tenure, or type of sector. However, participants who believed that work content may be replaced by AI had significantly higher organisation-based self-esteem than participants who did not. The current study includes cultural and contextual additions to the topic of AI anxiety and organisation-based self-esteem. Limitations and future research were discussed.

Keywords: AIAS, OBSE, work, AI experiences, gender, age

Acknowledgement

I would like to thank Roger Persson, Lund University, and acknowledge his helpful supervision. A special thank you goes to all the accountants, auditors, and payroll clerks in Norway and Sweden who took the time to participate in the study. I would also like to thank the academic advisor and course leader for their support, lecturers, and researchers at the Faculty of Social Sciences at Lund University for their helpful insights in developing the idea behind the research. Finally, a big thank you to friends and family, especially my dad, Bjørn Erik, for the support felt throughout the process.

Introduction

“Artificial intelligence is not the future. It's not far away. It's happening now.” said Ivana Maletic (ACCA Global, 2018) economic expert and member of the European Parliament (EPP Group, 2024). In a changing labour market and digital evolution, organisational psychology becomes highly relevant when highlighting the human experiences of the changes happening. For organisations to succeed, it is of utter importance that employees have good self-esteem and do not feel anxiety in the workplace (Allvin, 2006). One field that is highly affected by Artificial Intelligence (AI) applications is the field of economics, such as accounting, auditing, and payroll (Fedyk et al., 2022). In these changing times, to shed light on possible improvement that can be done for the organisation to be more successful, the purpose of this thesis is to investigate anxiety towards AI and organisation-based self-esteem (OBSE) (Pierce et al., 1989), as well as the associations between the two concepts among Norwegian and Swedish accounting, auditing, and payroll clerks.

Organisation-Based Self-Esteem

OBSE is defined as the degree to which an individual believes themselves to be capable, significant, and worthy as an organisational member (Pierce et al., 1989). Researchers constructed a 10-item scale to test OBSE, to reveal significant relationships with other constructs in organisational research, framing self-esteem in a task and organisational contexts (Pierce et al., 1989). Organisational variables could be climate, commitment, turnover, and work-related stress. OBSE is likely to be more influenced by personal experiences within the organisation and less by general self-esteem (Bowling et al., 2010). Researchers using the OBSE found that self-esteem is less changeable the longer the employee stays in their organisational role (Filosa & Alessandri, 2024; Pierce et al., 1989). Hence, the importance of promoting OBSE enhancing work early on at the organisation.

Higher OBSE can lead to positive effects for the individual as well as the organisation. Individuals with high scores of OBSE believe and perceive themselves as trusted, valuable, and contributing members, all in the context of the organisation (Lin et al., 2018; Pierce et al., 1989; Xingchi et al., 2023). They are typically more satisfied with their job (Filosa & Alessandri, 2024; Judge & Bono, 2001; Kuster et al., 2013), they contribute to the organisation with greater performance (Filosa & Alessandri, 2024; Judge & Bono, 2001), show more engagement in their

work (Bakker & Demerouti, 2008; Filosa & Alessandri, 2024), and participate in less counterproductive behaviours and deviance in the workplace (Filosa & Alessandri, 2024; Kuster et al., 2013; Vogel & Mitchell, 2017) when their self-esteem is higher. Individuals with high scores of OBSE are also more capable of coping with work-related stress (Filosa & Alessandri, 2024; Kuster et al., 2013), contributing to better mental health at the workplace. Since high OBSE has positive effects on individuals and consequently the organisation, workplaces gain success in supporting employees.

Research of OBSE on the exact population mentioned is limited. However, there is some research on office workers, managers, and accountants, which shows that these groups have overall high values of OBSE (Carrion, 2020; Jun Liu et al., 2013; Pierce et al., 1989; Salehi & Rouhi, 2023). The purpose of accounting is to be confident that laws and regulations are obeyed and that good routines in the businesses are followed (Revisor, 2022). Which could play a part in accountants, auditors, and payroll professionals having higher OBSE. Research on OBSE has not been conducted in Norway, Sweden, or other Scandinavian countries, which is why there is little information regarding how the general population in the countries would report on OBSE. Norwegian and Swedish accountants are, however, found to be overall satisfied with their jobs (Broberg et al., 2020; Sundalskleiv, 2024), making them an interesting group to investigate in terms of OBSE.

Known Factors to Influence OBSE

OBSE can be influenced by the type of work the individual is conducting at the organisation. Tharenou (1979) presents that challenge and autonomy in a job are influential job characteristics for developing high self-esteem, as well as overcoming external challenges. Job complexity is also found to have a positive and significant effect on different types of self-esteem (Dipboye et al., 1979; Pierce et al., 1989; Tharenou & Harker, 1982). Based on these results this could mean there is correlation between what tasks people perform and the level of OBSE they have.

Researchers have found several ways to influence the OBSE of employees. They have found that leaders must provide appropriate psychological support to employees (Xingchi et al., 2023), through for instance communication, appreciation, recognition, and constructive feedback (Gelfand, 1962). High-quality relationships and trust between employees and leaders, as well as

an inclusive work culture, can play a role in enhancing the self-esteem of employees (Jun Liu et al., 2013; Lau et al., 2014; Xingchi et al., 2023). In sum, organisations need to actively work to build a secure work culture, trust and support employees, and communicate to build higher self-esteem, which could help prepare individuals for complications and changes that might occur in the workplace.

OBSE and Technology

OBSE has been shown to have a positive effect on individuals' experiences and use of technology. A recent study concluded that having high OBSE has a positive impact on employees' technology use (Wong et al., 2024). Another study showed that individuals with higher self-esteem tend to also have higher technology readiness and readiness for change, indicating a greater openness and preparedness to embrace technological changes. Consequently, to raise individuals' technology readiness, it is important to increase their levels of self-esteem and readiness for change (Kim & Kim, 2022). This can be a great advantage for individuals when technology implementations change the structure of work cultures and work life.

In summary, previous research has observed OBSE in different contexts. Studies have been conducted on several fields of work in the same study (Filosa & Alessandri, 2024; Kuster et al., 2013; Xingchi Zhou et al., 2023) making it difficult to observe the results on differences within a specific field. This could make it more difficult to replicate studies and find underlying factors behind the observed results. Therefore, focusing on specific roles in the field of economy with a thorough participant description and a specified sample could be valuable for the field and specific organisations.

Artificial Intelligence

Artificial Intelligence (AI) is a machine-displayed intelligence, combined with computer science and solid datasets, which can be trained to solve specific issues and simulate human behaviour and thought (Biswal, 2023; IBM, 2023; Serhii Ivakhnenkov, 2023). AI models make smart decisions based on volumes of data (Biswal, 2023) and have a significant impact on domains such as financial investing, disease mapping, robotics, and social media monitoring. It is evident that this technological revolution is equal to the Internet's transformative power, and

will undoubtedly have a significant influence on various aspects of everyday life (Athona, 2021; Rose, 2017; Warren & Gibson, 2023).

When applying AI in everyday routine, there are issues surrounding the implementation. Applications of AI in organisations involve planning, controlling risks, and testing. In successful implementations, a clear understanding of the strengths, limitations, and challenges of the technology is essential (Serhii Ivakhnenkov, 2023). AI cannot replace human employees when it comes to certain tasks, like client relationships and judgement calls. There are also risks when implementing AI, including data security issues, ethical considerations, integration challenges, and lack of transparency (Serhii Ivakhnenkov, 2023). For instance, predictions by the EY event reports showed that AI projects will deliver incorrect outcomes due to bias in algorithms, data, or development teams (ACCA Global, 2018). While there are issues surrounding changes in organisations, like AI implementations, there are positive outcomes after successful applications.

There are many positive aspects when it comes to AI applications in organisations. As digital technology continues to advance, AI is increasingly being utilised in various fields of work (Tang et al., 2023). This can lead to the automatisation of certain tasks, potentially replacing some aspects of the human workforce (Karacsony, 2022). Although implementations are elaborate, there are benefits for organisations, employees, and clients when using AI. This can include improved data analysis, better monitoring, reduced errors, and increased efficiency and quality (Pratt, 2023; Serhii Ivakhnenkov, 2023). AI can streamline tasks previously done by human employees, freeing them to perform more complex tasks (Serhii Ivakhnenkov, 2023). In short, AI and digital solutions make projects that require a lot of manual work more automatic (Serhii Ivakhnenkov, 2023). Although utilising technology like AI is expected to lead to extensive organisational benefits (Brynjolfsson & McAfee, 2014; Serhii Ivakhnenkov, 2023) there are some complications when using smart technologies.

