Impostor phenomenon – Narratives of information technology professionals

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Abstract

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A person suffering from the impostor phenomenon, commonly known as impostor syndrome, is characterised by the belief that their accomplishments result from luck, chance, or some other influence other than their abilities and skills. Despite successes and professional achievements such as position, title, and job responsibilities, individuals haunted by impostor thinking question their competence. Fear of being exposed, low self-efficacy beliefs, and inability to derive satisfaction from achievements can result in self-handicapping, emotional distress, burnout, and other harmful effects on mental well-being.

The impostor phenomenon impacts organisational productivity and social dynamics. A person with an impostor mindset can have difficulties in career development and goal setting, leading to heightened stress and exhaustion Employees with intense impostor thoughts tend to doubt their abilities and feel inadequate, leading to decreased performance and productivity. They may shy away from sharing ideas, taking on challenges, and making decisions. This ultimately impedes the overall success of the organisation.

This thesis aimed to contribute to understanding the factors behind intense impostor thoughts, particularly within the context of information technology professionals. It examined how intense impostor thinking manifests, how it affects individuals and organisations, and what interventions could help mitigate the negative consequences of the impostor phenomenon.

By understanding the impostor experience better, human resources and talent management can develop targeted interventions to support employees with impostor thoughts. Additionally, individuals can benefit from the findings by using them to enhance their self-awareness and identify their actual personal and professional growth competencies.

The qualitative study consisted of ten narratives by information technology professionals who suffer from intense impostor thinking. They represented various work descriptions in the field. Their stories and experiences provided a unique way to shed light on the phenomenon and its manifestations. Based on the analysed narratives, several recommendations were created for mitigating the negative effects on individuals and organisations.

Keywords
Impostor phenomenon, Narrative, Information technology, Fear, Self-efficacy, Intervention, Career development

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1 Introduction

A person suffering from impostor thinking, i.e., impostor phenomenon, feels that their achievements and successes are due to good luck, chance, or the favour of others. An impostor thinker questions their competence, even if their position, title, and job duties prove otherwise. Impostor thinking can affect career development and goal setting, and it can expose to various states of stress and exhaustion. Fear of exposure, low self-efficacy beliefs, inability to enjoy achievements, feelings of shame and guilt may lead to self-handicapping, poor performance, emotional distress, burnout, and other negative effects on the mental well-being. Almost everyone has doubts of their competence at some point in life, but when those doubts become frequent and intense, and even start impairing career development, that phenomenon is called the impostor phenomenon, or in layman term, impostor syndrome. (Clance & Imes 1978; McDowell, Grubb & Geho 2015.)

Impostor phenomenon also affects the productivity and social dynamics of organisations. Employees with intense impostor thoughts often doubt their abilities and feel they are unaccomplished. Lack of confidence can lead to decreased performance and productivity. They may hesitate to share their ideas and take on new challenges or make decisions, fearing that they will be exposed as frauds. This can hinder the overall success of the organization. (Grubb & McDowell, 2012, 1-10.)

Constantly worrying about being exposed can contribute to high levels of stress and burnout among employees. This can lead to decreased job satisfaction, increased absenteeism, and turnover. Employees experiencing impostorism may struggle with collaboration, feeling inadequate compared to their colleagues. They may avoid seeking help or support, fearing it will expose their perceived incompetence. Impostor thinking can also affect individuals from underrepresented groups who may already face barriers and biases in the workplace. When these individuals doubt their abilities, they may hesitate to pursue promotions or leadership roles. This can cause a lack of diversity and inclusion within the organization. (Grubb & McDowell, 2012, 1-10; Kark & al. 2022, 1968.)

The topic gains increasingly more media coverage in newspapers, blogs, and books. Publications such as Harvard Business Review, New York Times, and Helsingin Sanomat cover the topic frequently in their career and wellbeing sections. Impostor phenomenon in the field of information technology has been covered for example by Rob Conery, the author of The Imposter's Handbook (2017). He is a self-taught programmer who felt constantly like an impostor due to lack of formal training and ended up writing a book about his impostor experience as an information technology professional. The field of information technology is said to be particularly susceptible to impostor phenomenon because it develops fast, and one must acquire new skills constantly. The nature of

the work is creative problem solving, and the common narratives in the field celebrate myths about individual heroism.

In my work as a human resource professional in information technology consulting organisation, I often discuss skills and development goals with the employees. I follow the general discussion on the organisation's communication platforms and the industry's social media. I have often paid attention to comments doubting one's competence and disbelief about one's suitability alongside more competent colleagues. Fear of lacking true competence and even thoughts of fraudulence seem surprisingly common among information technology professionals. This is in contrast to what the general perception of the level of competence is in the field. Most employees have a background of higher education or at the minimum, a long history of technology related hobbies and amateur dedication.

Impostor syndrome is a relatively well-known term, but individuals suffering from it may be unaware of how it affects their professional life and career choices. Similarly, organisational agents such as management and human resources may overlook the effects on productivity and dynamics. Impostor phenomenon has been studied since the late 1970s, but academic research on the impostor phenomenon particularly in the field of information technology is relatively scarce, despite the growing popular interest.

1.1 Objectives

This thesis aims to add to the common understanding of what factors may lead to experiencing intense impostor thoughts, specifically among information technology professionals. Further, the aim is to study how intense impostor thinking manifests, how it affects individuals and organisations in terms of career development, and what type of interventions would be considered beneficial to mitigate the negative effects of the impostor phenomenon.

Understanding impostor experience helps find tools for human resources and talent management to support the employees with impostor thoughts. The findings can be used to develop targeted managerial practices of interventions by HR, management, supervisors, career coaches, and other organisation developers. Self-knowledge and identifying one's competence are integral to professional development. Therefore, the individuals may also benefit from the findings and use them self-sufficiently.

1.2 Research questions

RQ1 What factors may lead an individual to experience intense impostor thoughts?

RQ2 How does intense impostor thinking manifest and affect individuals and organisations?

RQ3 What kind of interventions aimed at reducing the negative effects of the impostor phenomenon would be helpful?

1.3 Scope of the study

The scope of the research focuses on the experiences of intense impostor phenomenon among information technology professionals with higher education and work experience of five or more years in the field. Other demographic features, such as gender, age, and ethnicity are not criteria for informant selection. The interviewees' education and years served in the industry are the only selection criteria for the interview. The informants are employed by various organisations and represent different professional groups in the field of information technology: programmers, architects, designers, and business consultants. See tables 1 and 2. The scope includes the organisational aspect in terms of culture and functions relevant to the topic.

It should be noted that the defining of the interview subjects as individuals with intense impostor thoughts rely solely on their own assessment and not on professional psychological evaluation. Therefore, any diagnostical implications cannot be made based on this study.

1.4 Key concepts

Impostor phenomenon refers to the overall existence of thought patterns and consequences related to the psychological construct of perceived fraudulence.

IP is an abbreviation of the term impostor phenomenon.

Impostor syndrome is a lay person term referring to impostor phenomenon.

Impostor thinker or the short form *impostor* in this thesis refers to a person with intense impostor thoughts and a person suffering from the effects of impostor thoughts. It does not imply that the person referred to with these terms is fraudulent.

The pronoun "they" instead of the pronouns "he" or "she" is used throughout the text to both protect the identity of the informants' and to highlight the gender-neutral approach of the thesis. It should be noted that this choice may lead to sentence structures appearing to combine singular and plural forms falsely. However, it is a grammatically valid use of the pronoun, and the sentence context

should guide the reader to the correct interpretation. When specifying gender is relevant, the specification is done with other linguistic choices, for example, using the word “motherhood”.

The next chapter introduces the theoretical framework of this thesis. The literary review of the relevant perspectives to the impostor phenomenon is followed by the introduction research methodology and the empirical findings. The thesis concludes in discussing the results and reflections on learning.

2 Perspectives to impostor phenomenon

This chapter presents the theoretical framework on which the empirical findings of this thesis are reflected. To understand the nature of the impostor phenomenon (IP), it is essential to look at how it was first discovered, its characteristics, and the antecedents that predispose a person to impostor thoughts. To gain perspective on how best to utilise the findings in an organisation, the literature review looks at the discoveries on organisational psychology in relation to the impostor phenomenon. The prior research creates a platform for this thesis to introduce a new perspective on the topic.

The first purpose of this thesis is to study how the IP affects the lives of information technology professionals. The body of empirical evidence on how the impostor phenomenon manifests in an individual's life is presented. The review also depicts how the IP influences an individual's feelings, sense of self, and actions. The influence is primarily detrimental, but also upsides have recently been discovered (Tewfik 2022).

The discovery and naming of the impostor phenomenon in the 70s is the starting point of the systematic study of the IP. The nature and core characteristics of the IP have remained relatively unchanged since its discovery. However, the understanding of the antecedents has evolved, for example, together with the understanding of the systemic biases towards underrepresented genders and minority groups. Personality traits, childhood events and upbringing, as well contextual factors are presented as relevant antecedents to IP.

The impostor phenomenon is not a recognized psychiatric disorder but rather a set of thought patterns (Bravata, Watts, Keefer, Madhusudhan, Taylor, Clark, Nelson, Cockley & Hagg 2019, 1252; Vergauwe, Wille, Feys, De Fruyt & Anseel 2015; Neureiter & Traut-Mattausch 2016). The review includes some relevant psychological concepts associated with the IP. An essential concept is the social cognitive theory of self-efficacy, the fundamental source of human agency (Kumar, Kailasapathy & Mudiyanselage 2021, 12; Bandura 1986; 1997).

The theoretical overview shows that the impostor phenomenon affects also organisational development, not just on an individual level. The organisational psychology concept of organisational citizenship behaviour (OCB) sets the stage to understand how the IP influences organisational success through individual experiences.

Finally, some individual coping strategies and organisational intervention possibilities are presented, as the second purpose of this thesis is to understand how individuals and organisational

agencies could mitigate the challenges IP throws at individuals and work communities. The chapter is finalised with a summary of the literary review.

2.1 Manifestations of impostor phenomenon

Impostor phenomenon, commonly known as impostor syndrome, refers to an internal feeling of fraudulence and persistent self-doubt. People suffering from impostor thoughts attribute their successes and achievements to external factors such as luck or favouritism instead of their actual competences, and constantly fear of being exposed as a fraud or impostor. (Bravata & al. 2019, 1252.)

The phenomenon was first discovered by Clance & Imes (1978) who treated professional women with successful careers and high academic achievements in therapy. The body of research on the topic to date recognises that impostor thoughts of varying intensity are present in all genders, not just among women. (Clance & Imes 1978; Bravata & al. 2019,1252.)

There are at least four different scales developed to measure the intensity of impostor thoughts. These include Clance Impostor Phenomenon Scale (CIPS), Harvey Impostor Phenomenon Scale (HIPS), Perceived Fraudulence Scale (PFS) and Leary Impostorism Scale (LIS). Out of the four scales, CIPS is considered the most used. It includes a twenty-item survey pattern measuring a) fear of evaluation, b) fear of not being able to repeat success and c) fear of being less capable than others. (Chrisman, Pieper, Clance, Holland & Glickauf-Hughes 1995, 456-457; Freeman, Houghton, Carr & Nestel 2022, 2.)

The central characteristics of impostor feelings are described as low self-efficacy, fear of failure, perceived fraudulence, and shame (Vergauwe & al. 2015, 565-581; Bernard, Dollinger & Ramaniah 2002, 321-333; Clance & Imes 1978, 241; Kolligian 1990; Cowman & Ferrari 2020). Sakulku & Alexander (2011) find that the core components of the impostor phenomenon are having fooled others into an overestimation of one's ability, anxiety of being exposed as a fraud, and attribution of one's success to factors other than intelligence or ability.

Chrisman et al. (1995) found that high scores in impostor survey correlated positively with a fear of negative evaluation by others and with concerns about receiving social approval and recognition. When faced with a need of an achievement, those with impostor fears may demonstrate maladaptive patterns such as helplessness.

Fear of failure and avoiding goal orientation are related to impostor feelings. Noskeau, Santos & Wang (2021) found that an individual who believes their abilities are fixed and cannot be improved

with training, is afraid of failing and more likely their fear of failure fuels the impostor feelings. Fear of failure also prevents motivation to show inability or prove ability to others.

All these characteristics predispose to distress and maladaptive behavior such as striving for flawlessness and setting unrealistic standards for oneself. A person may interpret their difficulties to perform as inherent inabilities and fear that those inabilities will be revealed to others. The fear of exposure may guide the individual to avoid challenges or give up relatively easily. (K.H. & Menon 2020; Kumar & al. 2022.)

Impostor thoughts are reinforced in the Impostor Cycle, a term coined by Clance (1985, 20-22). The term refers to a repetition of situations where the impostor thoughts intensify, and where a person does not internalise their achievements and fears of failing in the future endeavours. (Chrisman & al. 1995; Clance 1985; Clance & Imes, 1978.)

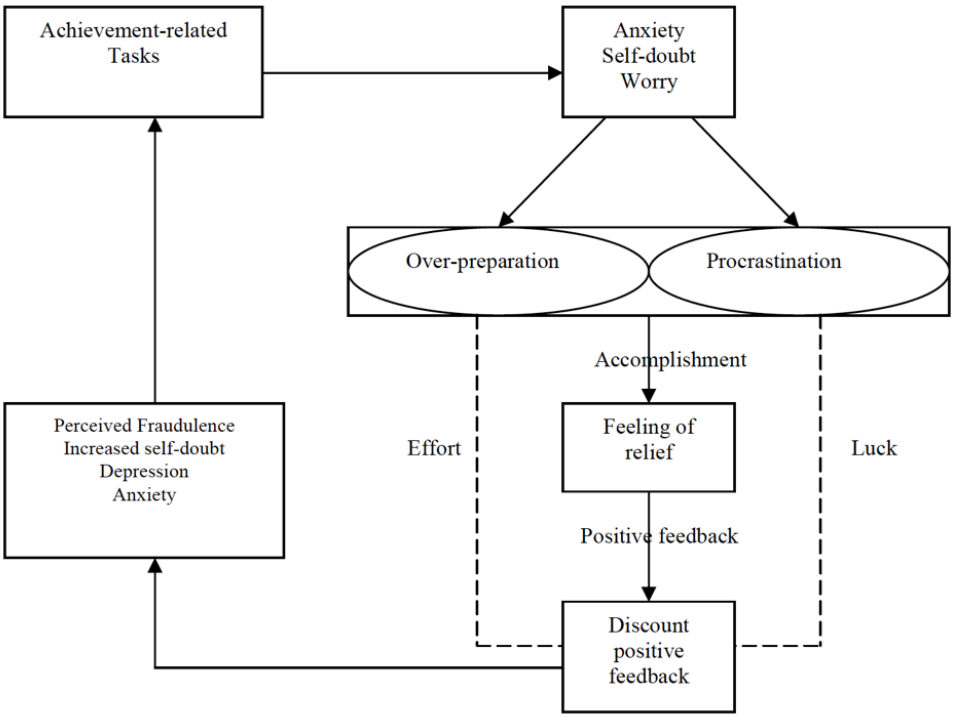

Figure 1. The Impostor Cycle (adapted from Sakulku & Alexander 2011, 78; Clance 1985)

The cycle depicts how a person may attribute the positive results of a task or goal to intense effort or luck, and therefore not give the due value on the achievement. This results to perceived fraudulence, i.e., feeling that the success is due to some external factor instead of competence. The self-doubt and anxiety follow to the next task and the cycle continues. (Clance 1985.)