AI lacks some human abilities, making it unreadable in complex tasks. For instance, it can not replicate the nuanced judgement of a human (Serhii Ivakhnenkov, 2023). AI can assist in tasks such as data extraction and preliminary analysis. However, it encounters limitations when it comes to the interpretation and evaluation of complex concepts. Additional challenges in AI adaptations include ensuring transparency in decision-making processes, availability of high-quality training data, compliance with evolving regulations, addressing ethical concerns and biases, and maintaining appropriate human oversight (Serhii Ivakhnenkov, 2023). To sum up, it

should be acknowledged that AI does not possess an inherent capacity to determine the quality of outcomes within organisations. Rather, the determining factor lies in the context in which AI is developed, deployed, and utilised (Deranty & Corbin, 2022). To establish if AI applications are determined positive or not, they must be researched in a specified field.

Field Specific AI - Accountant/Auditor/Payroll

The field of economics, like accounting, auditing, and payroll, is highly affected by AI applications. Organisations employing these roles also arrange to implement and work with AI in the future. Which makes these roles highly relevant to investigate in a study such as this. The question remains whether they feel anxious about the new technology spreading in their field or not. AI applications boost accuracy, fraud prevention, bank secrecy, and anti-money laundering, report generation speed, optical character recognition to review contracts and leases, financial analysis of large public databases (big data), financial risk assessment and overall audit quality, which in turn, revolutionises work and audit procedures (Fedyk et al., 2022; Serhii Ivakhnenkov, 2023). In addition to making work more efficient (Serhii Ivakhnenkov, 2023). These benefits highlight the value of incorporating data analytics in the audit process, and there is no doubt that the application of smart technology will have plenty of positive effects on companies in the field of economy.

Several businesses are adapting to AI and are planning to expand this work. 73% of CEOs at EY were shown to actively incorporate AI in 2019. They also had strategic plans to adopt this technology within a 2-year timeframe (ACCA Global, 2018; Serhii Ivakhnenkov, 2023). The reason is that AI adoption in auditing has shown free employees to focus on the most crucial tasks in the organisation. EY automated over 250 operations worldwide using AI, which was estimated to save 2 000 000 human working hours yearly (How EY is Empowering Business with Artificial Intelligence, n.d., as cited in Serhii Ivakhnenkov, 2023). By developing solutions supporting human employees, PwC gives their human employees room to focus on more "value-added tasks and to provide greater efficiency". They also embed AI into their services and solutions to help with various business challenges (Lauder, 2017; Serhii Ivakhnenkov, 2023). Furthermore, the World Economic Forum has projected that approximately 30% of corporate audits will be performed by AI within 7 years (ACCA Global, 2018; Serhii Ivakhnenkov, 2023). These estimates highlight the significant role that AI is playing in shaping the future of

businesses and industries. However, changes in the industry could potentially become a threat to human employees.

The Psychological Risks of Introducing AI

Uncertainty from a changing field brings psychological risks for the employees. Predictions on increased AI adaptation and thereby changing the labour market for human workers have been made (Albanesi et al., 2023). Research also shows that there are some parts of the field of economics that AI is unable to take over. As mentioned, AI processes have immense potential to transform audit procedures (ACCA Global, 2018; Lauder, 2017; Serhii Ivakhnenkov, 2023). However, it is vital to acknowledge the irreplaceable role of human experience and understanding in its proper utilisation. While AI can automate specific tasks, auditors' judgement and critical thinking skills remain indispensable (Serhii Ivakhnenkov, 2023). It is therefore important that organisations acknowledge the importance of human employees in a field of increasing digitisation. The future workplace for human employees in the field of economy is undoubtedly uncertain due to AI implementations. Such uncertainty can influence individuals negatively.

During changes in work life, researchers have studied how individuals struggle or strive when keeping up with AI implementations. People lack trust in AI, they fear being replaced and they do not have the motivation to adapt or use the new technology (Forbes, 2023; Hopcan et al., 2023; Terzi, 2020). By taking over tasks in various organisations, AI can make people feel unsafe and replaceable, which could be the reason for organisations struggling to get employees on board with these AI implementations. The human experience of this huge change in the labour market, as well as daily life, has been the target for researchers for the last decade but there are still knowledge gaps in the field.

Assessing Risk - The Artificial Intelligence Anxiety Scale

The Artificial Intelligence Anxiety Scale was developed by Wang and Wang (2019) to map out individuals' experienced anxiety towards AI. Tests of the scale were conducted in Taiwan, and the coefficient alpha was obtained in all four dimensions; learning (.97), job replacement (.92), socio-technical blindness (.92), and AI configuration (.96) of the scale. Making it a very sturdy measurement. The results showed promise in understanding the impact

of AI in these areas (Wang & Wang, 2019). After the initial development, the scale was translated and tested on teachers in Turkey. The reliability coefficient, Cronbach's Alpha, was found to be .96 for the complete scale (Terzi, 2020). The four dimensions of the scale play a significant role in detecting anxiety levels towards different aspects of AI.

The learning (L) dimension of AI applications can be significant in provoking anxiety towards AI (Hopcan et al., 2023; Li & Huang, 2020; Wang et al., 2022). This learning anxiety comes from individuals' lack of confidence in learning and understanding a difficult subject, like AI (Li & Huang, 2020). It is crucial for auditors to continuously enhance their skill set and remain updated on the latest advancements in AI. This entails ensuring the quality and integrity of data, managing intricate algorithms, and addressing regulatory and compliance matters. By doing so, auditors can effectively harness the potential of this technology (Serhii Ivakhnenkov, 2023). Improving existing competences and developing new ones has been found to show uneven effects on employees, building gaps and hierarchy in the workplace in some cases (Warren & Gibson, 2023). Consequently, the learning of new skills, for some, is what keeps workers relevant in their career paths (Wang & Wang, 2019), and therefore holds a lot of pressure to perform in this area.

Fear of job replacement (JR) can also play a role in AI anxiety (Başer et al., 2021; Hopcan et al., 2023; Lemay et al., 2020; Li & Huang, 2020; Yang et al., 2021), especially for individuals who are directly affected by the adoption of AI technologies through the automation of tasks and job displacement (Hopcan et al., 2023), called technological unemployment (Deranty & Corbin, 2022). The risk and fare of being replaced by AI can cause anxiety. Research shows that this can lead to various negative results, including poorer work motivation, lower life satisfaction, and mental health issues. The effects the job uncertainty AI brings does not affect individuals all the same; some have no problem moving on and transitioning into other areas of their work, created by the new technology, while others need to upskill to stay valuable in the labour market (Hopcan et al., 2023).

Anxiety toward socio-technical blindness (SB), concerning AI, refers to a lack of understanding and control over the development and utilisation of technology (Hopcan et al., 2023; Kaya et al., 2022; Wang & Wang, 2019). It describes a scenario in which individuals or organisations fail to acknowledge the implications and ramifications that AI has on social and ethical aspects (Hopcan et al., 2023). Socio-technical blindness can lead to less openness and

honesty regarding the potential negative consequences of AI implementations, including taking responsibility for these negative consequences (Hopcan et al., 2023). Since AI falls short in decision-making abilities and subjective assessment skills, a lack of human oversight could potentially lead to undetected errors. These complex AI algorithms may also hinder an understanding of the decision-making process and impact transparency. The risks of breaches or unauthorised access to sensitive data should also be considered when implementing AI solutions (Serhii Ivakhnenkov, 2023).

AI configuration (AIC) refers to how an AI system is designed and programmed to carry out its tasks (Hopcan et al., 2023). The anxiety is connected to the technological presence in and control over decision-making processes (Hopcan et al., 2023; Kaya et al., 2022). When the perception of an AI system is unclear or unpredictable the configuration can contribute to feelings of anxiety (Hopcan et al., 2023). Information and results produced by AI can also be inaccurate. Organisations utilising AI-produced data must therefore proofread results from AI. In short, the appearance of faulty information produced by AI can make individuals anxious.

Research has used AIAS and compared the scale to other measures. Hopcan, Türkmen and Polat (2023) utilised the Turkish translation of the scale, with 409 teachers, adding to the research by Terzi (2020). They found that males tend to be more positive towards the technology than females, who may exhibit greater caution and scepticism, which could also lead to differences in attitudes towards smart technologies (Hopcan et a., 2023). In contrast, other researchers have found that gender does not affect AI attitudes. Additionally, they found personality traits, AI anxiety, and other demographics to play important roles in general attitudes toward AI (Kaya et al., 2024). However, Kaya et al. (2024) used a 10-item personality inventory to observe the correlations to the results on AIAS. This is quite a broad measurement that loses dimensions of personality. Research should therefore observe the AIAS with a more specific tool measuring concepts in a specific context. In the field of work Psychology, it could be valuable to observe changeable characteristics. In sum, AIAS is appropriate for researching AI anxiety and suitable for research concerning other concepts. However, when doing so, researchers have found inconsistent results.

Previous research of AIAS has predominantly focused on a narrow range of cultural contexts. The scale has been tested in Taiwan and Turkey (Hopcan et al., 2023; Kaya et al., 2024; Terzi, 2020; Wang & Wang, 2019). This could result in a lack of representation and diversity in

the findings, which raises concerns about the generalisability of these findings to other populations and cultural settings. Earlier research has also shown that the field of economy is highly influenced by AI (ACCA Global, 2018; Lauder, 2017; Serhii Ivakhnenkov, 2023), which could indicate high levels of AIAS within this group. Together these findings contribute to problems for one specific group. Making research in this area of this specific population highly relevant. However, the AIAS has not yet been tested on accountants, auditors, and payroll consultants specifically. It is therefore evident that there is a knowledge gap when it comes to anxiety toward AI in Norway and Sweden, as well as within the field of economy.

Previous Experiences with AI

Competence gained from previous experiences and training can enhance OBSE. Both positive and negative experiences can influence how individuals perceive their abilities and accomplishments within a specific field (Bowling et al., 2010). Employees with high levels of OBSE tend to be more active in learning new skills than those with low OBSE (Hahn & Mathews, 2022). For employees to grow, adapt, and develop new skills in a field, they should be exposed to relevant knowledge, techniques and strategies. Effective socialisation can also improve employees' ability to adapt to the organisation. Consequently, all this will have a positive impact on their OBSE. It should be mentioned that organisational socialisation has a stronger impact on adjustments for less experienced employees (Gardner et al., 2022). There are however other concepts that relate to the level of previous experience.

Individuals with more computer experience show higher levels of computer skills, as well as positive attitudes toward computers (Saade & Kira, 2007). In addition, research has found that individuals with less experience with technology tend to be more anxious towards it (Gudur et al., 2013). Older people show more anxiety when they interact with new technologies (Eisma et al., 2003; Gudur et al., 2013), which can indicate less experience. Lastly, more recent research has confirmed that knowledge of AI and attitudes is positively correlated (Hasan et al., 2024). In conclusion, previous experiences with various technologies and AI have been shown to correlate with lower anxiety levels towards the technology in question.

Experiences with technology and AIAS have previously been tested. Bircan Eyüp and Selvanur Kayhan (2023) found no significant difference between the time their participants spent on the Internet and their reported anxiety toward AI. The reason for their insignificant results

could be that this does not control for how the participants spend their time online. Making it impossible to determine if their time on the Internet has anything to do with their experiences of AI specifically, and in turn unrelated to AI. Therefore, an arguably more efficient way to determine previous experiences of AI is to control for previous use and development of AI in relation to AIAS.

The Present Study

Research regarding AI in the context of psychology is fairly new and therefore, the human experience of this technology does not yet have the same scientific grounding as other psychological concepts and phenomena. This research focuses on continuing the investigation of the human experience of AI, through individual characteristics that could be influenced or improved, like self-esteem in the workplace and experiences with AI, in relation to four dimensions of anxiety towards AI. By putting two scales in new contexts and investigating new scientific relationships, this research contributes to closing the knowledge gap in this area. The study adds other demographics and cultural perspectives than previous research, as well as focusing on work and organisation, and not the general population, which could question or support previous findings and bring external validity to the scales. Findings in this study can also lead to new perspectives for future research.

Another purpose of this study is to contribute to other contextual and cultural perspectives and strive to discuss and research gaps found in previous studies. By comparing values on OBSE and AIAS one can establish to what extent self-esteem in the workplace is related to levels of anxiety towards AI. This research will also include additional control in the selection and the demographics like profession, private or public section, and so on. This will make the sample more specific which can be an advantage for future analysis and replications. The research will also contribute to more diversity and cultural perspectives by investigating the values of the scales in Norway and Sweden. This will also give the research more scientific value.

In addition, this research will also strive to gain practical value in the field. By focusing on helping organisations consider their employee's needs when implementing AI. Since the research is limited to work and organisational psychology - the practical gain from the research will hopefully be used by organisations, leaders, or HR planning to implement AI. Research of

the human experiences of AI has, in some cases, focused on the general population of the researched countries, giving a more social-psychological perspective on the matter. This research will take the participants' anxiety towards AI in their workplace into consideration. Which in turn complements the existing research with an organisational psychological perspective. And so forth intend to help workplaces tackle this change sustainably for the employees and in turn the organisations.

Research Questions

To fulfil the purpose, the following four research questions will be investigated in the current study:

- To what extent are accountants, auditors, and payroll clerks in Norway and Sweden expressing anxiety towards AI and organisation-based self-esteem according to their scores on OBSE and AIAS?
- How strong is the association between OBSE and AIAS scores?
- Do accountants, auditors, and payroll clerks' scores on the four dimensions of OBSE and AIAS differ depending on previous experience with AI (use and development)?
- Do accountants, auditors, and payroll clerks' scores on the four dimensions of OBSE and AIAS differ depending on their reported demographics (gender, age, education level, organisation tenure, type of sector, and beliefs of AI)?

Method

Design

This observational study has a cross-sectional design and an electronic survey was shared online with the participants. The survey was constructed in the software “Sunet” and consisted of 43 items. It took approximately 5 min for participants to complete the survey. Data was collected from February to April. See “Material” for more details.

Ethical Considerations

The study followed standard ethical guidelines for research in Lund. The survey began with a statement that participation in the study was completely voluntary and confidential, in

addition to information on the purpose of this study. Participants were then asked to confirm that they had been informed of the purpose of the study and consent to their participation.

Participants and Procedure

The target population was very specific (i.e., accountant, auditors, and payroll clerks in Norway and Sweden). Participants were collected through emails, LinkedIn, and Facebook from February to April. Connections in various organisations were contacted through email, and they distributed the survey to their relevant contacts. The survey was published on LinkedIn and shared publicly by others. It was published and shared by others on Facebook as well. Therefore, the recruitment process was not randomised. The final study sample comprises 79 accountants, auditors, and payroll clerks from Norway (n = 35) and Sweden (n = 44). 38 women and 40 men responded. The mean age of the participants was 39 years, ranging from 22 to 78, and the mean of company tenure was 7 years, ranging from 0 to 40 years. Additional participant data is presented in Table 1a and 1b.

Table 1a

Presentation of the Demographics

		n(N=79)	% of Total
Education	Highschool	5	6.3%
	Bachelor Degree	38	48.1%
	Masters Degree	26	32.9%
	PhD	0	0%
	Courses at university, no Degree	10	12.7%
Sector	Private	68	86.1%
	Public	10	12.7%
	Other	1	1.3%

Note. This table demonstrates the number of responses on each option, and the percentage of the total number of participants.

Table 1b

Presentation of AI Beliefs

		n(N=79)	% of Total
Work content may be replaced by AI	Yes	64	81%
	No	15	19%
The use of AI will grow	Yes	78	98.7%
	No	1	1.3%
AI will assist human workers	Yes	77	97.5%
	No	2	2.5%
AI will replace human workers	Yes	44	55.7%
	No	35	44.3%

Note. This table demonstrates the number of responses on each option, and the percentage of the total number of participants.

Material

The survey contains questions regarding participant characteristics and standardised scales to research OBSE and AIAS. See Appendix 2 for the full survey.

Background Information of Participant Characteristics

The first questions in the survey specify the participant's characteristics (see Table 1). There were in total 12 questions: 6 questions regarding demographics (age, gender, employment country, education level, company tenure, and sector), and 6 questions regarding previous experiences and beliefs of AI, before questions regarding OBSE and AIAS.

OBSE

The OBSE (Pierce et al.,1989) scale in this research consists of a 7-point Likert-type scale, used in previous research (Hahn & Mathews, 2022); it is also consistent with the design of AIAS. The scale ranges from 1 to 7 (1 = not at all and 7 = completely agree), where 4 is the midpoint. The other values were not named. Each item on the scale is a statement with positive connotations such as “I am taken seriously” and “I can make a difference”. For this study and its objectives, the entirety of the 10-item scale, OBSE, was used with Cronbach’s $\alpha = .89$.