2.1.1 Interpersonal advantages of impostor thoughts

Not all manifestations of impostor phenomenon are considered to be of negative effect. Workplace impostor thoughts may also have interpersonal benefits. Employees with more frequent impostor thoughts tend to adopt a more other-focused orientation and therefore they are evaluated as being more effective in interaction with others. Although impostor thoughts may be handicapping in terms of career development, social skills make a person more likeable, hence advancing career success. (Tewfik 2022, 988-1018; Harrell 2022.)

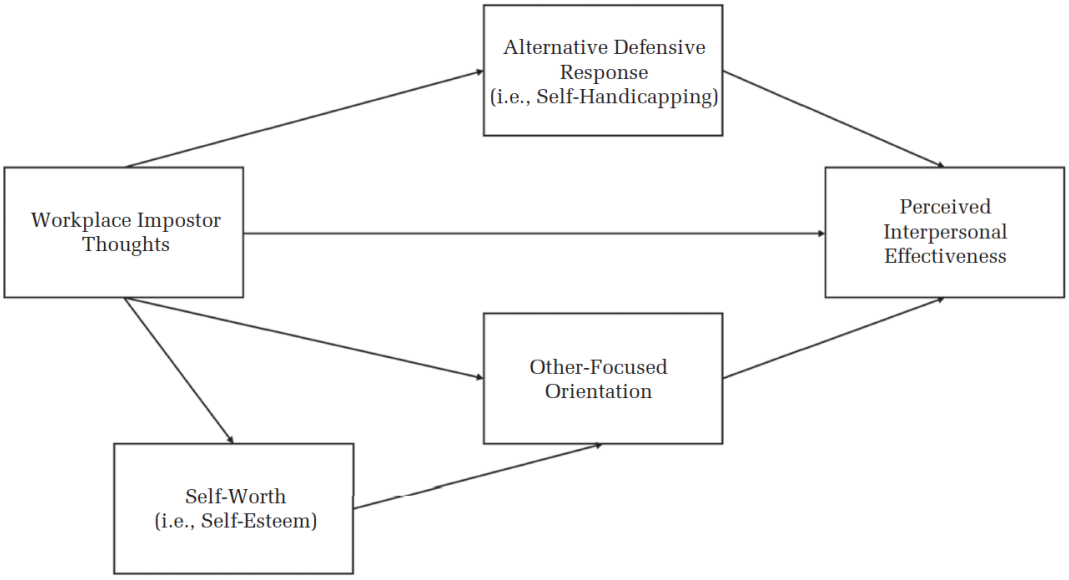

Figure 2. Theoretical model (adapted from Tewfik 2022, 990)

Tewfik (2022) challenges the general narrative that impostor thinking is solely detrimental and set out to identify what benefits might impostor thinking promote. Incorporating theory of self-worth, Tewfik presents a model that adds a dimension of positive effect on perceived interpersonal effectiveness through other-focused orientation. (Tewfik 2022, 990.)

In the prevailing understanding of impostor phenomenon, self-handicapping has been identified as an effect of impostor thinking. However, Tewfik found that the self-handicapping does not harm the way others view the person, i.e., other-perceived interpersonal effectiveness. According to Tewfik (2022, 1012) the reason for positive association with interpersonal effectiveness is because those who have impostor thoughts tend to adopt a more other-focused orientation.

Tewfik also challenges the prevailing understanding that an impostor thinker turns inwards in relation to others when feeling threatened. In Tewfik's model turning outwards is also a possible

consequence because others are not the source of the threat, but rather a source of appreciation. (Tewfik 2022, 1012.)

2.2 Antecedents of impostor phenomenon

The research on impostor phenomenon started when Clance & Imes (1978) studied a group of high-achieving women. Gender was one of the major factors when impostor phenomenon was first studied, labelling impostor thoughts as mainly the problem of women. Since then, studies have shown that impostor phenomenon goes beyond gender limits and is common with any genders. It has been further shown that personality traits, family and social influence, as well as context have a role as antecedents of the impostor phenomenon. (Bravata & al. 2019, 1252; K.H. & Menon 2020, 4–5.)

2.2.1 Gender

Clance & Imes (1978) first concluded that impostor thoughts are intense particularly among high achieving women. They studied women with PhDs and successful careers in variety of specialties, who despite their degrees, successful careers, and recognitions, did not experience an internal sense of success. Instead, they consider themselves as impostors. The women had beliefs that they are not intelligent, that they were mistakenly accepted to their studies, their success is based on luck, or their abilities had been overestimated.

The study was preceded by research on sex differences in the attribution process (Deaux 1976), where evidence was found that women consistently have lower expectancies than men of their ability to perform successfully. The research of was mirrored on two principles:

1) An unexpected performance outcome will be attributed to a temporary cause.

2) An expected performance outcome will be attributed to a stable cause.

Deaux (1976) concluded that women are more likely than men to attribute their success to luck or hard work, while men are more likely to feel that they are successful due to innate and permanent qualities. Women, on the other hand, explain failure as incompetence, while men attribute failure to bad luck or the difficulty of the task. The finding was in line with the lower expectancies of performance by women. Clance and Imes (1978) state that the result indicates that women with lower expectations have internalized the stereotype that women are not considered competent, and therefore were not surprised that women in their study find other explanations than their intelligence and abilities for their accomplishments. They also found that the phenomenon occurs with much less frequency and intensity in men.

Since the original research by Clance & Imes (1978), they and others have concluded that it is not only women who suffer from impostor thoughts. According to a review of data (Bravata & al. 2019), sixteen out of thirty-three studies comparing the rates of impostor feelings by gender found that women reported statistically significantly higher rates of impostor feelings than men. Seventeen of the thirty-three studies found no difference in rates of impostor thoughts between men and women. This implies that the impostor phenomenon affects the entire population. (Bravata & al. 2019.) However, Bernard & al. (2002, 331) suggest that IP may be linked with women's inability to resolve certain childhood issues which creates a conflict between femininity and masculine attributes such as autonomy.

2.2.2 Family and social role expectations

Early childhood experiences as well as family and social influences are linked to impostor thoughts. The pressure to align oneself with family and social expectations may restrict from reaching one's full potential as one continuously questions themselves whether they are performing in the expected way. (Clance, 1985, 20-22; Clance, Dingman, Reviere & Stober 1995, 79-96.)

Parenting styles and other family environment factors such as control, support, communication, and emotional expression are significant in the development of impostor phenomenon in the early stages of life (Sonnak & Towell 2001, 863-874; Want and Kleitman 2006, 961-971). Impostor feelings also tend to be more frequent in children coming from achievement-oriented families (King and Cooley 1995, 304-312).

Clance and Imes (1978) recognized two types of family dynamics in women with impostor thoughts. In one group the women have been in youth negatively compared to a family member that is generally considered more bright or capable. Despite attempts to prove their equal intellectual worth with study success and other achievements, the negative comparison prevails. Impostor thoughts emerge when the seed of doubt of one's intelligence sparks the thoughts that perhaps the family is correct, and the success is due to social skills and charm rather than intelligence. (Clance & Imes 1978.)

In the other group the family's praise has no limits. The child learns that they is superior in intellect, personality, appearance, and talent, to the point that they can do no wrong and that there is nothing they cannot achieve. When faced with difficulties in attempt to achieve a desired level, they may start to doubt the family's perception. When realizing that they cannot live up to the "perfection with ease" ideal but must struggle to maintain the perfect image in front of the family, impostor thoughts find their breeding ground. (Clance & Imes 1978.)

2.2.3 Personality traits

In the field of psychology, the five-factor model of personality traits, also referred to as the Big Five, is an empirically derived model that represents personality in terms of five factors:

1) Neuroticism (N)
2) Extraversion (E)
3) Openness to Experience (O)
4) Agreeableness (A)
5) Conscientiousness (C)

The traits account for what are considered the most common variables in all personality traits. Each five factors have a group of sub-traits connected to it. For example, the factor Neuroticism (N) is linked to anxiety, depression, self-consciousness, impulsiveness, and vulnerability. Traits related to Conscientiousness can be described as reliability, organized, ambition, and thoughtfulness. Characteristic for high Conscientiousness is strong feelings of competence, based on belief in personal effectiveness. The five-factor model can be used to map the personality features of an individual, and it is used for example in recruiting, coaching, and human resource development. (Costa 1996, 229; Vergauwe & al. 2015, 567.)

Ross, Steward, Mugge & Fultz (2001) and Bernard & al. (2002) have studied the link between impostor phenomenon and the Big Five personality traits. Their findings link IP to Neuroticism and Conscientiousness, two of the five personality factors. Both studies found a strong positive correlation between Neuroticism and IP, which was expected, as they are both linked to negative outlook, depression, and anxiety. Ross & al. (2001) found also that self-handicapping was related to Neuroticism as well as low Conscientiousness.

Vergauwe & al. (2015, 579) found that low Conscientiousness and impostor tendencies correlate. This suggests that individuals with stronger impostor tendencies tend to exhibit lower levels of conscientiousness compared to those with milder impostor tendencies. However, Vergauwe & al. (2015, 579) raise the possibility, that impostors perceive and portray themselves as less conscientious, while in reality, they may not differ from others significantly. It is plausible that impostors establish exceedingly high standards for themselves and consequently feel that they are constantly falling short of being adequately conscientious. (Vergauwe & al. 2015, 579.)

Self-handicapping is one of the attributes linked to impostor phenomenon (Ross & al. 2001; Ferrari & Thompson 2005). Jones & Berglas (1978) describe self-handicapping as a strategy to protect or enhance one's self-esteem in situations where self-esteem may be threatened. By engaging self-handicapping activities, such as unhealthy lifestyle choices, procrastination, and incompletion of

studies or work tasks, a person can blame their failures on external factors rather than internal attributes. (Jones & Berglas 1978; Ross, Canada & Rausch 2002, 1173-1174.)

Bernard & al. (2002, 330) are more hesitant to directly link self-handicapping as a consequence of impostor thinking. Instead, they suggest that as psychological processes they differ in attribution of success: self-handicappers attribute the level of performance to external factors and impostor thinkers to internal factors.

2.2.4 Underrepresentation and minority status

While the starting point of studying impostor phenomenon was the experience of women in particular, several studies found impostor phenomenon to be prevalent also among ethnic minorities. (Bravata & al. 2020, 21.)

Tulshyan & Burey (2021) point out that research on impostor phenomenon among women has overlooked the effects of systemic racism, classism, xenophobia, and other biases towards women. They suggest that overcoming impostor phenomenon is not to fix individuals' thinking but to create an environment that fosters different leadership styles and where diversity of racial, ethnic, and gender identities are considered.

The view is supported by a study on Black and Hispanic students by Peteet, Montgomery & Weekes (2015). They criticise the research on the academic achievement among underrepresented ethnic minorities (URM) focusing mostly on drop-out rates and failure and overlooking the experiences of the high-achieving ethnic minority students. They set out to investigate to which extent the first-generation status, psychological well-being, and ethnic identity predict IP scores among high-achieving URM undergraduates. Their research suggests that low psychological well-being and low ethnic identity are antecedents of impostor thoughts. The first-generation status was correlated to IP but was not a strong predictor. (Peteet & al. 2015, 175-186.)

Research on impostor phenomenon in leadership (Kark, Meister & Peters 2022) proposes that those individuals with a minority status and who are less represented in the organisation, are more likely to experience impostor feelings than those with a majority status. They also state that impostor thinking creates barriers in organisational leadership for women and other minorities. (Kark & al. 2022, 1968.)

The effects of IP may serve as explanations to some findings in the leadership research concerning gender and minority status. For example, IP could explain why women are prone to feel more shame than men, why women tend to feel the need to make an extra effort to be seen as fitting for

the leadership role, and why women and minorities ask for less salary in negotiations for leadership roles. (Kark & al. 2022, 1968–1969.)

2.2.5 Contextual factors

In addition to social constructs and other antecedents of impostor thinking, also context may affect the intensity of the impostor thoughts. A person prone to impostor thinking is not necessarily feeling like an impostor all the time. Some situations and settings may spring out impostor thoughts even if they are not normally present.

Kumar & al. (2021) found that context alone does not explain impostor fears but that they are sometimes context-related: sense of integration in the organisation, career stage, and how the job-fit is realized affect the manifestation of impostor thoughts, and that the impostor fears decline after becoming more familiar with tasks and the organisation. They also found that those with high self-efficacy beliefs and internal locus of control did not report impostor thoughts.

2.3 Self-efficacy

Impostor fears are associated with the concept of self-efficacy. (Kumar & al. 2021, 12.) A major basis of people’s actions is how they see their personal efficacy. Perceived self-efficacy refers to beliefs in one's capabilities to organize and execute the courses of action required to produce desired goals. Beliefs of personal efficacy are the key factors of human agency. The incentive to act requires a belief that one has power to make things happen. (Bandura 1986, 391; 1997, 2-4.)

Triadic reciprocality is a social cognitive theory of reciprocal determinism. The model consists of interactive operation between 1) behaviour, 2) cognitive and other personal factors, and 3) environmental influences. They form an interdependent causal structure that influences the outcome of human actions. The three dimensions influence one another in both directions and the level of influence varies depending on the situation. Also, not all three reciprocal effects are necessarily present at the same time. (Bandura 1986, 23-24; 1997, 5-6.)

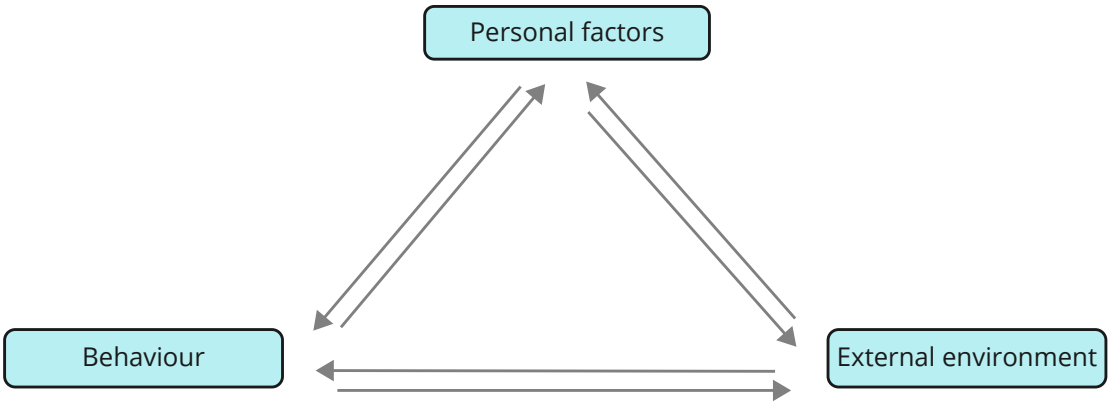

Figure 3. The relationship between the determinants in triadic reciprocal causation (adapted from Bandura 1997, 6)

The manifesting effects of peoples perceived self-efficacy are diverse. The beliefs behind self-efficacy influence the courses of actions, goal setting, the amount of effort put in a task, and how obstacles and challenges are faced and endured. The beliefs can be both beneficial and self-hindering. Those with high levels of positive self-efficacy are more persistent in their endeavours to reach their goals and therefore more successful in pursuit of them. (Bandura 1997; Kark & al. 2022.)