AIAS

The AIAS (Wang & Wang, 2019) was used to assess the participants' degree of anxiety towards AI in the context of learning (L), job replacement (JB), socio-technical blindness (SB), and AI configuration (AIC). As implemented in the original scale, the response scale items consist of a 7-point Likert-type scale (1 = not at all, 7 = completely agree), where 4 is the midpoint, and it includes 21 items, divided into 4 factors. In the scale, the first dimension L consists of 8 items and includes questions like “Learning to understand all of the special functions associated with an AI technique/product makes me anxious”. The second dimension JR consists of 6 items such as “I am afraid that an AI technique/product may make us dependent”. SB, the third dimension, consists of 4 items like “ I am afraid that an AI technique/product may be misused”, and lastly AIC consists of 3 items like “I find humanoid AI techniques/products (e.g. humanoid robots) scary”. All items use negative connotations. For this study Cronbach's $\alpha = .94$ for the complete scale and .94 (L), .88 (JR), .85 (SB), and .90 (AIC) for the respective dimension in the scale.

Statistical Analysis

Jamovi 2.3.28 program was used to analyse the data. Since all items in the survey required a response, there was no missing data.

In the current study, the significance threshold $p \leq .05$ was used to determine if the results were statistically significant. Pearson product moment correlation (Pearson’s r) and Spearman rank order correlation (Spearman’s rho) analyses were used to examine and describe associations between OBSE and AIAS scores.

To observe statistically significant differences in group means scores in OBSE and AIAS, one-way ANOVA analyses were used. Both homogeneity and normality tests were applied. The tests revealed some deviation but were still considered appropriate for an ANOVA. However, due to the unequal variance among the groups, Welch's test and Games-Howell test was applied for a more accurate test of the differences between the group means. The same tests were applied to further investigate other effects and characteristics on the two scales.

Participant Division Into Groups

To analyse experiences with AI, a new variable (i.e., Experiences with AI) with three groups was created: Highly experienced individuals (i.e., individuals who have both used and developed AI) (n = 8), moderately experienced individuals (i.e., individuals who have used but not developed AI) (n = 61), and inexperienced participants (i.e., individuals who have neither used nor developed AI) (n = 9). Since one participant gave a contradictory statement and claimed to have developed but not used AI, this participant was excluded from further analysis regarding analyses concerning previous experiences with AI. See Appendix 1 for specifics of Experiences with AI.

To analyse the effect of age on the reports of OBSE and AIAS, three age groups were developed. The participants were not normally distributed in terms of age, resulting in groups similar in size but not in age range. The groups consist of the youngest participants (n = 26, 22-26-year-olds), the more mature participants (n = 27, 27-48-year-olds), and the older participants (n = 26, 49-78-year-olds).

To analyse the effect of company tenure on the reports of OBSE and AIAS, three groups were developed. The groups consisted of the newest employees (n = 20, 0-1 company tenure), the more mature employees (n = 36, 2-7 company tenure), and the older employees (n = 23, 8-40 company tenure).

To analyse the effect of education levels on the reports of OBSE and AIAS, three groups were developed. The groups consisted of three education levels; high school diploma or courses at University but no degree (n = 15), Bachelor's degree (n = 38), and Master's degree (n = 26).

To analyse the effect of sectors on the reports of OBSE and AIAS, two groups were developed, private and public. When analysing sectors one participant reported working in

neither a private nor a public sector and has therefore been excluded from this part of the analysis.

To analyse the effect of beliefs about AI on the reports of OBSE and AIAS, two groups were developed (yes/no) for each belief. Due to few differences in responses of "the use of AI will grow" and "AI will assist human workers" (see Table 1b) there was not enough data to analyse these two AI beliefs. However, "work content may be replaced by AI" (yes = 64) and "AI will replace human workers" (yes = 44) could be analysed.

Results

OBSE and AIAS Scores

Results show that participant's mean OBSE score was high and truncated towards the higher end of the response scale. The total mean score of the AIAS, and the mean scores for the four dimensions, varied between 2.45 (SD = 1.20) for L to 4.58 (SD = 1.40) for SB. Specifics of the reports of OBSE and AIAS for the participants are presented in Table 2.

Table 2

Scores on the OBSE and AIAS (N = 79)

	Range of scales	Mean	SD	Median	Min	Max
Organisation-based self-esteem						
OBSE	1-7	6.19	0.70	6.30	4.40	7.00
Artificial intelligence anxiety scale						
AIAS, total	1-7	3.20	1.10	3.10	1.00	6.29
L	1-7	2.45	1.20	2.00	1.00	6.00
JR	1-7	3.39	1.42	3.50	1.00	6.33
SB	1-7	4.58	1.40	4.50	1.00	7.00
AIC	1-7	3.00	1.69	2.67	1.00	7.00

Note. This table is a presentation of the participant's score on the two scales the total Organisation-Based Self-Esteem (OBSE) (10 items), the total Artificial Intelligence Anxiety

Scale (AIAS, total) (21 items), learning dimension (L), job replacement dimension (JR), socio-technical blindness dimension (SB), AI configuration (AIC). Both scales range from 1 to 7; 1 = not at all, 7 = completely agree.

Associations between OBSE and AIAS Scores

There was no statistically significant association between the two scales, $r(77) = .14$, $p = .24$. Pearson's r indicates a positive significant association between OBSE and SB $r(77) = .23$, $p < .04$. Though after applying Spearman's rho the correlation was no longer significant (see Table 3). Indicating a linear relationship, but not necessarily a monotonic relationship between OBSE and AIAS.

Table 3

Correlation Matrix of OBSE and AIAS (N = 79)

		OBSE	AIAS, total	L	JR	SB	AIC
OBSE	Pearson's r	1.0					
	Spearman's rho	1.0					
AIAS, total	Pearson's r	.14	1.0				
	Spearman's rho	.06	1.0				
L	Pearson's r	.06	.81***	1.0			
	Spearman's rho	-.07	.79***	1.0			
JR	Pearson's r	.09	.86***	.54***	1.0		
	Spearman's rho	.05	.87***	.55***	1.0		
SB	Pearson's r	.23*	.74***	.36**	.60***	1.0	
	Spearman's rho	.22	.68***	.32**	.56***	1.0	
AIC	Pearson's r	.09	.75***	.46***	.54***	.56***	1.0
	Spearman's rho	.07	.71***	.48***	.55***	.52***	1.0

Note. * $p < .05$, ** $P < .01$, *** $p < .001$. Organisation-Based Self-Esteem (OBSE) (10 items), the total Artificial Intelligence Anxiety Scale (AIAS, total) (21 items), learning dimension (L), job replacement dimension (JR), socio-technical blindness dimension (SB), AI configuration (AIC).

Group Comparison - Level of AI Experience

A series of one-way ANOVAs were conducted to investigate different results on AIAS and OBSE depending on previous experiences with AI. The means and standard deviations are presented (see Table 4). Two of the dimensions of AIAS, L, and AIC, show significant differences between at least two of the groups. The ANOVA was significant at the .05 level. For L $F(2, 14.5) = 6.56$, $p = .01$ and for AIC $F(2, 17.2) = 6.32$, $p = .01$.

A follow-up post-hoc Games-Howell test indicated that the mean L of the group with high AI experience was significantly lower than that of the group with low experience with AI ($p = .03$) and the moderately experienced with AI ($p = .02$). The mean AIC of the highly experienced was significantly lower than that of the group with low experience with AI ($p = .02$) and moderately experienced with AI ($p = .03$). The same trend was found in the total mean AIAS, JR and SB scores as well, but the differences were not significant.

Table 4

One-way ANOVA (Welch's) AI experiences and OBSE, AIAS (N = 78)

	AI experiences	N	Mean	SD	p-value
OBSE					.88
	Low	9	6.30	0.61	
	Moderate	61	6.19	0.71	
	High	8	6.17	0.78	
AIAS, total					.06
	Low	9	3.84	1.31	
	Moderate	61	3.21	1.04	
	High	8	2.40	0.97	
L					.01
	Low	9	3.22	1.41	
	Moderate	61	2.43	1.17	
	High	8	1.61	0.64	
JR					.37
	Low	9	4.02	1.60	
	Moderate	61	3.38	1.32	
	High	8	2.75	1.87	
SB					.39
	Low	9	4.89	1.21	
	Moderate	61	4.64	1.36	
	High	8	3.75	1.89	
AIC					.01
	Low	9	3.74	1.44	
	Moderate	61	3.01	1.78	
	High	9	2.04	0.72	

Note. Organisation-Based Self-Esteem (OBSE) (10 items), the total Artificial Intelligence Anxiety Scale (AIAS, total) (21 items), learning dimension (L), job replacement dimension (JR), socio-technical blindness dimension (SB), AI configuration (AIC).

OBSE and AIAS Scores in Relation to Demographic Factors and Beliefs about AI

Gender

A one-way ANOVA was performed to examine if the men and women differed as regards to OBSE and AIAS scores (one participant that did not identify as male or female was excluded). The ANOVA was not significant at the .05 level. For OBSE the reports were $F(1, 75) = .17$, $p = .68$, and for AIAS they were $F(1, 64.9) = 1.88$, $p = .18$.