2.3.1 Self-efficacy and self-esteem

In general language, self-efficacy and self-esteem are often used interchangeably, but they refer to different things. Self-efficacy is about judgements of personal capabilities, whereas self-esteem is judgement of self-worth. The two are not tied to each other, because a person can be very skilled in something but takes no pride in it in a way that the feeling of self-worth increases. On the other hand, one can perform poorly without it affecting the level of self-esteem. Self-esteem is about liking or disliking oneself, and the level of self-efficacy can be high without valuing oneself. However, people tend to gravitate towards building skills that give them sense of self-worth. (Bandura 1997, 11.)

Self-efficacy instead of self-esteem is the relevant term in this study, as self-esteem alone affects neither setting goals or performance. Good self-esteem does not ensure good results in reaching goals and success. Instead, a person needs a strong belief in their efficacy to achieve their goals or even start their endeavours. (Mone, Baker & Jeffries 1994.)

2.3.2 Sources of self-efficacy

People's beliefs of their personal efficacy are a significant part of their self-knowledge. Self-efficacy beliefs are constructed of four major information sources:

1) Enactive mastery experiences, that indicate capability.
2) Vicarious experiences that transform capabilities into efficacy beliefs and comparison to capabilities of others.
3) Verbal persuasion and other social influences that indicate possession of capability.
4) Physiological and affective states based on which people judge their abilities. (Bandura 1997, 79.)

Any influence can transfer through one or several sources of information, depending on its form. The information through any of the four sources is not automatically informative – it must be processed cognitively and through reflective thought to become instructive. (Bandura 1997, 79.)

Out of the four information sources, enactive mastery experiences are the most influential. They provide the clearest evidence of mastery. Successes build and failures undermine the belief of self-efficacy. However, easy successes build expectations of quick results, whereas overcoming difficulties and then succeeding builds resilient sense of efficacy. Difficulties provide opportunities to learn how to turn failures into success by polishing one's capabilities to exercise better control over events. (Bandura 1997, 80.)

Possessing skills and knowledge does not lead to automatic success if the person lacks the confidence to use them. Schunck & Rice (Bandura 1997, 80-81) studied cognitive strategies on children with academic difficulties. The results show that reminding of the strategies or giving affirmative feedback had little effect on the children's beliefs of their self-efficacy. But pointing out to them that they performed better in academic tasks by using the strategies and conveying the success feedback as evidence that they were applying the strategies well, substantially enhanced the children's efficacy beliefs and their subsequent intellectual accomplishments. The more their beliefs of personal efficacy were raised, the better they performed. Thus, teaching skills and giving positive feedback alone have little effect with individuals with strong doubts about their capabilities. But adding social validation of personal efficacy results in larger benefits. (Bandura 1997, 80-81.)

2.4 Career development

Neureiter and Traut-Mattausch (2016) found in their study of working professionals and career planning and development that individuals with high levels of impostor thoughts reported less career planning, lower career striving, and a decreased motivation to lead. This has implications not only for the individual but also for the organisation.

Shame, fear, and anxiety limit learning at work. Professional identity relates to strengths and weaknesses as a professional, professional goals and interests, and career focus. In working life research, the importance of emotions has been shown to play a significant role in workplace relationships and they have also been found to promote the efficiency and competitiveness of organisations. (Vähäsantanen, Paloniemi, Hökkä & Vasama 2022, 301–302.)

Neureiter and Traut-Mattausch (2016) hypothesised that those suffering from the impostor phenomenon, fear of success, fear of failure, and low level of self-efficacy affect career planning, career striving, and motivation to lead. They found support for their assumption that fear of failure is the strongest predictor of impostor feelings and that impostor thoughts are a coping strategy to deal with rejection from colleagues as a reaction to successful advancing in one's career.

Impostor feelings are related to low self-efficacy and fear of failure, leading to career development hindrances. When a high achiever denies success from themselves, they repel the fear of rejection. Those suffering from IP may overlook the opportunities to advance in one's career. The more impostor feelings the study participants reported, the less career strive they reported. Impostors fear achieving a higher position because they fear failing in it. Therefore, it is easier to settle for a secure position. (Neureiter & Traut-Mattausch 2016, 10.)

2.5 Effects of the impostor phenomenon on organisation

Individual experiences of impostor phenomenon also affect the organisational behavior of the employees, and therefore the success of the organisation. Impostor thinking has been shown to negatively impact both organisational citizenship behaviour (OCB) and commitment to the organisation. (Grubb & McDowell 2012.)

Organ (1988, 4) defined organisational citizenship behavior as "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organisation." The revised version by Organ (1997, 95) states that OCB is "performance that supports the social and psychological environment in which task performance takes place".

Organ's OCB model consists of seven dimensions that depict the nature of organisational citizenship behaviours: 1) altruism, 2) courtesy, 3) conscientiousness, 4) civic virtue, 5) sportsmanship, 6) peacekeeping, and 7) cheerleading. (Organ 1988; 1997.) A meta-analysis by Podsakoff, Whiting, Podsakoff & Blume (2009, 122–141) shows that the different citizenship behaviours have significant effect on both individual and organisational level consequences related to absenteeism, productivity, turnover, customer satisfaction and long-term success. (Podsakoff & al. 2009; Grubb & McDowell 2012, 2.)

Grubb & McDowell (2012) studied how the IP affects the OCB and commitment of the employees. They found that those with impostor thoughts tend to avoid engaging in organisational citizenship behaviours such as attending non-mandatory functions, active participation, and willingness to give time to help others. Their hypothesis was that impostor thinkers would engage in these behaviours, but the results indicate that the fear of exposure and judgement guides the impostors instead to “fly under the radar” and not engaging. (Grubb & McDowell 2012, 6.)

The IP and commitment had a dualistic connection. On the other hand, those with impostor thoughts and therefore feeling incompetent or uncomfortable in their job role, were less committed to the organisation on affection level. On the other hand, those who feel incapable or undeserving of their role, stay committed to their work relationship because of their disbelief in better prospective. (Grubb & McDowell 2012, 6–7.)

McDowell, Lee Grubb & Geho (2015) studied how the self-perceptions of self-efficacy and perceived workplace support relates to the impostor phenomenon. They found that there is a connection with low self-efficacy and impostor thoughts and that there is a significant relationship between impostor phenomenon and perceived organisational support. Individuals who reported a perceived high level of organisational support (e.g., perceived fairness, supervisor support, organisational rewards, job conditions) exhibited lower levels of IP. They conclude that employees who feel left without support by the organisation may cause them to find reasons for the lack of support from their impostor feelings. (McDowell & al. 2015; Downing, Arthur-Mensah & Zimmerman 2020, 177.)

McDowell & al. (2015, 27) also suspect that if an employee believes that other employees are supported more by the organisation, the negative suspicions and imposter feelings would increase.

Individuals with high capabilities and skills but suffering from low self-efficacy and intense impostor feelings, may affect the organisation negatively. However, organisations have a possibility to alleviate the issues and diminish the effects of impostor phenomenon with supportive measures. (McDowell & al. 2015, 28.)

Kark & al. (2022, 1969–1970) research on leadership impostorism implies that organisations should invest resources in preventing and mitigating the effects of the impostor phenomenon. Firstly, to prevent the exhaustion and burnout of the top talent, and therefore mitigating the long-term risks of talent loss, dissatisfaction, and sick leaves. Secondly, as the IP is considered a context and social construct related phenomenon, organisational perspective is required to find effective solutions, instead of just leaving the individual suffering from impostor thoughts to solve the issue by themselves. (Kark & al. 2022, 1969–1970.)

2.6 Mitigating the impostor phenomenon

Literature recognizes both individual coping strategies as well as organisational intervention possibilities to counter the negative effects or to support the positive effects of the impostor phenomenon. Haar & de Jong (2022) studied perceived organisational support (POS) as a contextual factor in the impostor phenomenon and found that IP is positively related to job anxiety and job depression, and that organisations can influence in the way employees manage their impostor thoughts. Consequently, they propose that organisations take steps to create supporting working environments with increased positive feedback and investments in good leadership practices.

Clance & Imes first discovered the impostor phenomenon in individual therapy sessions of high achieving but self-doubting women. Clance & Imes (1978) recognise individual therapy in its different forms as an appropriate treatment, but group therapy is considered particularly beneficial for impostor thinkers. Group setting reveals the skewed thought patterns of an impostor to another impostor, who then perhaps understands that their own thought patterns are similarly skewed. (Clance & Imes 1978, 6.)

Psychotherapy as an intervention against impostor thinking can, however, feel too intimidating for someone suffering from fear of failure and exposure. Therefore, less stigmatizing interventions such as self-compassion practices may be more appealing for impostor thinkers. (Patzak, Kollmayer & Schober 2017, 10.)

2.6.1 Self-compassion

Self-compassion is originally a Buddhist concept that has become popular and increasingly studied in Western psychology. Compassion is empathy and non-judgement towards others, and self-compassion extends that same empathy and understanding of inadequacies to oneself. Self-compassion has three basic components: 1) Self-kindness, i.e., being kind and understanding to oneself rather than self-critical, 2) common humanity, i.e., recognizing that all humans are imperfect, fail, and make mistakes and seeing one’s experiences as part of the larger human experience instead of separating or isolating, and 3) mindfulness, i.e., being aware of one’s present experience in a balanced manner rather than over-identifying with negative aspects of one’s life. (Neff 2003, 85–87; Patzak & al. 2017, 3.)

Neff (2003) started a theory-based discussion to examine the effects of self-compassion to healthy self-attitudes and concludes that self-compassion is a promising coping strategy for those who suffer from negative self-attitudes. Encouragement for developing self-compassion should benefit individuals by helping them to counter destructive self-critical tendencies, acknowledge their

interconnection with others, and deal with their emotions with greater clarity and tranquillity. (Neff 2003, 96.)

Self-compassion as an intervention to impostor thinking has received some attention to date. Patzak & al. (2017) examined self-compassion as a potential resilience factor against IP in undergraduate students. They included the dimension of gender and gender-orientation in the study. They found that female, feminine, and undifferentiated students might benefit most from facilitation of self-compassion (Patzak & al. 2017,1.)

2.6.2 Growth mindset

Another individual coping strategy that is being suggested as a tool to alleviate the negative effects of impostor thinking, is adopting a mindset that promotes motivation to practice and learn.

Carol Dweck (2006) introduced the concepts of fixed and growth mindsets. Fixed mindset is based on the belief that one's innate qualities and abilities are static and very little can be done to enhance those qualities. Fixed mindset characteristics include giving up a challenge when it becomes too difficult, making one feel not smart or talented and thus lose interest. A fixed mindset finds comfort in the safe zone where things are easy because it proves that they are smart and competent by nature. A need to be flawless is also associated to the fixed mindset, as well as proneness to depression. Growth mindset refers to the belief that the innate qualities can be cultivated and developed through efforts, strategies, and help from others. Stretching the effort and sticking to a challenge even when it is not going well is characteristic for growth mindset. (Dweck, 2006.)

Kumar & Jagacinski (2006) demonstrated a connection between fixed mindset and impostor fears in a study of female university students. They found that those who believed their intelligence to be fixed, as in unable to be developed, reported more impostor fears (Kumar & Jagacinski 2006, 156). Noskeau, Santos, & Wang (2021) continued investigating the relationship between mindset and IP and found that people's mindset towards their personal abilities affects how they handle failure in terms of whether failure defines them or provides opportunities to learn and develop.

Noskeau & al. (2021) found that those with fixed mindset regarding developing their abilities, experience more fear of failure and tend to feel more like impostors. They also found that fixed mindset is associated with lower level of goal orientation in learning. The findings suggest that organisations should promote cultivating growth mindset, supporting goal-oriented learning, and creating a culture where failure is considered safe. (Noskeau & al. 2021, 14–15.)

2.6.3 Coaching

Research identifies coaching as an appropriate intervention to impostor phenomenon. Impostor feelings are universally common, and encountering impostor characteristics in coaching clients can be considered likely. Studies show that one of the implicit reasons why executives seek for coaching is the feeling of impostorism. (Magro 2022, 68; Bravata 2019, 1272.)

There is no one agreed standard definition of coaching (Passmore, Peterson & Freire 2013, 1), but one of the most used definitions is by Whitmore (1992, 12–13): “Coaching is unlocking a person’s potential to maximize their own performance. It is helping them to learn rather than teaching them.” Coaching in organisational setting can be described as a goal-focused helping relationship where a coach and a client have a mutual effort to plan, set and execute steps to reach the goals set by the individual or the employee organisation. (Zanchetta, Junker, Wolf & Traut-Mattausch 2020, 3)

Zanchetta & al. (2020) found that training and coaching are effective intervention methods to counter impostor phenomenon. They suggest that combining group training and individual coaching has synergetic effects. The group training setting reveals that others are affected by impostor thinking as well, which helps shed the fear of failure and negative evaluation by others. Individual coaching works as promoting growth mindset and increases self-enhancing attributions and stronger self-efficacy beliefs. Coaching also diminishes the tendency to cover up errors and fear of negative evaluation. (Zanchetta & al. 2020, 12.)

2.7 Summary of literary review

The impostor phenomenon is not an isolated psychological construct or a disorder with a diagnostic code, but rather a set of different thought patterns that emerge depending on personal history and personality traits, contextual elements, and beliefs of personal abilities. The body of research on the impostor phenomenon to date covers several disciplines and approaches with great variety. This thesis includes literature related to the factors behind IP, perceived effects of the IP on individual and organisational level, and some intervention possibilities. The elements of the theoretical framework are depicted in figure 1.