Age

A one-way ANOVA was performed to examine if the age groups differed as regards to OBSE and AIAS scores. The ANOVA was not significant at the .05 level. For OBSE the reports were $F(2, 48.9) = 1.23$, $p = .30$, and for AIAS they were $F(2, 49.9) = .18$, $p = .84$.

Company Tenure

A one-way ANOVA was performed to examine if the company tenure differed as regards to OBSE and AIAS scores. The ANOVA was not significant at the .05 level. For OBSE the ANOVA showed $F(2, 44.5) = 1.53$, $p = .23$, and for AIAS $F(2, 43.2) = 1.33$, $p = .27$.

Education Level

A one-way ANOVA was performed to examine if the levels of education differed as regards to OBSE and AIAS scores. The ANOVA was not significant at the .05 level. For OBSE the ANOVA showed $F(2, 39.5) = 1.64$, $p = .21$, and for AIAS $F(2, 31.8) = .47$, $p = .63$.

Sector

A one-way ANOVA was performed to examine if the sectors (private or public) differed as regards to OBSE and AIAS scores. The ANOVA was not significant at the .05 level. For OBSE $F(1, 11.7) = 1.6$, $p = .23$ was reported, and for AIAS $F(1, 11.5) = 3.25$, $p = .1$.

Beliefs about AI

A one-way ANOVA was performed to examine if the dichotomised item, beliefs that "**work content may be replaced by AI**" (yes/no), and OBSE and AIAS scores. The ANOVA of OBSE was significant at the .05 level, $F(1, 20.4) = 4.53$, $p = .05$. A post-hoc Games-Howell test indicated that the mean OBSE of the individuals who reported "yes" was significantly higher than that of the individuals who reported "no" ($p = .05$). The ANOVA of AIAS on the same groups was not significant at the .05 level, $F(1, 18.1) = 1.04$, $p = .32$.

An additional one-way ANOVA was performed to examine if the dichotomised item, beliefs that "**AI will replace human workers**" (yes/no), and OBSE and AIAS scores. For OBSE the ANOVA showed $F(1, 73.6) = .01$, $p = .93$, and for AIAS $F(1, 67.9) = 1.43$, $p = .24$.

Discussion

The current study aimed to examine organisation-based self-esteem (OBSE) and AI anxiety in Norwegian and Swedish accountants, auditors, and payroll clerks, as well as the relationships between Artificial Intelligence Anxiety Scale (AIAS) and OBSE and the effect of previous experience with AI. The study also examined if there were any differences on the AIAS and in OBSE that could be attributed to gender, age, company tenure, education level, and sector or beliefs the participants had about AI. The findings of this study showed that the participants' scores were high on OBSE and relatively low on the AIAS. Furthermore, OBSE and the total mean AIAS scores did not have a statistically significant relationship. Even though OBSE and socio-technical blindness (SB) had a tendency to a positive relationship. In addition, previous experiences with AI were associated with AIAS, and the single item assessing the belief that work content may be replaced by AI were associated with OBSE. In the following section, these findings, limitations of the current study, and suggestions for future research are discussed.

OBSE

Since research on OBSE is limited in Norway and Sweden, as well as in accountants, auditors, and payroll clerks, the present study has contributed with knowledge to the field of organisational self-esteem in the workplace. The participants in the study sample that came from different types of organisations, ages, and genders reported high OBSE. This could indicate

overall high levels of OBSE in the target population (i.e., Norwegian and Swedish accountants, auditors, and payroll clerks).

The high scores of OBSE in the present study could be because Norwegian and Swedish accountants are mostly satisfied at work (Broberg et al., 2020; Sundalskleiv, 2024). Individuals with high OBSE are usually more satisfied and have positive experiences with their job (Bowling et al., 2010; Filosa & Alessandri, 2024; Judge & Bono, 2001; Kuster et al., 2013). High scores on OBSE could also be typical in the field of economics. Earlier research on OBSE has been conducted on a similar group, which also shows overall high OBSE (Carrion, 2020; Jun Liu et al., 2013; Pierce et al., 1989; Salehi & Rouhi, 2023). Work content also influences OBSE (Dipboye et al., 1979; Pierce et al., 1989; Tharenou & Harker, 1982), which could explain the similar answers in this group. In addition, accountants have an essential role in organisations (Revisor, 2022), probably contributing to a sense of value in the workplace. However, more research is needed to make an accurate assumption of the OBSE levels in the two countries.

Another way to understand the high scores of OBSE could be the sampling method. Due to the sampling method, there could have been a trend in participants with high OBSE sharing the survey with similar individuals, who have high OBSE. Previous researchers found that individuals with high OBSE contribute to the organisation with greater performance and show more engagement in their work (Bakker & Demerouti, 2008; Filosa & Alessandri, 2024; Judge & Bono, 2001), which could explain why they were motivated to participate in the present study. Individuals who have lower OBSE might not feel comfortable filling out a survey regarding their work, which could explain why they did not fill out this survey. In sum, there could be several reasons for why the present participants reported high scores of OBSE.

AIAS

In addition to confirming previous research - that the AIAS can be utilised to evaluate an individual's AI anxiety - this study also shows that Norwegians and Swedes in accounting, auditing, and payroll have some concerns surrounding AI, especially when it comes to socio-technical blindness (SB). This agrees with previous research, also finding SB to be the highest reported dimension (Bircan Eyüp & Selvanur Kayhan, 2023; Hopcan et al., 2023; Terzi, 2020). AI could potentially change work task routines when delivering flawed data (ACCA Global, 2018; Serhii Ivakhnenkov, 2023), which could explain anxiety towards a faulty AI

system since an important aspect of accountant work is making sure the organisation follows laws and regulations (Revisor, 2022). Despite slightly higher values on SB, most participants reported below the midpoint (i.e., score 4 on the 1-7 scale). The reason could be that most participants have previously used AI (n = 69).

The fields of accounting, audit, and payroll are, to a high extent, exposed to AI and AI implementations. Due to previous findings on people's beliefs that auditors and accountants are likely to be replaced by AI (Hsiao & Lei Han, 2023), participants should be more likely to score higher on the job replacement (JR) dimension than the rest of AIAS. This was, however, not the case for the sample. Recruiters in Norway find it difficult to get hold of new accountants, especially well-qualified candidates (Austheim, 2022). Austheim (2022) also states that new technology does not replace human workers. Instead, it changes the way they solve problems or frees up time that can be used for other and new tasks. About 56% of the sample believe AI to replace human workers, though the participants might not believe themselves to be replaced, which could explain why the sample do not report very high JR.

There is limited research on Norwegians and Swedes concerning AI anxiety and attitudes. One explanation for the relatively low scores on AIAS could be due to the technological use in the two countries. Norway and Sweden are high-ranking when it comes to the countries' capacity and readiness to explore and adopt digital solutions and technologies (IMD World Competitiveness Center, 2024). Technological readiness has, as mentioned, been explored in relation to OBSE (Kim & Kim, 2022). It would, however, be valuable to explore the effect in relation to AIAS as well.

The sampling method could also be a reason for getting individuals with relatively low AI anxiety. Since the study clearly stated the topic being AI and work, this could have excluded individuals with more extreme values on AIAS. Using an online survey and recruitment of participants could also have excluded some participants. These could be people who are less active online or might be more sceptical about partaking in unfamiliar activities online, like filling out a survey. Being sceptical or unfamiliar with online surveys could also mean that these individuals are more sceptical of technology like AI.

The Associations Between OBSE and AIAS Scores

According to Pearson's r the participants' levels of OBSE showed a slight relationship with the reported levels of SB, but not Spearman's rho, making the significance negligible. Therefore, no significant relationship between OBSE and AIAS was found in the sample. Previous research has found a significant relationship between general anxiety and self-esteem (Xie et al., 2019), though this study had a total of 751 participants. The reason for the few significant results in the current study could be the small sample size and/or the generally high scores of OBSE.

In contrast to the present study, previous research has found that high levels of learning anxiety can lead to lower levels of self-esteem (El-Anzi, 2005; Xie et al., 2019). Conversely, low self-esteem contributes to learning anxiety (Fathi-Ashtiani et al., 2007). This forms a cycle where anxiety leads to lower self-esteem and consequently leads to more anxiety (Yuanhua Wang, 2024). In sum, previous research has established a relationship between anxiety and self-esteem. However, the current study challenges these findings as no statistically significant relationship between OBSE and anxiety towards learning about AI was found.