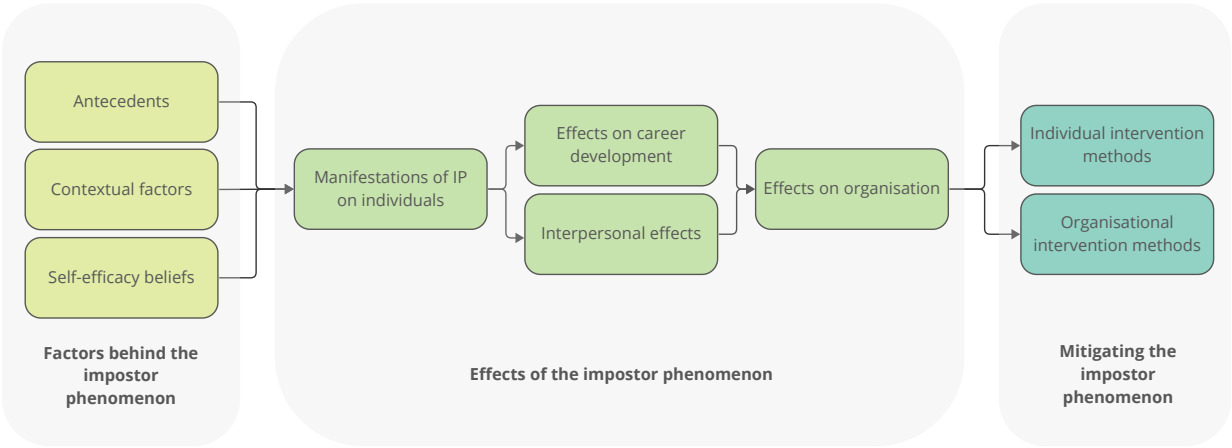

Figure 4. The theoretical framework structure

The research on the impostor phenomenon started in the 1970s (Clance & Imes 1978), focusing on high-achieving women with intense feelings of fraudulence and fear of exposure. Impostor phenomenon, or impostor syndrome, has several manifestations related to it: low self-efficacy, fear of failure, feeling of undeserving of personal achievements, and shame, among other characterisations. Intense impostor feelings predispose to stress, anxiety, and burnout. (Vergauwe & al. 2015, 565-581; Bernard & al. 2002, 321-333; Clance & Imes 1978, 241; Kolligian 1990; Cowman & Ferrari 2020; Sakulku & Alexander 2011.)

Impostor thought patterns may also lead to positive effects. Research shows that those with impostor feelings adopt alleviating strategies that develop social skills, making a person more likeable. Impostor thinkers' maladaptive thought patterns tend to mostly harm themselves in terms of career development and overall well-being, but they don't those around the impostor. On the contrary, for example the impostor's work effort may increase because they want to prove their worth even with the expense of their well-being. This, however, may lead to negative outcomes such as stress and exhaustion. (Tewfik 2022, 988-1018; Harrell 2022.)

Literature recognises several antecedents to impostor phenomenon. The slightly controversial of them is the factor of gender. The starting point of the field of study was the experiences of women in particular. The research to date shows that impostor phenomenon affects all genders, but its intensity and context may differ between genders. (Clance & Imes 1978; Bravata & al. 2019; Bernard & al. 2002.)

Childhood events, social status, and upbringing are considered to have an impact on developing the impostor thought patterns. (Clance & al. 1995; Clance 1985; Sonnak & Towell 2001, 863-874; Want and Kleitman 2006, 961-971; King and Cooley 1995, 304-312)

The five-factor personality model Big Five includes the five aspects of human personality that we all share with different accentuations. Out of the five traits high Neuroticism (N) and low Conscientiousness (C) are linked to IP. In Neuroticism the link is quite obvious, as those with high scores share similar characteristics as impostorism, such as anxiety, worry, and self-consciousness.

The literary review suggests that IP is not solely dependent on personality traits or personal backgrounds but that it is also a systemic construct. Minority status and underrepresentation is shown to predict impostor thinking and in organisational setting to increase impostor feelings. (Bravata & al. 2020; Tulshyan & Burey 2021; Peteet & al. 2015; Kark & al. 2022.)

Not all IP manifestations stem form innate or imposed characteristics such as personality traits or biased treatment. Nor are they always present in a person's life. There are also other contributors to impostor phenomenon, such as context and thought patterns, that affect the presence and intensity of impostor thinking. It is also in the nature of impostor phenomenon to be present in varying forms and timeframes. Contextual factors, such as career stage, job fit, and the length of tenure, are all considered the antecedents of IP. (Kumar & al. 2021.)

Self-efficacy is a central concept related to IP. A person's perceived self-efficacy has a profound effect on their actions. The incentive to act requires that the person believes that they can conduct that action. The triadic reciprocality is a model that depicts how behaviour, cognitive factors and environment influence the human actions. Experiences of mastery, capability experiences in comparison to others, social influences, and physiological abilities are the sources of self-efficacy. (Kumar & al. 2021; Bandura 1986, 391; 1997, 2-4; Mark & al. 2022; Mone, Baker & Jeffries 1994.)

IP affects both personal career development and organisational level success. Shame, fear, and anxiety are all feelings that are linked to IP. Those who suffer from fear of success, fear of failure, and other impostor thoughts, tend to have less career strive and motivation to lead, and tend to overlook opportunities to advance their career. This has implications also for the organisation, as it adds the long-term risk of talent loss. Detrimental impostor thought patterns expose individuals to exhaustion, burnout, and sick leaves, which also affects the functioning of the organisation. (Neureiter and Traut-Mattausch 2016.)

Organisational citizenship behaviour (OCB) is employee actions that are not directly linked to formal reward system but is part of employee behaviour in an organisation in terms of attitude, relation to others, and attendance to non-mandatory functions. OCB has significant effects on organisation productivity and success. Impostor thinking is found to affect the OCB and commitment of the employees. Fear of exposure and discomfort may lead to disengaging from organisation non-

mandatory functions. (Grubb & McDowell 2012; Organ 1988; 1997; Podsakoff & al. 2009; Grubb & McDowell 2012; McDowell & al. 2015; Downing & al. 2019.)

Individuals and organisations are not without possibilities to alleviate the negative effects of IP. Different forms of individual therapy, group therapy and training, coaching, self-compassion, and fostering growth mindset have been recognised in IP literature as powerful tools to mitigate the negative aspects of impostor phenomenon. (Hear & de Jong 2022; Clance & Imes 1978; Patzak & al. 2017; Neff 2003; Dweck 2006; Kumar & Jagacinski 2006; Noskeau & al. 2021; Magro 2022; Bravata 2019; Kuna 2019; Zanchetta & al. 2020.)

3 Research methodology

This chapter presents the practical research implementation of the study. The first section introduces the research strategy and the justifications for the chosen methods. The chapter then continues to present the implementation of the empirical methods to collect and analyse the data. The final part discusses the quality of research.

3.1 Research approach

The theoretical basis of the study is in the behavioural sciences, for example in areas of thought distortions, self-compassion, and anxiety disorders. As this thesis can be considered as research related to psychology, anthropology, and sociology, the choice of research method is qualitative. (Habib, Pathik, Maryam & Habib 2014, 9.)

Qualitative research aims to interpretation, contextuality and understanding the point of view of the agents. Qualitative researcher is guided by abstract principles, which include a combination of the researcher's beliefs about ontology (questions about the nature of being and reality), epistemology (questions about the nature of knowledge and the relationship between the researcher and object of study), and methodology (questions about the methods of obtaining knowledge). (Hirsjärvi & Hurme 2022, 19; Kim 2015.)

In qualitative research, the nature of reality is subjective and diverse in the way the subject matters experience it. Epistemologically, the nature of this research is reciprocal, meaning that the author and the informants create the object of the research through the interview discussion. The research is conducted by a moderately participant observatory researcher, essentially meaning that the researcher is not fully separate from the object of study. As an example of reciprocal effect is that the interviewer may amplify the views of the informant during the interview process and thus affect the outcome of the data collection. (Hirsjärvi & Hurme 2022, 219.)

Ensuring the quality of research requires consideration of certain aspects. Traditionally, the reliability and validity are considered. However, that approach is more relevant in quantitative research, where data can be turned to numbers and the research set-up can be repeated for validation. Qualitative research is based on interpretations of for example unique experiences and views of individuals and cultural setting, so the traditional approach or reliability and validity is not suitable for qualitative research. (Hirsjärvi, Remes & Sajavaara 1997, 231-232.)

As this thesis is based on qualitative research, the quality of it should be viewed from the perspective of how the research methodology is described, what is the process of data collection, how the data is analysed, and if it is transparent and trustworthy. (Hirsjärvi & al. 1997, 232-233.)

3.2 Data collection

The interviewees were discovered with an open invitation in the LinkedIn social media platform. The invitation (Appendix 1.) explained the purpose of the research, the nature of the impostor phenomenon, and the criteria based on which the interviewees were selected. The invitation was answered by 14 voluntary respondents out of which 10 were selected to the interviews based on criteria.

The sample of respondents was selected from a population of information technology professionals with five or more years of relevant work experience in the field. Seniority level was a relevant variable to eliminate the effect of inexperience that might be misinterpreted as impostor phenomenon. In addition, the purpose is to find solutions that alleviate the IP regardless of seniority level, and the solutions that are appropriate for junior stage may not have the same effect in the senior level. To also eliminate the effect of varying level of education, all the informants were to have an education equivalent to master's degree or higher. Gender was not a selection criterion, but in some accounts, gender is a relevant factor in the experience narratives. See tables 1 and 2.

The participants represent several professions in the field of information technology: programmers, architects, designers, and business consultants. The respondents are employed in Finland based organisations operating in the field of information technology in both product development and consulting.

Table 1. Interviewees per years served in the field of information technology and gender

Background	Years in the field of IT			Gender		
	5-7	8-10	>10	Female	Male	Not specified
Number of interviews	4	1	5	3	6	1

Table 2. Interviews per level of education and work description

Background	Education			Work description			
	Bachelor	Master	PhD	Programmer	Architect	Consultant	Designer
Number of interviews	3	6	1	2	2	2	4

The final participant selection criterion was the intensity level of the impostor thoughts. Perceived high intensity of impostor thoughts was a requirement to participate the study. The purpose of the

study was not to investigate *if* impostor thoughts occur, but to *how* they manifest. Therefore, the presence of impostor thoughts was imperative. The evaluation of the intensity level was done by the participant themselves based on the description of the nature of impostor phenomenon. The selected participants estimated their level of impostor phenomenon intensity as frequent and very high.

All ten interviews were conducted in Teams online meetings tool. The interviews were recorded with the permission of the interviewee and further transliterated to text format using the Teams transliterating tool. The text data was transferred to an Excel sheet to be decoded by theme and research questions.

Participating this study was voluntary and each informant gave their permission to record and transliterate their story. The invitation to the study (Appendix 1) clearly stated the purpose of the study and explained the nature of the information that was sought. The number of informants was satisfactory and provided both group level and unique findings.

The research data was collected in semi-structured interviews and discussions with the participants. The risk of reflecting my own voice as a researcher should be taken to account. I have tried to alleviate the risk by careful inquiry and using direct quotes. The identity of the participants is protected by restructuring the narratives so that the gender or other identifiable features are not revealed.

3.2.1 Semi-structured thematic interviews

The data for this research was collected through an interview process that encompasses a semi-structured interview approach and a thematic division of the topic that were addressed. The interviews followed an interview guide (Appendix 2.) with questions divided into themes: 1) Overall experience of impostorism, 2) Childhood and youth experiences, 3) Context, 4) Self-image, 5) Career development, and 6) Effects of IP. The interview followed the planned structure but was free to flow also to areas that surfaced naturally by the interviewee. Supplementing questions outside the interview guide were made when necessary and when they added to the quality of data.

The purpose of the researcher conducting an interview is to convey a picture of the interviewee's thoughts, perceptions, experiences, and feelings. There is a direct and indirect way to approach the data collection. For example, interpreting drawings is an indirect approach. A more direct and common way is to ask a person about their beliefs, content of experience and values. (Hirsjärvi & Hurme 2022, 40.)

There are different ways to conduct a research interview. Hirsjärvi & Hurme (2020, 42-47) separates them into form interview, semi-structured interview, and unstructured interview. A form interview follows an exact order and content of questions, to which all the interviewees answer. Unstructured interview follows no particular order and is more of a discussion. There are several definitions for a semi-structured interview method. It positions between a form interview and an unstructured interview in terms of how consistently the interview follows a set path. Hirsjärvi & Hurme (2022, 46) present three definitions with slightly varying stressing for semi-structured interview.

1) The format of the questions in a semi-structured interview is the same for everyone, but the interviewer can vary the order of the questions (Hirsjärvi & Hurme 2022, 46).
2) The questions in semi-structured interviews are the same for everyone, but the answers are not tied to particular answer options and the interviewees can answer in their own words. (Hirsjärvi & Hurme 2022, 46).
3) The questions are predetermined, but the interviewer can vary their wording. It is characteristic of semi-structured methods that some aspect of the interview is locked, but not all (Hirsjärvi & Hurme 2022, 46).

Thematic interview (teemahaastattelu) is a term coined by Hirsjärvi & Hurme (1979). They base the thematic interview on the method of focused interview by Merton, Fiske & Kendall (Hirsjärvi & Hurme 2020, 47). Focused interview has the following characteristics:

Firstly, the interviewees are selected on the basis that they have experienced a certain situation. Secondly, the researcher has preliminarily investigated the presumably specific parts, structures, processes and whole of the phenomenon under investigation. Third, based on content or situation analysis, the researcher develops the interview framework in the third step. Fourth and lastly, the interview is aimed at the subjective experiences of the persons under investigation from situations the researcher has analysed in advance. (Hirsjärvi & Hurme 2020, 45-46.)

A thematic interview focuses on specific themes that are discussed. It follows a general interview guide approach where the questions guide the interview through the investigated themes, but the discussion is free to take a direction to spontaneously emerging and unplanned areas. Thematic interview starts from the assumption that an individual's experiences, thoughts, beliefs, and feelings can be studied with this method. The interviewees' world of experience and their definitions of situations are emphasized. (Hirsjärvi & Hurme 2022, 46-47.)

The advantage of a thematic interview does it take a position on the number of interviews or how "deep" the topic is addressed. Instead of detailed questions, the interview proceeds based on

certain central themes. This mainly frees the interview from the researcher's point of view and brings the voice of the subjects to be heard. The thematic interview takes into consideration that people's interpretations of things and the meanings they give to things are central and that meaning is created in interaction. (Hirsjärvi & Hurme 2022, 47.)

A thematic interview is closer to an unstructured one than a structured interview. The thematic interview is a semi-structured method because one aspect of the interview, the topics, and the theme areas are the same for everyone. (Hirsjärvi & Hurme, 2022, 47.)

Semi-structured thematic interview serves the purpose of this thesis because the research setting fulfils the premises set for utilizing thematic/focused interviewees, in that all the interviewees experience intense impostor thoughts, they operate in the field of information technology, and the subjective beliefs and experiences of the interviewees is the main focus of the study.

3.3 Data analysis

The data analysis method of this research is narrative analysis, which is a qualitative analysis method focusing on interpreting human experiences and motivations by studying the individual stories they tell in certain context. The purpose of this thesis is to understand individual underlying causes and implications of impostor phenomenon in the context of information technology field, making it applicable to narrative analysis.