To the best of my knowledge, less research has been done on self-esteem in relation to the other dimensions of AIAS. A reason for the insignificant results between OBSE and JR could be the high levels of OBSE. Research on the anxiety towards being replaced and self-esteem has not been found, making it difficult to predict how the participants would respond regarding this matter. The same goes for the last two dimensions of AIAS, SB and AI configuration.

OBSE has previously been shown to be connected to aspects like performance (Filosa & Alessandri, 2024; Judge & Bono, 2001), work engagement (Bakker & Demerouti, 2008; Filosa & Alessandri, 2024), and psychological support (Xingchi et al., 2023). AIAS, on the other hand, has shown an association with other scales connected to some sort of AI attitude or anxiety (Hopcan et al., 2023; Terzi, 2020). The scales used in this study may not have been sensitive enough to capture the nuances of these constructs. Additionally, individual differences among the participants that have not been explored in this study might have affected the results. Despite this, the present results could add an understanding of the relationship between anxiety towards AI and OBSE. By exploring the lack of significant associations, researchers can identify potential factors that may influence these constructs and guide future studies. This knowledge can help organisations and professionals in accounting and auditing to better understand the

psychological impact of AI implementation and develop strategies to address any concerns or challenges that may arise.

Previous Experiences With AI and OBSE and AIAS Scores

Some results suggest that previous experiences of AI do have some effect on AIAS. More accurately, the results suggest that when accountants, auditors, and payroll clerks are highly experienced with AI, and have used and developed AI, they have lower anxiety towards the L and AIC dimension of AIAS compared to the ones who have little or moderate previous experience with AI. Previous experiences do not appear to significantly change OBSE. Though there were few significant differences in the results of the current study, there was a visible trend that when participants had more experience with AI they had lower AI anxiety.

In previous research, when personal experiences increase, a decrease in concerns regarding AI was found (Kaya et al., 2022; Li & Huang, 2020; Wang et al., 2022). However, the groups of individuals highly experienced with AI and the ones with little experience with AI were small in size, making the findings of the current study weaker. Even though the results are not too strong, this study indicates differences in AI anxiety in individuals who have very little experience with AI compared to individuals with a lot of previous experience with AI.

OBSE and AIAS Scores in Relation to Demographic Factors and Beliefs About AI

Further analysis of the participants' characteristics and their reports on the scales showed few significant results between the groups developed in regards to OBSE or AIAS. In the current study, there were no evident differences between people identifying as either male or female. This is supported by a prior meta-analysis, showing that gender is not significantly related to OBSE (Bowling et al., 2010). The current study supports previous findings of gender and OBSE, but it challenges findings regarding the attitudes towards technology and gender, since prior research shows that males tend to be more positive towards technology in comparison to females (Hopcan et a., 2023). The equality between men and women in Norway and Sweden (World Economic Forum, 2023) could be the reason for reduced differences between the genders.

The current study found that age had no significant relationship with the two scales. However, a prior study shows that age appears weak, but statistically significant in relation to OBSE (Bowling et al., 2010). Previous research has shown a difference between age groups

when it comes to technology anxiety. Prior research found that older people showed more anxiety when interacting with new technologies (Eisma et al., 2003; Gudur et al., 2013), though the current study found no significant difference in AIAS scores between age groups. One reason could be that the studies mentioned are older, before the COVID-19 pandemic (World Health Organization, 2024), and therefore, do not hold the same scientific relevance in the constantly changing field (Athona, 2021; Rose, 2017; Warren & Gibson, 2023), as they were conducted prior to many technological developments and remote work. However, it is of importance to further investigate age differences within the same field as well as in Norway and Sweden to be able to conclude age differences when it comes to AI.

There were no significant differences in OBSE or AIAS when it comes to company tenure. The current study showed no significance between new employees, mature employees, and senior employees. Similar findings showed that OBSE is influenced by personal experiences within an organisation (Bowling et al., 2010). Complexity, challenges, and autonomy in a job can influence the development of high self-esteem (Dipboye et al., 1979; Pierce et al., 1989; Tharenou, 1979; Tharenou & Harker, 1982), which could explain why individuals in similar fields have similar values on OBSE. In addition, the current study did not explore how long each participant had worked in the field, which could have given more nuance to the analysis. These findings add additional knowledge to research regarding the AIAS as well, and indicate no major differences when it comes to the time employed at the current organisation and AI anxiety.

Participants did not report differently on OBSE or AIAS, depending on their level of education. Most of the participants have higher education levels, giving them a verification, a diploma, of them being capable even before employment. This could also explain the high values of OBSE in this sample. Research showed that education level was weak but statistically significant in relation to OBSE (Bowling et al., 2010). This could suggest that similar trends might have been predicted in this group more normally distributed. Kaya et al. (2024) showed that education levels did not significantly predict attitudes toward AI. They did, however, not analyse if the education level had any effect on the participants' AI anxiety, which makes these results not completely comparable to the current study. Prior research on AIAS has been conducted on educated participants (Hopcan et al., 2023; Terzi, 2020), preventing comparison with these studies as well.

When testing the effect beliefs about AI had on the scores of the two scales an ANOVA indicated that the mean OBSE of the individuals who believe "work content may be replaced by AI" was significantly higher than that of the individuals who do not believe "work content may be replaced by AI". However, there were no differences in AIAS, and the other statements regarding beliefs about AI did not have any significant effect on the scales. The significant result was unexpected.

In conclusion, the results of the current study both challenge and support findings from previous research by showing no statistically significant differences of how much OBSE or AI anxiety individuals report depending on age, gender, or education. It could be due to a reducing gap between different groups since most people are aware of their exposure to technology and its presence in their lives. Rapid changes, like AI, highlight a need for research in the field to keep information current and relevant.

Limitations

Even though the participants in the current study are a highly relevant group in this line of research, and the internal consistency of both OBSE and AIAS scales were good, the results may not be representative of a larger population as the sample may not accurately reflect the diversity and characteristics of the entire target population. In addition, the statistical power of the study may be reduced due to the small sample, making it harder to detect meaningful effects or relationships.

The survey in the current study was in English to build less confusion of having multiple surveys or one survey including several languages (Norwegian and Swedish). This may have excluded participants in both countries who have difficulties with the English language, which in turn could have an impact on the external validity since this study may not be generalisable to the entire target population.

The small sample size could in part be due to the data collection period. Data was collected during the accounting period as well as the Easter break in the two countries. Desirable participants may have been too occupied to respond to this survey, which in turn made the time-limited data collection period even more demanding. Possibly another data collection period could have generated a better response rate.

Future Research

In the future, research should increase the sample size from the current study as well as recruit participants with no previous experience with AI and one group with a lot of experience with AI. To increase the statistical power even further, researchers may strive to identify and control for potential confounding variables, like pre-existing anxiety, specified previous experiences with AI, and cultural or societal influences that could have an impact on the results. This could better isolate the effect of OBSE and AIAS on the participants.

More research should be done on similar populations in the future to further explore the two concepts, OBSE and AI anxiety. These additions to research of OBSE could help explain why this population reports high OBSE. With additional information, organisations can effectively work on enhancing OBSE in their employees. The AIAS should also be investigated more in similar populations. The focus should be on why this group experiences anxiety towards AI in relation to their demographics to control for more confounding variables so that more precautions can be taken before implementing AI in organisations. More variables could be the technological readiness and willingness to adapt to the new technology.

Future research should use other designs, like longitudinal, which could lead to a broader understanding of different aspects of the field. Longitudinal studies should investigate the stability of the OBSE and AIAS over time. This design should also investigate how individuals report after different conditions, like before and after an AI implementation or before and after using and developing AI. By doing so, this area of research could build an understanding of the stability each concept holds and if these can be influenced by specific situations or applications.

Conclusion

This research showed high values of OBSE and relatively low results on AIAS in the sample, and there was no significant relationship between OBSE and AIAS found in the sample. A trend in lower scores of AIAS in participants with more previous AI experiences was also found, specifically in L and AIC. The study also found that participants who believed that work content may be replaced by AI had significantly higher OBSE than participants who did not believe this. There were, however, no statistically significant differences in AIAS and OBSE depending on various demographics, like gender, age, company tenure, education level, and sector. Limitations in the current study were the sample size and the fact that most participants

had high OBSE scores. Despite these limitations the high OBSE score suggests that Norwegian and Swedish accountants, auditors, and payroll clerks have high organisation-based self-esteem. In addition, AIAS scores suggest that AI anxiety does not seem to be a problem in these occupational groups. The current study contributes cultural and contextual additions to the relevant topic of human experiences towards AI. Findings both agree with but also differ from previous research. This hopefully initiates some discussion on how the field can work towards assisting individuals when coping with their anxiety towards AI.