Thematic narrative analysis is a technique where themes are identified within the narratives. As opposed to thematic analysis, where data is coded into fragments, thematic narrative analysis preserves the themes within the narrative context. Narrative structuring concentrates on interviewees' stories, that are organised in chronological or social continuum. Narrative analysis looks at the narratives and stories of research participants through interdisciplinary interpretive lenses and allows mapping and encompassing history, a situation, an action, or an outcome, which are key elements in this study data. (Saunders, Lewis & Thornhill 2019, 674-677; Hirsjärvi & Hurme 2022, 143; Kim 2015.)

Narrative texts in social research can be divided in three uses. Firstly, narrative inquiry can be used to identify researchable questions of a topic that not much is known about. A small sample of stories are used to determine further study foci. The second use is to study the structures and organisation of stories themselves, rather than the subject matter of the narrative. The third use is philosophical and methodological way to gain deeper knowledge of individual and group experience. (Gubrium & Holstein 2009.) In this thesis the third use is the relevant approach, as the focus of the study is to gain understanding of impostor phenomenon among a particular group of individuals in a specific setting.

Narrative analysis can be described as “converting field texts into research texts through the process of data analysis and interpretation” (Kim 2019, chapter 6). Subjective interpretation of the researcher is used together with objective analysis to develop understanding of the meanings of the interviewees’ experiences. Interpretation of the researcher is a central element in narrative analysis, and its purpose is to understand the phenomenon under study and facilitate the understanding to the reader. However, the nature of interpretation is fluid and dependent on perspective, therefore there is no single valid truth to be found in narrative analysis. (Kim 2019, chapter 6.)

The basis of the data analysis is the Labovian model of narrative analysis method. The method consists of six components:

1. Abstract: a summary of the story and its points
2. Orientation: providing a context such as place, time, and character to orient the reader
3. Complicating Action: skeleton plot, or an event that causes a problem as in ‘And then what happened?
4. Evaluation: evaluative comments on events, justification of its telling, or the meaning that the teller gives to an event
5. Result or Resolution: resolution of the story or the conflict; and
6. Coda: bringing the narrator and listener back to the present. (Kim 2019)

The Labovian model offers a principle of structural organisation in narrative and provides means to analyse an oral story with a plot or thematic structure. The model’s advantage is that it helps to determine what the story is about and extract the core of the narrative. The model also provides a general frame for understanding the narrative structure cross-culturally. For the purpose of this thesis, the central advantage of the model is that it offers guidelines for comparative analysis of a collections of narratives from several respondents. (Kim 2019, chapter 6.) In this study, the Labovian method is adapted to serve the thematical order of the analysis and the different components will be omitted at points, to better enhance certain themes of topics.

Reordering a storyline is also an analysis method utilised in the research. The structure of the interview questions (Appendix 2) is not built to chronologically follow certain events, but rather to follow causality. This approach results the narratives not necessarily to unfold chronologically. The interviews are semi-structured, meaning that the conversation may flow freely to unexpected and unplanned areas. It is typical for the interviewee to associate ideas end events to another during the discussion. This causes disorder in the narrative data. The method of reordering a storyline in the analysis phase is therefore used to create thematically or chronologically coherent narrative for the research (Kim 2019, chapter 6).

4 Empirical findings

This research concentrates on three major areas in the context of impostor phenomenon. The aim is to learn 1) what type of factors may lead an individual to experience intense impostor thoughts, 2) how does impostor thinking manifest and affect personal life, and consequently organisations, and 3) what type of interventions would be considered beneficial to mitigate the negative effects of the impostor phenomenon.

In this chapter, the narratives of the interviewees are analysed to understand the factors in the personal backgrounds and how the interviewees experience their intense impostor thoughts. To better understand the cause-and-effect continuum, the analysis starts with how the IP manifests in the interviewees personal life and continues with looking at the factors behind the IP in the personal history. The experiences open a view on how the individual experience affect and is affected by the work community and organisation. The analysis then probes into individual and organisational intervention methods to understand how to best mitigate the effects of impostor phenomenon.

4.1 Impostor experience

The experiences of intense impostorism described by the interviewees are similar to that we have learned from the literature. Feelings of inadequacy, shame, and fear are constantly present. As one interviewee put it,

> “It’s an ever-present cartoon devil whispering on my shoulder: See? I told you; you can’t do this.” (Interviewee 1)

> “I know that, in a way, I have gotten very far and certainly succeeded in many things. But I struggle daily with the fact that I don't feel confident or that I’m able to stand firmly on my own feet.” (Interviewee 2)

It’s not that an impostor would not recognise their successes. They can see their academic, professional, and personal achievements and how they compare to those of others. The issue is the inability to find confidence in the constant fear of collapsing the house of cards at any given moment.

> “It is present all the time in everything I do. I fear all the time that someone will get angry at me. That someone doubts me, or someone will reveal me. If I screw up or make a mistake, my first reaction is that my life will end. It doesn't mean that I'm going to die or that I'm suicidal, but that I mentally have the feeling that I'm simply going cease to exist, that I don't exist anymore because I did something wrong.” (Interviewee 2)

The interviewee describes an irrational fear of ceasing to exist that is constantly present and forcefully drives to avoid any mistakes. The fear makes daily work feel heavy and labouring. The other accounts describe how they constantly fear that someone notices that they are not competent and that they may start questioning the impostor's leadership or expert position. The amount labour and stress are increased by constantly trying to make sure that they do not get caught. It is about avoiding situations where questions might be too difficult or making sure that they are working firmly in their comfort zone.

Some accounts describe how impostor feelings are mostly prevalent in the work context, but that they are also a part of other life areas.

> "For a long time, it has almost felt like an inseparable part of my personality, and I'm not even sure if I can ever totally get rid of it. But I have noticed that I can improvise and learn to live with it; hopefully, it will come to pass someday. I think it's an occupational disease in this field because there are competent people around me with the same feelings, and the work-life demands and expectations keep changing constantly." (Interviewee 5)

> "The feeling of impostorism is especially very strongly related to work, but it is also related to motherhood, marriage, and my appearance. So, in a certain way, it is connected to the whole of me." (Interviewee 2)

A person is a holistic being, so naturally anything that is present in any area of life influences the other parts as well.

In general, facts and objective observations are sufficient proof when evaluating the level of success. For impostors, the explanation behind successful endeavours lies somewhere else than their personal skill or knowledge. As an interviewee describes it, it's about luck, privilege, or a mistake.

> "I always doubt the good feedback I get. I'm sure there must be a mistake behind it, and it takes away the joy from those successes. I don't feel like I deserve it, and it just somehow happened to me because I've been privileged in many ways. I've just had good luck." (Interviewee 2)

Those interviewees who recognised that they have had impostor thoughts already in youth, often mentioned doubting their good test scores as being mistakenly evaluated or that they had just been lucky to know the answers to exactly those questions that were in the test.

4.2 Childhood and youth experiences

All the informants were able to recognise childhood and youth experiences that may have been a spark for their impostor thoughts. They were either less successful parenting or teaching approaches, exact events in their childhood or youth, or a contradiction between childhood family social status and academic aspirations. Not all the interviewees were aware of them at first, but as the interview progressed, they could pinpoint the patterns and events quite intuitively. Some interviewees had already made those discoveries in therapy or otherwise, but for some, the interview surfaced epiphany-like realisations that connect the dots to today's impostor thoughts and their childhood and youth.

According to prior research, protecting from disappointments by parents is connected to impostor thoughts later in life. (Sonnak & Towell 2001, 863-874; Want and Kleitman 2006, 961-971.) These two accounts describe how a well-meaning parent who does not realise that by lowering the child's expectations of their chances or abilities, they plant the seed of self-doubt:

> "My mother was always terribly afraid of me being disappointed in things, and she sort of wanted to lower my expectations. I remember one concrete example: When I applied to upper secondary school, my average in elementary school was 9.4. Still, my mother told me to apply also to evening school, just to be sure to get in somewhere in case I would not be accepted to the regular daytime school. Now as an adult, I can smile at this a little, but it felt a bit strange at the time. Of course, you take your mother as an authority, and at that age, it was easy to think that, ok, perhaps the grade was quite bad." (Interviewee 3)

> "I think my upbringing was very ordinary. You know, I had both parents, mom and dad, and two older sisters and I think it was a loving family. Like, I don't think there was any drama. My mum was maybe a bit overprotective. Because my sisters are older than me, and I was the only son. She always wanted a boy, and it looked like it wouldn't happen. She had me in her 40s, so it was pretty late. So, I was her golden child, but then she was maybe quite protective. Always worrying. Possibly that has impacted me a little bit. I also worry about everything." (Interviewee 4)

Another parenting style that the interviewees have recognised as an antecedent to their impostor thoughts is high expectations in academic achievements.

> "In the first or second grade at school or something like that, I remember my father telling me I should get good grades, or I would become a garbage collector. So, I

> started worrying that if I didn't get an A on this test, I'd end up as a garbage man.” (Interviewee 7)

The account is an example of some interviewees that talked about how academic expectations are built in in their cultural of family background, and that good grades and a university degree have been a given in their family. They have feared failing to achieve those good grades and letting their parents and teachers down. This fear has then moved on to a fear of letting down colleagues and employers.

Most interviewees have excelled in school from the start, but there were also different experiences.

> “I was diagnosed with ADHD when I was eleven, and my school performance was always unbelievably bad. My average was around 5 or 6 in elementary school and high school. It took me five years to complete upper secondary school. After three years, I was kicked out of the school and had to complete my studies in the adult education side.
>
> I had a teacher in elementary school who was quite cruel and really humiliated me a lot in front of the class. I always heard from the teacher that I simply didn't have the numbers or intelligence to get accepted into upper secondary school. I still remember those feelings of shame, and for a long time, I believed that there was basically no chance for me to reach anything intellectual or, for example, a university degree.” (Interviewee 5)

As the record stood out from other interviews, they were asked what prompted them to finish upper secondary school, continue to higher education and after that being able to gain a successful career. What made them go all the way to the end?

> “I had an absolutely wonderful math teacher who pulled me aside and told me that he knew I was not stupid and that even if I failed tests, he noticed I could still learn some things. He said I was doing better when he had more time to explain things to me in a different way. He wished he had more time to help me, but with such big class sizes, he just couldn't. He told me not to stop trying.
>
> I moved out on my own at the age of seventeen. At that time, my upper secondary school principal told me they couldn't keep me in the school anymore. He said he knows that there is something else in the background of my bad grades and that he would keep me in the school if he could, but they have such strict rules that he can't. He told me that I should finish the school on the adult department. He said he knew

> that I could do it. So, a few people at school really believed in me and told me I was not stupid and could do it."

The story highlights the significance of supportive feedback and guidance. After upper secondary school, they found their way to higher education and a prominent career path. The problem is that even though the early support pushed them forward, the self-doubt and intense impostor feelings still prevail.

4.3 Social status as an antecedent

Some accounts revealed the significance of the social status of the childhood family and its effect on perceived possibilities and life choices, and later the experience of impostorism. Working class family status does not automatically mean less ambitious academic goals, but some of the interviewees had the opposite experience to the ambitious academic demands by the family. There was no family pushing for high academic achievements, only innate aspirations of the impostor themselves.

The following account is by an interviewee who has a working-class background and is the first in the family to graduate from upper secondary school. After working in construction for several years, they were encouraged to study another profession by a senior colleague. Not because they weren't skilled in their profession, but because the colleague recognised abilities that could be utilised in another type of work.

> "I didn't even know I could feel this strongly like an impostor before I entered this (IT) industry. With metal jobs, the stereotype is that it's just construction work or a kind of basic labour. I didn't expect anything from myself because I was just a drudge, or a tinsmith's apprentice, or whatever. But as soon as the context changed to this IT expert work, I felt like an impostor. Because here's the drudge now, pretending to be an Expert." (Interviewee 1)

The description shows the gap one has to overcome when one ends up somewhere that was not expected of them. The stereotypes of a construction worker and an IT expert set certain expectations that are sometimes contradicting. Because of their family background, for this person, being a construction worker is "normal", the expectations of the tasks are clear, and there is no need to try very hard. They just do the work as they know they can. Once the context around the work changes to something the person is not used to, benchmarking skills becomes more complicated, and they compensate by setting the goals high.

In the competitive consulting scene, where one comes from and what kind of support one has had growing up, may seem significant in comparing one's abilities to those of others. The following account describes how their colleagues seem to be a part of some "my father is a CEO" club, or that they have been around the high-end consulting scene since birth:

> "I never had a strong example of what an academic person does or what exactly even is an academic education. Some people have had that example present since childhood, through family and school environments, and they have been able to learn things in advance. Although it is not the same as actual academic education, those people have dads as leading consultants and professors and have lived all their life in the right circles. So I feel like being the underdog and having less capacity. I've done somewhat of a social climb. In a way, I feel like I don't belong to this category of an expert, and really my genes are just those of a dumb blue-collar." (Interviewee 9)

The informant questions the validity of "just" the education. They are convinced that those with a correct background and breeding have access to some deeper, hidden knowledge and understanding that is not accessible with academic education alone. They describe how the privileged colleagues have more confidence and arrogance in their presence and how it adds to the pain and uncertainty of one's knowledge level.

The concept of social class in Finland is somewhat taboo and not distinctly referred to as a valid concept in society. In a welfare society, the idea of class is diluted to emphasise that everyone has the same possibilities regardless of their background. However, the narratives clearly show that the perception of one's class has actual consequences in how one perceives what is possible and available with their background. The relevant point for this research is what the individual considers possible, not what is possible for them in reality. Even if one's education, title, salary, and other measurable achievements epitomise white-collar identity, the emotional and psychological self-image seems unable to take the final step away from that of blue-collar.

4.4 Neuroticism and Conscientiousness

Personality traits related to high Neuroticism were noticeably present in almost all the interview records. Worrying about what is ahead, difficulty to let go of issues, over-preparing, and mentally practicing before social situations, were recognised as signs of worry by the interviewees. Physiological effects such as high blood pressure, difficulties sleeping, and exhaustion were also reported.

> "It's difficult for me to leave things unfinished. For example, if I have an unsolved problem at work, I worry about it in bed at night. It doesn't even have to be work

> matters. It can be anything, and it's dead sure that when I try to close my eyes and sleep, I start thinking that I've got some bill not paid or I have some e-mail not sent. Or I start worrying about things that are not even problems yet. This is really a big, big problem for me.” (Interviewee 5)

> “I stress a lot about work, even to the extent that I had problems with blood pressure when I started in this company a few years ago. It was primarily related to this impostor thing and the fact that I was stressing about everything imaginable: What others think, what I can or can't do, that I don't know anything and should be able to do all kinds of things anyway.” (Interviewee 1)

Almost every informant reported excessive worrying and its affects in their daily life. Worrying about possibly difficult questions prevents stating opinions or taking part in discussions. Sending one message requires a lot of consideration beforehand, and afterwards worrying about what should have been written instead of what had been written. Those with intense impostor thoughts may be left out of the organisation’s community in many ways. Team planning sessions, meetings, and all kinds of interactions depend on the participants’ activity.

> “I worry particularly about social situations. I tend to rehearse some scenarios mentally. I practice my comments or arguments beforehand on things that someone can say or bring up. I spend a disproportionate amount of time on sparring myself to fight this shadow opponent. I realised in therapy that this reel in my head was getting impossible and exhausting.” (Interviewee 9)

A considerable amount of time is spent ruminating over what was said or done. Impostor thoughts are both time-consuming and a health risk. Withdrawing from discussion and therefore losing a community member’s input on common issues is both a productivity and inclusivity issue.

The body of research on IP includes some findings where those with intense impostor thoughts score low on personality traits related to Conscientiousness. These traits include for example dutifulness and strive to achievement. This study touched the topic by asking how determined and conscientious the interviewees consider themselves. The narratives reveal that this group of respondents would most likely not confirm the low scores of the previous studies.

> “I consider myself determined. I will bang my head against the wall until the problem is solved. I will solve it in one way or another either with blood, sweat, or my wit. If I don't have enough brain capacity for something, I will sit here for ten hours if necessary.” (Interviewee 7)

For most interviewees impostor thoughts seem to fuel the need to prove their worth rather than oppressing it. All the respondents reported taking long hours to make sure that the task at hand is properly and effectively attended until the end. If the solutions are not available immediately, which for impostors would be ideal, they resort to determination for as long as it is needed.

> “I don't leave things unfinished. I'd rather not start at all if I'm not motivated. But if I start something, I will speedily power it through until the end. This shows in everything I do." (Interviewee 10)

Determination is a common denominator for the interviewees. In general, it would be considered a positive trait, but combined with excessive worrying can become an issue. Inability to let go of unsolved problems may lead to physical and mental distress.

4.5 Social relations and self-image

All the accounts show that the informant can recognise their likeability in the work community. Or that they are appreciated for giving their all and being a valuable member in the team. But what was missing in the accounts is the thought of being appreciated for their expertise. All the positive evaluations were about social skills or hard work.

> “I'm probably considered quite nice and flexible. It's kind of funny. I have an anecdote about how I cause myself stress and problems. In my previous workplace, my face was edited on a picture of a woman with a raised hand because I was always saying to everything that I can do it and I can take care of it. I am the kind of person who, if there is that quiet moment at the end of the meeting where we decide who does what, I can't stand that silence and very easily nominate myself. And I'm literally shooting myself in the foot.” (Interviewee 2)

Impostor thinking does not seem to affect collegial relationships negatively. On the contrary, the interviewees describe how they do not resent the colleagues they respect and how they want to work with them.

> “I absolutely don't feel bitter toward colleagues. I instead think of it the other way around, that they have worked hard for what they have become, and I haven't done as much.” (Interviewee 1)

> “I would never torpedo anyone for being really good at something. I'm a big fan of seeing someone succeed and being good at something. In fact, I want to jump on board because I love that I get to watch when others succeed and somehow study it

> and try to find out what went well and what clicked. Yes, I am much more the type of person who prefers to jump on board and join the ride." (Interviewee 2)

> "I think they think of me through my strengths: I am so positive and energetic and bring a good mood around me. I make every workplace a little bit better place to work in. I have good ideas and can produce deep insights others haven't considered. But they're all kind of abstract in a way. Maybe they think that I'm like that because I've seen many different environments and have a lot in my head, like a benchmark about how things can be done. But I have no idea what they think of me as a substance expert. I don't know what I should be able to do to somehow fulfil those assumptions." (Interviewee 6)

There is an air of doubt still present, when they say that they think people like them. At least they feel the need to confirm the interpretation with rational thinking. However, knowing that they are liked and appreciated is not enough to erase the negative thoughts and self-doubt.

4.6 Significance of feedback and community culture

As we learned from a previously presented account, support from seniors and community authorities is what may make the difference between giving in to learning difficulties and striving to achieve an academic degree. Feedback in general is considered an important tool of learning and self-development. However, relying on positive feedback to help impostor thinkers out of their self-doubt does not seem like an effective solution.

> "I get the impression they appreciate me, and sometimes in meetings, they say it's so great to have me on the team. There have been enough hints that everyone actually appreciates me, which makes it even weirder that I have these impostor feelings. For example, in a meeting, the customer CEO shared a quote from the team saying working with me is great. For some reason, I just don't process it. It makes me feel nice for a day, but then that same night, it's almost like it didn't happen, and I have these negative thoughts again. But when I think rationally, I know people like me, and I'm appreciated." (Interviewee 4)

Most of the interviewees stated that they get predominantly positive feedback from colleagues, supervisors, and customers. However, the positive effects of reaffirming feedback do not seem to last very long. There is also a significance in *who* gives the feedback, as we see in the following description:

> “It depends on who the feedback is from. It feels better if it's from a person you look up to or someone close to that ideal IT hero. But empty compliments like something my mother would say, don't help. Even most of the customers' compliments are meaningless if they don't really know or understand what I do. Good feedback from a credible source is rare.” (Interviewee 1)

An impostor thinker looks for airtight proof and hard evidence behind their success. Otherwise, the usual suspects luck and mistake, find their way to explain things. Therefore, it helps if the good feedback comes from a character with an undeniable authority and objectively proven track record in the eyes of the impostor. It is easy to imagine that those characters with enough credibility to give meaningful feedback to an impostor thinker are scarce. That being the case, also efforts to collect enough positive feedback to reach a scale that would have a permanent impact on the impostor mindset seems a challenging task and a strategy without much relevance.

Apart from isolated personal feedback, overall support from work community and psychological safety stood out as one of the most significant factors that help either alleviate or fuel the impostor experience. Every informant mentioned the role of community and how the general atmosphere affects them.

> “I've also realized that it really matters what kind of environment you are in. The environment can probably bring out the impostor thoughts in anyone, and psychological safety has a significant role. The less I have experienced psychological safety, the more there have been impostor thoughts.” (Interviewee 10)

A noticeable proportion of the impostor anxiety seems to stem from the inability to see how one fits the description of an ideal employee. Many informants of this study, particularly programmers, describe how the typical company narrative of a super intelligent and almighty hero coder is what they compare themselves to, and always end up failing in the comparison.

> “My image of an ideal IT professional is stiff, doesn't really crack any jokes, is decent through and through, does his job damn well, and is extremely smart. Focuses on what is essential. To consider myself a top-tier, I should never make mistakes, and I should know the answer to everything anyone ever asks me. I should have all the answers.” (Interviewee 1)

When the interviewees benchmark their position and skills, they seem to place some uncrossable gap between themselves and others. It is as if they see a secret society of people who have a collective deeper understanding of all the knowledge that the impostor has no access to. The impostor seems to combine everyone else's knowledge into one and then try to match their own

knowledge to that collective pool. An impostor's unrealistic expectations to themselves combined with equally unrealistic perception of their colleagues set the stage for continuous disappointment and defeat.

Internal communication of an organisation has an impact on impostor thinking. Almost all accounts of this study bring out the dilemma related to excessive celebration of the employee pool excellence. Giving thanks and recognition is important, but the interviewees call for acceptance of inadequacy, too. The following extract describes how an action that is usually considered positive, in this case continuous learning, can turn into maladaptive construct when trying to cover for perceived shortcomings:

> "If you are convinced that everyone around is top-tier, there's not much room for inadequacy. It needs to be veiled in self-development and improvement. Getting out of the comfort zone and continuous learning is almost like a cult of development, and nothing is ever enough. This is, of course, already very characteristic of me, so the impostor feelings just get stronger." (Interviewee 6)

Individual work community members have a strong influence on the psychological safety of the organisation. Loose blurts from colleagues, even without a purpose to hurt, may lead to shying away from the community and opportunities to learn:

> "I don't think I'm the only programmer who doesn't dare ask for help in our company communication channels. Many people could and would help, and asking would be an opportunity to learn for myself and others. But there must be others like me who just don't dare to ask because the question might be regarded as stupid, or someone says googling would be so much faster, and you're wasting people's time. Or they say something else negative and make you feel bad. Then you don't want to ask anything for a long time." (Interviewee 1)

The account also highlights the power seniors and thought leaders in the community have. The interviewee calls for taking the responsibility that should come with such power.

> "Recognising that we have different starting points, that some have blue-collar parents, others have manager parents, and others are children of single parents, also strengthens the feeling of belonging. And realising that people's different starting points have influenced what kind of professionals we have become. In a way, we should fade away that ideal image of an IT professional and replace it with that true and correct image with different backgrounds we all have." (Interviewee 10)

Another communication related thought was about the use of the word “talent”. This is a common word in the organisational language, but the interviewee questions at what point do they stop being talents and become experts. For the interviewee the word implies an unfulfilled promise that the person has but is not quite there yet with their expertise. Referring to an impostor thinker as a talent instead of an expert, may lead to unhealthy compensation patterns.

Choice of words matter, and even well-meaning comments may fuel impostor thoughts. By commenting on colleague’s attributes, one might unintentionally cause them to question their position:

> “I sometimes feel like I get reminded about my age more than I would if I was a man of the same age. I get comments, good and bad, that "you're so young". It would be nice just to say that, well, this a perfectly normal age, and that's it. It is also strongly related to appearance. In the previous workplace, someone even said, "You look so young that it certainly affects how you are regarded here." When you get comments like that, you start questioning what you should be like and do you belong here.” (Interviewee 3)

Comfort zones and preserving them is essential for the interviewed impostor thinkers. They tend to create secure areas where they can minimize the exposure to difficult questions, challenging group dynamics, or any events that might undermine their professional abilities.

> “At any given moment, a question that I can’t answer may stab my bubble of credibility.” (Interviewee 2)

The image of what might happen to the interviewee when they cannot answer a question is violent. The bubble is delicate and vulnerable, and it needs to be protected at all costs. Protecting is easier when the bubble is placed somewhere safe, where the questions have less potential to stab like a knife. Many reported spending a lot of time to learn everything there is to learn about their expertise area, some even have scheduled study curriculums outside working hours by choice.

One way to build safe zones is to look for a team of familiar and supportive colleagues.

> “I try to create bonds with people I get along with and who I consider good people. I think I have managed to create a pretty good relationship with a couple of people these days, and I dare to ask them questions now. I don't have to be as ashamed about it as at the beginning of the project.” (Interviewee 1)

> “I tend to avoid the kind of people who think that working together wastes other people's time. I try to find people who understand the benefits of thinking and working together.” (Interviewee 9)

All the interviewees highlighted the significance of teamwork, and that the best results are mostly achieved by team effort. A well-functioning and familiar group provide safety and predictability.

4.7 Career development

Tendency to stay securely in the comfort zone of one’s expertise seems to have significant effects on the progression and direction of career paths. The interviewees described either being happy in their current project after several years of acclimatation or feeling insecure and even scared to strive for new professional areas in the fear of failing.

> “I have been a consultant with the same customer for over ten years. I'm good at my job there, of course, but I'm a little bit in a bubble there, so I don't really have any visibility as to whether what I do there would have any relevance for another customer. So I would feel a bit nervous to work for another customer. I feel safe where I am now. I know what is expected of me, and my role is clear.” (Interviewee 8)

> “Regarding career development, I have taken some courses on a new competence area that interests me. But going to new areas really scares me. Especially if you tell others that I'm going to complete such a course and then failing the course test would be so embarrassing and shockingly horrible. The thought of it feels too bad.” (Interviewee 1)

A consultant moving forward to new and interesting professional areas, requires willingness to state the wishes to the sales team and colleagues, and first and foremost to oneself. Potential failure in the new situation is intimidating, seemingly many times to the point of stagnation and passing on possibilities.

> “I've somehow pushed career development entirely out of my mind. I don't want to deal with it or think about it, which is funny because I am very career oriented. Perhaps it's a lack of faith or something. So, for whatever reason, I've just swept it under the carpet. I'm guessing it's because career development brings more responsibility, and what if I can't carry that responsibility and what if I cause disappointment? I think that's the biggest reason I don't dare to look under the carpet.” (Interviewee 5)

The fear of disappointing prevents career moves and taking on new responsibilities. It is part of maintaining a safe zone where operating is more comfortable and less challenges occur.

4.8 Interventions

The aim of analysing the narratives is to understand what type of intervention methods the individuals and organisations could use to promote both well-being and organisational development. The analysis focuses on two types of interventions: 1) methods *individuals* use to alleviate the negative experiences of IP and 2) methods *organisations* could utilise to alleviate the negative effect of IP. The first group represents the methods the individuals use and consider helpful in their daily life with the IP. The second group maps the possible tools the organisations could use to provide support for the individuals as well as promote organisational development.

None of the self-help methods the individuals use to cope with impostor thoughts have proved to completely dissolve the issue. At best, they are temporary survival strategies that help continue in the daily life and work. In this group of informants, logic seems to be the weapon of choice to chase away the debilitating impostor thoughts.

> “Logic is probably what helps me to be able to function at all, and I kind of believe that it is the only thing that protects me. The reason I don't just stay at home curled up in a corner is that somewhere inside of me, an adult is saying: Get up! You really have done some good things, too.” (Interviewee 2)

> “When I belittle myself and think surely no one will consider my work performance much of anything, I stop myself by saying that hey, this is all in my head; no one has said this or given any such indication. There is no other evidence for this. Recognising this has helped.” (Interviewee 3)

Logical thinking and relying on hard evidence help turn down the self-critical voices for these informants. Others reported that they try to rationalise the feeling of shame by questioning whether the feeling is justified since it has no real validation such as bad feedback behind it. Or by reminding themselves that they never promised anyone that they possess the skills they feel unsure of. Outsourcing the responsibility to the employer of having the right skills is also a method, in a sense that the employer has knowingly and willingly hired them with the skillset they have.

Almost all interviewees reported at least one strategy that is generally considered part of healthy lifestyle: physical exercise, dog walks, eating well, and talking to friends or life partners were mentioned as helpful methods. However, none of these methods offer a long-term solution.

Some interviewees have sought help from professional psychotherapy provided by employer. One interviewee describes how they have found help in therapy:

> “I'm quite surprised how it's such an unbelievable treatment method that it can change such a dominant way of thinking like mine. In therapy, I realized what kind of childhood I have lived and how the impostor thoughts maybe come from there. Now it's easier to understand and therefore accept it. I'm at a point where I think I'm enough. It's freaky because I didn't think that a year ago.” (Interviewee 10)

This informant has suffered from intense impostor thoughts already during studies and later in work life. They describe how earlier they have defined themselves through what they do *not* know, instead of the skills they do possess, and that they have been driven by the need to cover their perceived inadequacies. Therapy has provided them with understanding of their past and thought patterns that have been built on that past.