References

ACCA Global. (2018). The impact of Digital and Artificial Intelligence on audit and finance professionals: harnessing the opportunities of disruptive technologies. https://www.accaglobal.com/gb/en/technical-activities/technical-resources-search/2018/december/impact-of-digital-and-ai-on-audit-.html

Albanesi, S., Dias da Silva, A., Jimeno, J. F., Lamo, A. & Wabitsch, A. (2023, November 28). *Reports of AI ending human labour may be greatly exaggerated*. European Central Bank - Research Bulletin, 113. https://www.ecb.europa.eu/press/research-publications/resbull/2023/html/ecb.rb231128~0a16e73d87.en.html

Allvin, M. (2006). *Gränslöst arbete : socialpsykologiska perspektiv på det nya arbetslivet* (1. uppl.). Liber.

Austheim, S. (2022, October 25). *Regnskapsbransjen mangler søkere til ledige stillinger.* Regnskap Norge. https://www.regnskapnorge.no/faget/artikler/bransjeaktuelt/regnskapsbransjen-mangler-sokere-til-ledige-stillinger/

Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. *Career Development International*, 13(3), 209–223. https://doi-org.ludwig.lub.lu.se/10.1108/13620430810870476

Başer, A., Altuntaş, S. B., Kolcu, G., & Özceylan, G. (2021). Artificial Intelligence anxiety of Family Physicians in Turkey. *Progress in Nutrition*, 23(S2), https://doi.org/10.23751/PN.V23IS2.12003.

Bircan Eyüp, & Selvanur Kayhan. (2023). Pre-Service Turkish Language Teachers' Anxiety and Attitudes toward Artificial Intelligence. *International Journal of Education and Literacy Studies*, 11(4), 43–56.

Bowling, N. A. (2011). A meta-analysis of the predictors and consequences of organization-based self-esteem. *Development and Learning in Organizations: An International Journal*, 25(3). https://doi-org.ludwig.lub.lu.se/10.1108/dlo.2011.08125cad.010

Bowling, N. A., Eschleman, K. J., Wang, Q., Kirkendall, C., & Alarcon, G. (2010). A meta-analysis of the predictors and consequences of organization-based self-esteem. *Journal of Occupational & Organizational Psychology*, 83(3), 601–626. https://doi.org/10.1348/096317909X454382

Broberg, P., Tagesson, T., & Umans, T. (2020). Antecedents of psychological well-being among Swedish audit firm employees. *International Journal of Environmental Research and Public Health*, 17(10). https://doi.org/10.3390/ijerph17103346

Carrion, S. (2020). Intensity of High-Performance Work Systems on Employees' Organization-Based Self-Esteem. *Capella University ProQuest Dissertations Publishing* https://www.proquest.com/openview/b01dc0bb775943a6b56b3456b88a5b84/1?pq-origsite=gscholar&cbl=51922&diss=y

Coopersmith, S. (1967). *The antecedents of self-esteem*. W. H. Freeman and Company.

Daily Sabah (2024, March 25). Türkiye's unemployment rate drops to hit 10-years low in 2023. *Daily Sabah.* https://www.dailysabah.com/business/economy/turkiyesunemployment-rate-drops-to-hit-10-year-low-in-2023

Dipboye, R. L., Zultowski, W. H., Dewhirst, H. D., & Arvey, R. D. (1979). Self-esteem as a moderator of performance-satisfaction relationships. *Journal of Vocational Behavior*, 15(2), 193–206. https://doi-org.ludwig.lub.lu.se/10.1016/0001-8791(79)90038-1

Eisma, R., Dickinson, A., Goodman, J., Mival, O., Syme, A., & Tiwari, L. (2003). Mutual inspiration in the development of new technology for older people. *Proceedings-Include 2003*, 7, 252-259. https://napier-repository.worktribe.com/output/267341

El-Anzi, F. O. (2005). Academic Achievement and Its Relationship with Anxiety, Self-Esteem,

Optimism, and Pessimism in Kuwaiti Students. *Social Behavior & Personality: An International Journal*, 33(1), 95–103. https://doi-org.ludwig.lub.lu.se/10.2224/sbp.2005.33.1.95

EPP Group. (2024 May 13). Ivana MALETIĆ. https://www.eppgroup.eu/who-we-are/our-members/ivana-maletic

Fedyk, A., Hodson, J., Khimich, N., & Fedyk, T. (2022). Is artificial intelligence improving the audit process? *Review of Accounting Studies*, 27(3), 938–985. https://doi.org/10.1007/s11142-022-09697-x

Filosa, L., & Alessandri, G. (2024). Longitudinal correlated changes of global and organization‐based self‐esteem at work. *Applied Psychology: An International Review*, 73(1), 381–405. https://doi.org/10.1111/apps.12484

Forbes. (2023, October 25). *10 Hurdles Companies Are Facing When Implementing AI (And How To Overcome Them)*. https://www.forbes.com/sites/theyec/2023/10/25/10-hurdles-companies-are-facing-when-implementing-ai-and-how-to-overcome-them/

Gardner, D. G., Huang, G., Pierce, J. L., Niu, X., & Lee, C. (2022). Not just for newcomers: Organizational socialization, employee adjustment and experience, and growth in organization‐based self‐esteem. *Human Resource Development Quarterly*, 33(3), 297–319. https://doi.org/10.1002/hrdq.21458

Gelfand, D. M. (1962). The Influence of Self-Esteem on Rate of Verbal Conditioning and Social Matching Behavior. *Journal of Abnormal & Social Psychology*, 65(4), 259–265. https://doi.org/10.1037/h0040979

Gudur, R. R., Blackler, A., Popovic, V., & Mahar, D. (2013). Ageing, Technology Anxiety and Intuitive Use of Complex Interfaces (Vol. 8119). *Springer Berlin Heidelberg*. https://doi-org.ludwig.lub.lu.se/10.1007/978-3-642-40477-1_36

Hahn, H.-J., & Mathews, M. A. (2022). Learning behaviors as a linkage between organization-based self-esteem and in-role performance. *Journal of Management & Organization*, 28(5), 1100–1115. https://doi.org/10.1017/jmo.2018.17

Hasan, H. E., Jaber, D., Al Tabbah, S., Lawand, N., Habib, H. A., & Farahat, N. M. (2024).

Knowledge, attitude and practice among pharmacy students and faculty members towards artificial intelligence in pharmacy practice: A multinational cross-sectional study. *PLoS ONE,* 19(2), 1–24. https://doi-org.ludwig.lub.lu.se/10.1371/journal.pone.0296884

Hopcan, S., Türkmen, G., & Polat, E. (2023). Exploring the artificial intelligence anxiety and machine learning attitudes of teacher candidates. *Education and Information Technologies: The Official Journal of the IFIP Technical Committee on Education*, 1–21. https://doi-org.ludwig.lub.lu.se/10.1007/s10639-023-12086-9

How EY is empowering business with artificial intelligence. (n. d.). www.ey.com. https://www.ey.com/en_gl/alliances/how-ey-is-empowering-business-with-artificial-intelligence

IBM. (2023). What is Artificial Intelligence (AI)? https://www.ibm.com/topics/artificial-intelligence

IMD World Competitiveness Center (2024). IMD World Digital Competitiveness Ranking 2023. https://www.imd.org/wp-content/uploads/2023/12/Digital_2023.pdf

Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits—self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology*, 86(1), 80–92. https://doi-org.ludwig.lub.lu.se/10.1037/0021-9010.86.1.80

Jun Liu, Chun Hui, Lee, C., & Zhen Xiong Chen. (2013). Why do i feel valued and why do i contribute? A relational approach to employee's organization-based self-esteem and job performance. *Journal of Management Studies*, 50(6), 1018–1040. https://doi-org.ludwig.lub.lu.se/10.1111/joms.12037

Kaya, F., Aydin, F., Schepman, A., Rodway, P., Yetişensoy, O., & Kaya, D. (2022). M. The roles of personality traits, AI anxiety, and demographic factors in attitudes toward Artificial Intelligence. *International Journal of Human-Computer Interaction.* https://doi.org/10.1080/10447318.2022.2151730

Kim, J., & Kim, E. (2022). Relationship between Self-Esteem and Technological Readiness: Mediation Effect of Readiness for Change and Moderated Mediation Effect of Gender in South Korean Teachers. *INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH*, 19(14), 8463. https://doi-org.ludwig.lub.lu.se/10.3390/ijerph19148463

Kuster, F., Orth, U., & Meier, L. L. (2013). High Self-Esteem Prospectively Predicts Better Work Conditions and Outcomes. *Social Psychological and Personality Science*, 4(6), 668-675–675. https://doi-org.ludwig.lub.lu.se/10.1177/1948550613479806

Lau, D. C., Lam, L. W., & Wen, S. S. (2014). Examining the effects of feeling trusted by supervisors in the workplace : A self-evaluative perspective. *Journal of Organizational Behavior*, 35(1), 112–127.