Some interviewees have recognised how the tone of the inner voice and how they address themselves affect both the intensity of impostor thoughts as well as how to manage with them:

> “I realized that I had accumulated a highly negative way of speaking to myself inside my head. With the help of my friend, little by little, the way I talked to myself started to change. It was a turning point for my well-being. Now that I think about it, the affirming comments I get from others continue living inside my head and alleviate the impostor syndrome.” (Interviewee 6)

> “Self-compassion would certainly help if you only managed to find it. I suffer from impostor thoughts also in motherhood, and it has been difficult to face myself with compassion. I am so critical and cruel to myself in many ways. I truly believe self-compassion would be essential for me to relate to myself somehow with warmth and gentleness.” (Interviewee 2)

Self-compassionate inner voice combined with being conscientiously aware of good feedback and other affirming messages from one’s surrounding offers an effective tool in the moments when the impostor thought intensify. However, these types of techniques may require studying with the help of a professional.

> “Years ago, when my friends told me I should be compassionate to myself, I remember wondering what does that even mean? At the time I was very critical towards myself, and I was very annoyed when people said that. (Interviewee 10)

The interviewee had no knowledge of what self-compassion means or how to practice it. They have since learned the concept in therapy. In therapy, they have also learned to recognize the reactions of fear. For example, when starting in a new job, and the impostor fears appear, they have learned to reassure themselves that no one wants to hurt them, and everyone is on their side. They have taught their inner voice to be supportive in situations that potentially feed the impostor fears. There are also other techniques to control the impostor thoughts that the interviewees have learned in therapy or with a psychologist.

> “A good metaphor I learned in therapy is that there is a constant game of chess going on, but I don't have to be one of the pieces. I can move to the side from the gameboard and just see what happens. The thought calms me down, and things feel a lot clearer. Then you realize that you can put the brakes on and that those thoughts just come from somewhere; they are not necessarily real. And they may not match at all with the reality and the situation you are in. And then you can move on.” (Interviewee 9)

While psychotherapy or psychologists may help some impostor thinkers, there are also accounts that state otherwise:

> “In my previous company, we had this benefit called Auntie. It felt therapeutic, and she had all these techniques to relieve worry. And it was great, but I never felt it really helped me. It's like with the sleeping things; there's lots of advice about when you can't sleep. You know you should do this, do that. It's easier to say than to actually do it. It doesn't help.” (Interviewee 4)

Auntie is an online psychologist service directed at organisations to help the employees discuss their issues. Usually, the number of meetings with an Auntie psychologist is limited to 5-10. The interviewee is appreciative of the possibility and is happy to discuss their issue but fails to see how the service would eventually help dealing with worry and impostor thoughts. Another interviewee describes how they have sought help in solution-focused brief therapy but did not find it effective. Instead, they believe psychoanalysis would be more appropriate in their situation because the issues behind their IP experience are so deep-rooted and challenging.

The final part of the interview concentrated on finding out what type of intervention methods or organisational elements the informants would consider helpful in fighting the IP. Making the employees’ diverse backgrounds visible and diminishing the hero culture in the organisational narrative were considered important. That way someone suffering from impostor thoughts and feeling mismatch to the ideal image of an employee could feel the sense of belonging. The wording choices in

the internal communication and by colleagues were considered significant elements in fostering a psychologically safe workplace, where the impostor thoughts would have less breeding ground.

The interviewees described methods that they would benefit from personally. Group discussions and decompressing of IP fuelling situations with fellow impostors in the organisation as well as mentors were suggested by the interviewees.

> “Peer support would be good. It would be nice to hear what others think about it and if anyone else suffers from IP, although I know they do. It would be interesting to know how big the problem it is. I know competent people who definitely shouldn't have to also suffer from impostor syndrome. But it's always easier to support others and be stricter on yourself.” (Interviewee 5)

There seems to be somewhat uncertainty of how common the IP is. Although the interviewees recognize that it is noticed and discussed in the industry, there is an air of loneliness in the experience. They question if there really are others who have such intense feeling of impostorism. The overall experience of being the incompetent one amongst thriving and competent colleagues is lonely. So there is a dual way to feel lonely in the context of IP: “Am I the only one who feels like an impostor?” and “Do I belong here if I don’t possess the skills other do?”.

Some of the interviewees considered mentoring a good way to help with impostor thoughts.

> “One thing I've thought about is when I was younger; I had a mentor. Like when I was in my late 20s or something. It was like a safety net. We worked together, and this person was a bit older than me, more experienced, and I just felt like they were my protection. So, somebody who can put things into perspective. Somebody that I can contact regularly and open up to about all this kind of stuff.” (Interviewee 4)

A mentor is someone who can put things into perspective, which for impostors seems to be difficult in when it comes to their competence and skills. A mentor is familiar with the environment of the profession and can guide through challenges. Merely knowing that there is a safety net, might make the difference for the impostor.

Peer coaching system called Kamu is a concept used in one of the interviewees’ organisations. Kamu is a colleague with coaching skills regularly having conversations and supporting another colleague with professional and private life challenges. Kamu can be translated as “Buddy”, and the concept was created to make up for the lack of supervisors, which is a conscious choice to keep the organisation structure as flat as possible. Supporting employees in their everyday work is however considered important. (Nitor 2023.)

> “I have found talking to my Kamu helpful when in deep waters. When I'm anxious, and there's a bad situation, and I can't find a solution, I can talk to my Kamu. It helps.” (Interviewee 1)

In consulting, the customer project usually changes periodically. Professional development and learning typically enhances together with the progression of the demand level of the projects. For someone who feels insecurity in seeking out to new areas could benefit from the knowledge that there will be a tutor guiding them in the beginning of the new project or customer assignment. With the level of expertise among the interview group, they are generally expected to be able to dive into a new project without much difficulty. The expectation is usually fulfilled, but the fear of failure is what might prevent the transition altogether.

> “It might be unrealistic, but it would be cool if someone who knows me a little and knows that I've been coding for almost 20 years could tell the project manager at the customer that they trust me. And they would hold my hand a little for the first week and present the code and the work done on the project. From there, I could look at the code and the documentation to see what can be done. It would be like a dream situation.” (Interviewee 7)

This description is from an informant who is very hesitant to change to another customer project if they are not thoroughly familiar with the technical requirements. They fear failing and making a bad impression which would prevent any future advances in their career. The biggest hurdle is not to be accepted to a new project; the biggest hurdle is to raise one’s arm to show interest in taking on a new project.

5 Discussion

This chapter reflects the informant narratives to the theoretical framework of the study and provides a summarised answer to the research questions. The last section of this chapter presents recommendations of methods to alleviate the effects of the impostor phenomenon.

5.1 Factors behind the impostor phenomenon

The analysis of the narratives by the information technology professionals reveals a variety of factors that can be considered as antecedents and fuelling elements that may lead an individual to experience intense impostor thoughts.

Literature recognises that childhood and youth experiences, parenting approaches, personality traits, social status, and self-efficacy beliefs are antecedents to the impostor phenomenon. (Bravata & al. 2019, 1252; K.H. & Menon 2020, 4–5.) The narratives conducted in this study validate that a variety of factors that can be considered as antecedents and fuelling elements to intense impostor thoughts, are present in the experience of impostorism among the information technology professionals.

The narratives reflect to this moment in time where the impostorism is experienced. Childhood and youth experienced were discussed through the lenses of the experience of today: how the parenting approaches and teachers' comments have carried to this day either with fear and threats or support and encouragement. Protective upbringing and excessive expectation management were considered as factors that have influenced the current impostor feelings by the interviewees. The results confirm the findings previously presents by Clance (1985), Clance & al. (1995), Sonnak & Towell (2001), Want and Kleitman (2006). Also, high expectations in academic achievements were recognised by the informants to have fuelled their impostorism as demonstrated by King and Cooley (1995).

Learning disabilities and challenges in youth positions a person as an underdog in relation to others, which may later result in impostor thoughts. As depicted in the narratives, overcoming those difficulties may require hard work and leave a mental trace that is difficult to erase even after the challenges are solved. The theoretical framework or the interview guide of this thesis did not include literature or questions about learning disabilities in the context of impostor phenomenon. Despite them lacking, the interviewees raised the topic spontaneously as being a factor in their impostor thoughts.

Transitioning upwards from what one considers a lower social class of the childhood family and feeling of underprivilege causes impostorism according to some accounts. In fields where high

level of expertise is highlighted, and a certain air of confidence about a person may be a significant factor in career progress, the mindset of labourer or a social underdog, may have a strong undermining influence. Inclusivity of the workplace and fostering psychologically safe work community were considered as key factors in mitigating impostor phenomenon. Openness about employees' diverse backgrounds and how those background should be considered as assets that help create the talented and unique value would be meaningful ways to promote sense of belonging and consequently psychological safety in the workplace. Similarly, to the topic learning disabilities, the viewpoint of class society was not covered in the literature review. The experiences related to social class and background emerged in the interview process without provocation.

The body of research on the topic to date recognises that impostor thoughts of varying intensity are present in all genders, not just among women (Clance & Imes 1976; Bravata & al. 2019). Gender is not a direct cause of impostor thoughts, as in womanhood would be inherently more prone to impostorism. But underrepresentation in terms of gender is. As are the attitudes and misconduct toward women. (Bravata & al. 2020; Kark & al. 2022.) Having to constantly prove others that the seat in the executive table is justified, is both draining and discouraging. The long hours of extra work the impostor demands from herself adds to that drainage, and like for our informant, may lead to therapy to learn more sustainable ways of working. Underrepresentation and derogatory comments related to gender or physical appearance may lead to questioning one's place in the work community. The narratives revealed that female gender and assumed age are subjects of commenting in ways that may increase impostor thoughts, which may create an additional barrier to career advances on top of those of biases and discrimination as established by Kark & al. (2022).

Big Five refers to a model that represents personality through traits shared by practically all human beings with individual emphasis on the prevalence of the trait features. Out of the five personality traits high Neuroticism is almost emblematic to impostorism. (Costa 1996; Ross & al. 2001; Bernard & al. 2002) Worrying about what has happened, what is ahead, and what might happen is on the daily agenda. An impostor analyses the social contacts at work in terms of safety. They consider whether the contact is such that it is safe to ask them questions and advice. Preparing to meetings and discussions require extra time because the impostor has to mentally practice for any possible scenarios that might take place. If possible, the impostor shies away from situations that pose a risk of undermining their knowledge and expertise in the eyes of others. The narratives confirm the findings by Grubb & McDowell (2012) that impostorism causes disengagement to organisational activities in the fear of exposure. The narratives also confirmed Grubb & McDowell's (2012) other finding of the dualistic nature of impostor thinker's commitment: the feeling of inadequacy diminishes sense of commitment, but the fear of failure prevents the person from seeking new opportunities.

The context in which the narratives of this research are placed is the professional self-image in the field of information technology. All the informants are from higher education background and after graduation they have at least 5 years of relevant experience in the field. Most of them over ten years, see table 1. They are not juniors or recently graduated. This shows that intense impostor thinking is not tied to years of experience, but it affects regardless of seniority. Kumar & al. (2021) concluded that the increasing number of age, career stage, and integration to organisation decline the intensity impostor experience. However, the findings of this thesis show that increase in seniority and life experience can also add to the intensity of impostor thinking. It was reported how seniority increases the pressure of how much the impostor feels they should know compared to more junior colleagues.

5.2 Effects of the impostor phenomenon

The narratives of how impostorism feels and how it affects professional choices follow the descriptions that of the prior research. However, in this study, the violent imagery of the narratives reveals how painful the internal world with intense impostor thoughts can be. The word choices like “stab”, “die”, “devil”, and “horrible” attest to the need of psychological safety to mitigate the detrimental effects impostor phenomenon. Haar & de Jong (2022) link IP to job anxiety and job depression, to which this study offers verification. It is important to understand how restrictive such a mindscape can be and how it hinders both the individual and organisational development.

Positive interpersonal effects of impostor phenomenon described in Tewfik’s (2022) model of other-focused orientation is supported with the results of this study. Based on the narratives, the negative impostor thought patterns are directed towards self instead of others. The colleagues get the best of the over-achieving helpfulness and supportive attitude. However, the results also show that the features that make the impostor likeable and appreciated, tend to also add to the stress and exhaustion due to increased workload and pressure to perform.

Impostors are typically highly capable experts, and their input in the work community is valuable. The narratives support the conclusion of McDowell & al. (2015), that to prevent missing the added value of these individuals, the organisation and the work community should investigate ways to enhance the overall psychological safety and offer help dealing with excessive worrying, for example with different forms of therapy, occupational psychologist, or emphasized supervisor support.

Celebrating individual heroic achievements by programmers is often mentioned as a prevalent feature in the field information technology. The narratives in this research confirm the existence of this stereotype. The hero coder is seen as someone who can solve any problem overnight without blinking an eye and is able to create the most elegant solutions to any given task. The narratives

depict an image of an impostor who sees the masterful triumphs popping like stars in the sky and thinks “they know all that and I just know about my small expertise area. I should know what they know, too.” The thinking error here is that in the eyes of the impostor, the individual stars mix into one, creating an illusion of an infinite knowledge pool shared by everyone else but the lonely impostor looking at the sky. To add to the complexity, there is probably another impostor sharing the same cognitive distortion and looking at the first impostor as one of the heroic stars in the pool. The problem arises when impostors set standards for themselves based on that infinite knowledge pool, they imagine the others have. Vergauwe & al. (2015) have described similar outlook of high standards that is supported by this study’s narratives of unrealistically high expectations for oneself combined with virtual impossibility to achieve them is a perfect set up for impostor thoughts and fears.

Organisational communication has a role in maintaining the hero culture. Celebrating team and individual achievements in the organisation is important, but it would be equally important to talk openly about challenges and unsuccessful endeavours. And then learn from them together. Support from organisation has been shown to alleviate IP (McDowell & al. 2015; Downing & al. 2020) which the narratives in this study confirm.

5.3 Mitigating the impostor phenomenon

The intervention methods the individuals use to cope with impostor thoughts are variant and inventive but without much long-lasting effects. All the informants of the study know that they are educated, successful in their work, they get good feedback, and they are well-liked colleagues. That knowledge is what they resort to when the impostor thoughts get too heavy. They use logic and reasoning to put things in perspective so that they can continue functioning. Some have discovered a self-compassionate inner voice, but that has required learning the language in therapy or with a help of a friend or psychologist. Patzak & al. have found that self-compassion is a resilience factor against impostorism. However, based on this research, an individual may need support in learning to utilize the method and even education of what the method is.

Organisations are in the position where they can both fuel the impostor phenomenon and act to relieve it. Kark & al. 2022 found that to prevent exhaustion and burnout of the top talent, dissatisfaction, and sick leaves, organisation should invest resources in mitigating the negative effects of IP. This study confirms their view in that enhancing psychological safety, normalising inadequacy, and embracing diversity would diminish the situations where impostor thoughts thrive. The responsibility and power to influence on these elements lie both on the organisation and its members.

Psychotherapy, peer groups, coaching, and mentoring are all services organisations can provide and that are deemed helpful. (Noskeau & al. 2021; Magro 2022; Zanchetta & al. 2020.) The views of the interviewees of this study confirm that these services would be welcomed and helpful. Not all services can help every impostor, but providing a selection of methods enhances the probability of success. The key is to let the impostors know that there are others, and that there is help available.

5.4 Summary of research findings

The analysis of the narratives from information technology professionals reveals various factors that contribute to intense impostor thoughts. These factors include childhood and youth experiences, parenting approaches, personality traits, social status, and self-efficacy beliefs. The study validates the presence of these factors as antecedents and fuelling elements of impostorism among information technology professionals.

The narratives reflect how childhood experiences, parenting approaches, and teachers' comments influence current impostor feelings. Protective upbringing, excessive expectation management, and high academic expectations were identified as factors fuelling impostorism. Additionally, the study includes findings on the impact of learning disabilities, social class transitions, and gender-related biases on impostor thoughts. The narratives also indicate that impostorism affects individuals regardless of their years of experience or seniority.

The results emphasise the need for psychological safety to mitigate the detrimental effects of impostorism. The study supports the importance of enhancing overall psychological safety within organisations, providing therapy and support for individuals dealing with excessive worrying, and addressing the hero culture prevalent in the IT field.

Individuals manage impostor thoughts with coping mechanisms such as logic and reasoning, self-compassion, and seeking support from therapy or peer groups. Organisations have a role in both fuelling and relieving impostorism, suggesting the need to invest resources in mitigating its negative effects, enhancing psychological safety, normalising inadequacy, and embracing diversity.

The study concludes that organisations should provide psychotherapy, peer groups, coaching, and mentoring services to support individuals experiencing impostor thoughts. By offering a selection of methods and letting impostors know that help is available, organisations can improve the well-being and performance of their employees. Figure 4 presents the summary of the research findings.

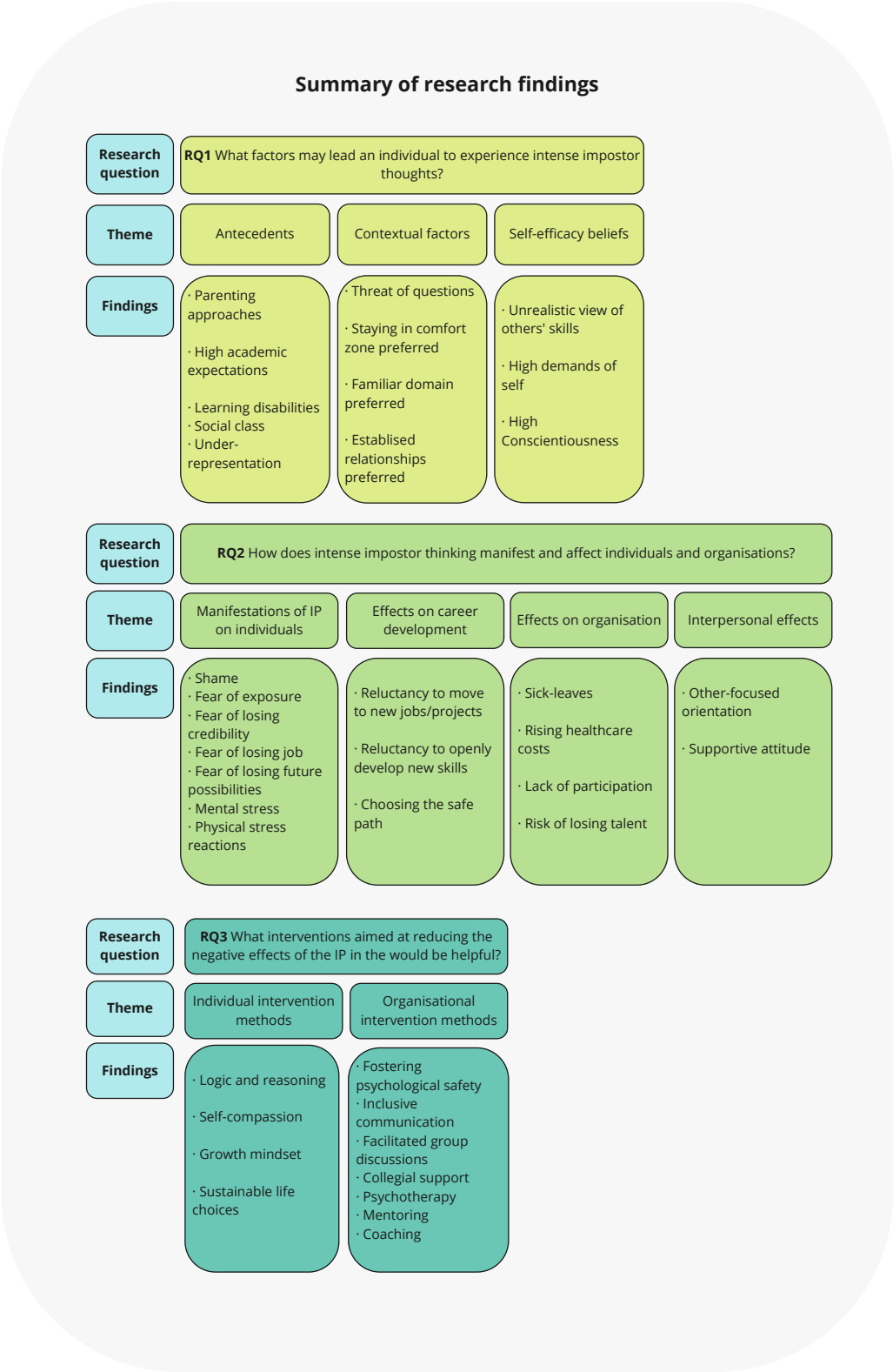

Figure 5. Summary of research findings

5.5 Significance and recommendations

The study reveals a need to give attention to impostorism in organisations in information technology. The results suggest that some individuals suffer deeply from the effects of the impostor phenomenon. Intense impostor experience can potentially impair work-community dynamics and weaken the turnover of organisations. The results also suggest that organisations have a role in causing circumstances that fuel the impostor thoughts and should also take steps to alleviate them.

This research added to the understanding of what factors precede and add to the impostor phenomenon and what individual and organisational outcomes impostorism has in the field of information technology. Mitigating the effects of the impostor phenomenon requires actions and attitude adjustments from the individual suffering from impostorism, the organisation, and the work community. Figure 3 illustrates the relationship between these three agents and the tools they each possess.

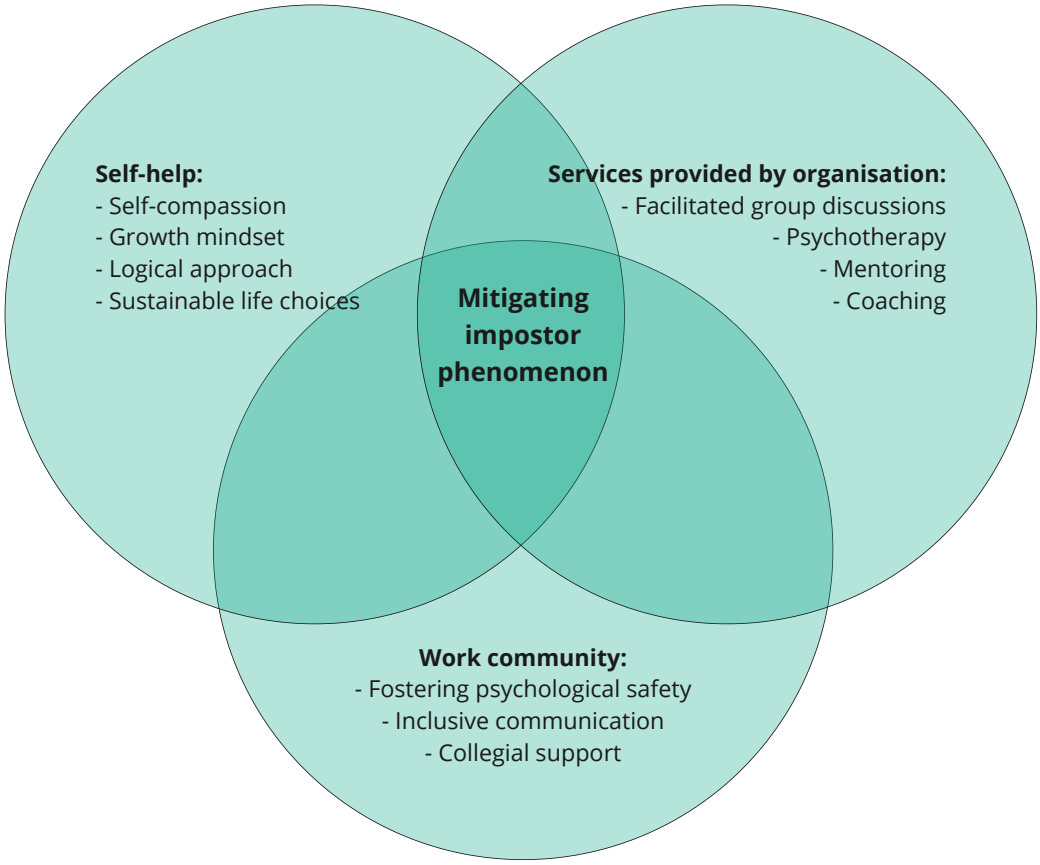

Figure 6. Mitigating impostor phenomenon

Based on the literature and research findings, I recommend the following steps for organisations:

1. Openly discussing the impostor phenomenon within the organisation helps create a supportive environment where employees can share their experiences and realise that they are not alone, reducing feelings of isolation and self-doubt.
2. Promoting diversity and acceptance of inadequacy fosters an inclusive culture that values individual differences and recognises that everyone has strengths and areas for growth, empowering employees to embrace their authentic selves and contribute to their fullest potential.
3. Providing services of psychotherapy and psychologists offers professional support to employees experiencing the impostor phenomenon, helping them explore their thoughts and emotions, develop coping strategies, and enhance their self-confidence.
4. Organising peer support and discussion groups for employees suffering from the impostor phenomenon creates a safe space for individuals to connect with others who can relate to their experiences, share advice, and provide encouragement, facilitating mutual growth and resilience.
5. Offering coaching and mentoring services provides employees with personalised guidance and support, helping them develop their skills, build confidence, and challenge self-doubt, ultimately empowering them to overcome the impostor phenomenon and thrive in their roles.

The recommendations were introduced to a team of three human resources professionals in an information technology consulting company. They supported the recommendations commenting that they are clearly formulated, relatable, and feasible. The role of management in mitigating the employee's impostor phenomenon was discussed, and the team concluded that communication guidance for management would be a good addition to the recommendations. The team also stated that the recommendations are universally applicable in any organisation.

6 Conclusion

The main motivation for this thesis was to understand what causes intense impostor thoughts within highly educated information technology professionals, how it affects individuals and organisations, and what organisations as communities and service providers can do about it. I find that the research questions were answered in a satisfactory way. However, the research data would have allowed a much wider and deeper analysis.

Professionally the research was a valuable window to the mindset of many of the employees I provide human resources services for. I cannot go back and change the childhood experiences or alter personality traits, but there are interventions and proven methods to help those with intense impostor thoughts. Some of the recommendations presented in the previous chapter are currently implemented in my organisation, and the rest will be at some timeframe.

6.1 Further research suggestions

This thesis concentrated on narratives and personal experiences about the impostor phenomenon. For further research I suggest validating the suggested mitigating methods in an organisation. The role of social class as well as underrepresentation affecting the impostor phenomenon would provide data relevant in the society level.

6.2 Reflections on learning

The process of writing the master's thesis has been both challenging and rewarding. Familiarising with the impostor phenomenon was almost like falling down the rabbit hole: an endless journey through fascinating theories and research. There came a point where I had to climb back out of the hole, look at the body of the material critically, and trim it to fit the scope of the study. I suppose that it is a typical part of the process. The topic is vast and has limitless directions to take. I am happy with the overall cohesion and balance of the theoretical framework and themes.

As a final note, the participants' stories were deeply touching, and I am truly honoured and thankful for the trust the participants showed me by sharing their private and painful experiences.

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Appendices

Appendix 1. Invitation to participate the research interview

Invitation to an interview about impostor syndrome

Do you feel like an impostor in work-life and fear you may be exposed at any moment? Do you feel that you have reached your position in work-life due to good luck, relationships or for some reason other than your skills?

A person suffering from impostor thinking, i.e., impostor syndrome, feels that their achievements and successes are due to good luck, chance, or the favour of others. An impostor thinker questions their competence, even if their position, title, and job duties prove otherwise. Impostor thinking can affect career development and goal setting, and it can expose to various states of stress and exhaustion.

I'm writing my Master's thesis on the impostor phenomenon and I'm looking to interview information technology professionals with higher education and permanent work relationship in Finland. Your role can be an expert, supervisor, or manager. I aim to collect stories and experiences about how impostor thoughts manifest and affect life and how the organisation could support an employee suffering from impostor thinking. The identities of the interviewees will not be revealed in the study.

If you recognise that you suffer from impostor thinking and want to participate in the study, register with the attached form: Forms. I will contact you to arrange an interview time. The interview lasts about an hour and can be conducted face-to-face or online. The interview language can be Finnish or English.

Appendix 2. Interview guide

Interview guide

Turn on Teams recording - Ask for permission/tell the interviewee
Turn on the recorder - ask for permission/tell the interviewee

Warm-up and confirmation of background

1. What is your educational background/highest education?
2. What is your job description and position (supervisor/manager/expert)?

Instructions: Tell in your own words, as a story. I won't interrupt.

Theme 1: On a general level

1. Why do you feel you are suitable for research on impostor thinking?
2. Describe what kind of thoughts are related to your impostor experience?

Theme 2: Childhood and youth

1. (Do any childhood experiences come up? Ask about them)
2. If you already had impostor thoughts during your studies, how did they appear?
3. What made you apply for higher education and a demanding job?
4. What kind of support did you get during your studies because of impostor thoughts or otherwise?
5. How did you see yourself compared to your fellow students?

Theme 3: Contextuality

1. How often do you experience impostor thoughts? Would you describe a specific situation in which they appear?
2. Describe a recent accomplishment at work that you are proud of
3. What do you think led to success in the task?
4. Do you experience feelings of incompetence or helplessness? In what situations?

Theme 4: Self-image

1. What kind of colleague do you think your colleagues see you as?
2. What kind of colleague/supervisor do you think you are?
3. Do you experience feelings of envy or resentment towards a colleague or subordinate? Describe the feelings in more detail.
4. How determined are you?
5. How much do you worry and worry about things?

Theme 5: Career development

1. How has impostor thinking affected your career choices?
2. (Has impostor thinking made it difficult for you to progress in your career? Have you, for example, failed to apply for a job?)
3. How do you see your career development from now on?

Theme 6: Effects

1. How do you help yourself amid impostor thoughts?
2. What kind of help have you received to eliminate impostor thoughts?
3. What kind of help would be helpful for you to eliminate impostor thoughts?

Do you want to add something else?

1. What effects of X do you notice in your life?
2. Tell more about XX
3. So that I understand it better, tell me more about X

Appendix 3. Summary of research findings