Lauder, E. (2017, April 19). How is PwC Using AI to Provide Solutions for Their Clients? *AI Business.* https://aibusiness.com/responsible-ai/how-is-pwc-using-ai-to-provide-solutions-for-their-clients-

Lemay, D. J., Basnet, R. B., & Doleck, T. (2020). Fearing the Robot Apocalypse: Correlates of AI anxiety. *International Journal of Learning Analytics and Artificial Intelligence for Education (IJAI)*, 2(2), 24. https://doi.org/10.3991/IJAI.V2I2.16759

Li, J., & Huang, J. S. (2020). Dimensions of artificial intelligence anxiety based on the integrated fear acquisition theory. *Technology in Society,* 63, https://doi-org.ludwig.lub.lu.se/10.1016/J.TECHSOC.2020.101410

Lin, N., Jang, J., & Roberts, K. R. (2018). Are employees with higher organization-based self-esteem less likely to quit? A moderated mediation model. *International Journal of Hospitality Management*, 73, 116–124. https://doi-org.ludwig.lub.lu.se/10.1016/j.ijhm.2018.01.021

Pierce, J.L., Gardner, D.G., Cummings, L.L. & Dunham, R.B. (1989). Organization-based selfesteem: construct definition, measurement, and validation. *Academy of Management Journal,* 32(3) 622–648.

Pierce, J. L., & Gardner, D. G. (2004). Self-Esteem Within the Work and Organizational Context: A Review of the Organization-Based Self-Esteem Literature. *Journal of Management*, 30(5), 591–622. https://doi-org.ludwig.lub.lu.se/10.1016/j.jm.2003.10.001

Pratt, M. (2023, June 21). *12 Key Benefits of AI for Business.* SearchEnterpriseAI. https://www.techtarget.com/searchenterpriseai/feature/6-key-benefits-of-AI-for-business

Revisor. (2022, June 29). Utdanning.no. https://utdanning.no/yrker/beskrivelse/revisor#:~:text=Rapporten%20gir%20eiere%2C%20ansatte%2C%20kreditorer,er%20gode%20rutiner%20i%20virksomhetene.

Rose, G. (2017). Posthuman Agency in the Digitally Mediated City: Exteriorization, Individuation, Reinvention. *Annals of the American Association of Geographers*, 107:4, 779-793

Saade, R. G., & Kira, D. (2007). Mediating the Impact of Technology Usage on Perceived Ease of Use by Anxiety. *Computers & Education,* 49(4), 1189–1204. https://doi-org.ludwig.lub.lu.se/10.1016/j.compedu.2006.01.009

Salehi, M., & Rouhi, S. (2023). The impact of audit members' self-esteem and narcissism on organizational knowledge sharing among audit firms. *Management Decision*, 61(10), 2872–2895. https://doi-org.ludwig.lub.lu.se/10.1108/MD-09-2022-1279

SCB. (2024, February 16). Arbetskraftsundersökningarna (AKU) Svagare utveckling på arbetsmarknaden. *Statistikmyndigheten*. https://www.scb.se/hitta-statistik/statistik-efter-amne/arbetsmarknad/arbetskraftsundersokningar/arbetskraftsundersokningarna-aku/pong/statistiknyhet/namnlos2/

Serhii Ivakhnenkov. (2023). Artificial intelligence application in auditing. *Наукові Записки НаУКМА: Економічні Науки*, 8(1), 54–60. https://doi.org/10.18523/2519-4739.2023.8.1.54-60

Sundalskleiv, L. N. (2024, January 17). *Derfor bytter ikke regnskapsførerne jobb*. Regnskap Norge. https://www.regnskapnorge.no/faget/artikler/bransjeaktuelt/derfor-bytter-ikke-regnskapsforerne-jobb/

Tang, P. M., Koopman, J., Mai, K. M., De Cremer, D., Zhang, J. H., Reynders, P., Ng, C. T. S., & Chen, I-H. (2023). No Person Is an Island: Unpacking the Work and After-Work Consequences of Interacting With Artificial Intelligence. *Journal of Applied Psychology. Advance online publication*. https://dx.doi.org/10.1037/apl0001103

Terzi, R. (2020). An Adaptation of Artificial Intelligence Anxiety Scale into Turkish: Reliability and Validity Study. *International Online Journal of Education and Teaching*, 7(4), 1501–1515.

Tharenou, P. (1979). Employee Self-Esteem: A Review of the Literature. *Journal of Vocational Behavior*, 15(3), 331–346.

Tharenou, P., & Harker, P. (1984). Moderating Influence of Self-Esteem on Relationships

Between Job Complexity, Performance, and Satisfaction. *Journal of Applied Psychology*, 69(4), 623–632. https://doi-org.ludwig.lub.lu.se/10.1037/0021-9010.69.4.623

Vani, P. C., Sahoo, B. C., Paul, J. C., Sahu, A. P., & Mohapatra, A. K. B. (2023). Trend Analysis in Gridded Rainfall Data Using Mann-Kendall and Spearman's Rho Tests in Kesinga Catchment of Mahanadi River Basin, India. *Pure and Applied Geophysics: Pageoph*, 180(12), 4339–4353. https://doi.org/10.1007/s00024-023-03379-8

Vogel, R. M., & Mitchell, M. S. (2017). The Motivational Effects of Diminished Self-Esteem for Employees Who Experience Abusive Supervision. *Journal of Management*, 43(7), 2218-2251–2251. https://doi-org.ludwig.lub.lu.se/10.1177/0149206314566462

Wang, Y.-Y., & Wang, Y.-S. (2019). Development and Validation of an Artificial Intelligence Anxiety Scale: An Initial Application in Predicting Motivated Learning Behavior. *Interactive Learning Environments*, 30(4), 619–634. https://doi.org/10.1080/10494820.2019.1674887

Wang, Y.-M., Wei, C.-L., Lin, H.-H., Wang, S.-C., & Wang, Y.-S. (2022). What drives students' AI learning behavior: a perspective of AI anxiety. *Interactive Learning Environments*, 1–17. https://doi.org/10.1080/10494820.2022.2153147

Warren, A., & Gibson, C. (2023). Struggles over Skills: Lived Experiences of Evolving Technologies and Gendered Hierarchies at Work. *Annals of the American Association of Geographers,* 113(5), 1071–1091. https://doi-org.ludwig.lub.lu.se/10.1080/24694452.2022.2157790

Wong, G. Y.-L., Kwok, R. C.-W., Zhang, S., Lai, G. C.-H., Li, Y., & Cheung, J. C.-F. (2024). Exploring the consequence of information communication technology-enabled work during non-working hours: a stress perspective. *Information Technology & People*, 37(1), 285–307. https://doi-org.ludwig.lub.lu.se/10.1108/ITP-01-2022-0046

World Economic Forum. (2023). *Global Gender Gap Report 2023*. https://www3.weforum.org/docs/WEF_GGGR_2023.pdf

World Health Organization. (2024, May 16). *Coronavirus disease (COVID-19) pandemic.* https://www.who.int/europe/emergencies/situations/covid-19

Xie, F., Xin, Z., Chen, X., & Zhang, L. (2019). Gender difference of chinese high school students' math anxiety: The effects of self-esteem, test anxiety and general anxiety. *Sex Roles*, 81, 235–244.

Xingchi Zhou, Yujie Guo, & Yuhao Liu. (2023). The impact of leader safety communication on work engagement under pandemic: The effect of OBSE and anxiety based on COVID-19. *Frontiers in Public Health*, 11. https://doi.org/10.3389/fpubh.2023.1082764

Yang, S., Bai, H., Abuselidze, G., & Mamaladze, L. (2021). The impact of artificial intelligence on employment before and during pandemic: A comparative analysis. *Journal of Physics: Conference Series*, 1840(1), 012040. https://doi.org/10.1088/1742-6596/1840/1/012040

Yuanhua Wang. (2024). Examining the Role of Sense of Belonging and Formative Assessment in Reducing the Negative Impact of Learning Anxiety in Mathematics. *European Journal of Psychology of Education*, 39(1), 431–453. https://doi-org.ludwig.lub.lu.se/10.1007/s10212-023-00701-9

Appendix 1

Contingency Table of AI Use and AI Development (N = 79)

	AI development		
AI use	No	Yes	Total
Yes	61	8	69
No	9	1	10
Total	70	9	79

Appendix 2