Write the unwritten: A qualitative vignette study into the implications of AI use within the first steps of the job application process

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Abstract

Purpose - The increasing use of Artificial Intelligence (AI) has transformed the job application process for both applicants and recruiters. This study contributes to the growing body of knowledge on AI usage in the first phases of the recruitment process by providing insights from both applicants and recruiters using Orlikowski's sociomaterial perspective. While existing research has primarily focused on the role of AI in recruitment from the perspective of recruiters or organizations, this study integrates the perspective of applicants as well. The research question addressed is: *What are the implications of the sequential use of AI within the first steps of the recruitment process for the organization and the applicant?*

Methodology - Through a qualitative experimental vignette study, applicants and recruiters (N=18) were presented with scenarios in video form where AI tools were employed to execute different tasks, from writing a vacancy text to writing a cover letter to resume screening. Additionally, the participants were asked semi-structured follow-up questions.

Findings - Firstly, the findings reveal that although AI enhances efficiency in recruitment, it diminishes the overall experience for both recruiters and applicants by reducing authenticity and perceptions of fairness. Current studies fall short of addressing these early-stage AI implications. Secondly, the findings underline that AI tools lack the necessary nuance for complex decision-making, which highlights the importance of human intervention to ensure fairness.

Conclusion - While AI enhances efficiency in the early stages of the job application process, the implications also pose significant challenges concerning authenticity and perceived fairness for both applicants and recruiters. To balance this, maintaining human oversight is essential. As AI continues to evolve, the recruitment process has to evolve as well. This redefines the role of human interaction alongside technological advancements.

Key words: Articifical Intelligence (AI); recruitment process; applicant; recruiter; sociomateriality; AI tool; qualitative vignette study

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1. Introduction

Nowadays, technology alters the industries we work in and the most recent technologies are based on Artificial Intelligence (AI) (Heyder et al., 2023). Human resource processes, such as recruitment and selection, are managed by AI and ML (machine learning) (Lukaszweski & Stone, 2024). Examples of tools that could be used by HR departments are ChatGPT and Bard (Raman et al., 2024). However, AI tools are not only used within organizations. Many media articles have been published about the upcoming number of people who use ChatGPT or other AI tools in their daily lives. In 2024, 23% of the population older than 12 have created texts, videos, or images using a program with AI (CBS, 2024). The maturity of AI tools also leads to increasing acceptance of usage in organizations (Heyder et al., 2023). AI tools are known for their ability to assist in the fast completion of tasks (Duong et al., 2023; Ngo, 2023). Some students might continue using AI after college, for example during their job search. This assumption is supported by iCIMS (2023), revealing that 47% of the participants in their survey indicated that they are interested in using ChatGPT or other AI bots to assist in writing their resumes or cover letters and that 25% of Gen Z already used an AI tool that helped them to write their resumes or cover letters. Additionally, 49% of the 18 to 25-year-olds and 41% of the 25 to 35-year-olds use AI tools relatively often to create output (CBS, 2024). However, the use of generative AI tools leads to questions concerning plagiarism, authenticity, and creativity (Fyfe, 2022).

Since its introduction, ChatGPT, a Generative Pre-Trained Transformer (GPT) model, has further developed with the launch of subsequent GPT models. The first public version was introduced in November 2022, utilizing “supervised fine-tuning”, involving human AI trainers simulating conversations as both the user and AI assistant (OpenAI, 2022). And OpenAI is no longer the sole provider in the AI chatbot market. Another example is Google’s Bard (Vogelaar, 2023), while Meta introduced Llama as their language chat model (Meta, n.d.). This shows the notable developments in AI technologies, leading to its widespread adoption across industries and functions, including customer complaints (Koc et al., 2023), the tourism and hospitality industry (Iskender, 2023), hazard recognition in the construction industry (Uddin et al., 2023), or the geospatial industry (Tao & Xu, 2023). For this study, especially the recruitment function is considered to be important. Many studies have been published on the widespread adoption of AI in recruitment (Albert, 2019; Pan et al., 2022). Examples include the sourcing of candidates, the screening of resumes and/or cover letters, the assessment of skills, and the selection of candidates (Hewage, 2023). Other examples are increasing diversity or enhancing the workplace experience of employees (Budhwar et al., 2023).

Individuals who use AI on a private basis might be more likely to also use AI at work. This trend is growing, and it has implications for organizations as well (Bankins et al., 2023). When employees understand how to effectively use AI tools, it can help them strengthen their productivity and efficiency. For example, Gao & Feng (2023) found that a 1% increase in artificial intelligence adoption

can lead to a 14,2% increase in total firm productivity, resulting in time and cost savings. Additionally, using AI indicates that employees can adapt to changing workflows in their day-to-day jobs and that they are looking for innovative ways to tackle challenges. Organizations could deploy AI to align their organizational strategies, but to do so, employees should have experience with AI as well.

The urgency to dive into the topic of AI within the recruitment process is multivarious. There are multiple gaps that will be filled by investigating AI use in the first stages of the recruitment process. Even though the impact of other technologies in the recruitment process have been investigated (Parry & Strohmeier, 2014; Peeters et al., 2020; McCartney et al., 2021), AI tools are inherently different than other 'regular' technologies. AI tools differ from other technologies in the sense that AI tools are able to learn and immediately adapt what they learn, and can operate autonomously. This is something that other technologies cannot do. As an AI tool learns from patterns in data, it might lead to unforeseeable outcomes. Especially the unpredictable nature of AI tools makes it different compared to regular technologies that are limited to execute a specific task. An example of a regular technology is email that is used to communicate between recruiters and applicants. If the interaction would be via an AI tool, it could be automatically follow-up candidates or learn from the writing style of candidates. Thus, this study contributes by gaining insights into the implications of AI tools into the recruitment process compared to regular technologies.

Many studies described the growing use of AI by recruitment departments within organizations (Black & Van Esch, 2021; Chen, 2023; Malik, Budhwar, & Kazmi, 2023). Examples are performance appraisal, L&D, and talent acquisition (Kaushal et al., 2023). The implementation of AI within the HR domain has led to compelling changes within HR and its processes (Murugesan et al., 2023).AI tools can single out and elect potential employees by handling extensive piles of personal data (Ore & Sposato, 2021; Kraus et al., 2023). Due to growing usage, there is an exponential growth of publications regarding this topic (Zhang et al., 2021). However, there are still aspects that are underrepresented in existing research. Most studies focus on how the HR department is affected by the application of AI and its consequences for the organization. An example of such an effect is how employers in New York City are obliged to let applicants know whether and how AI is used in the hiring decision process (Cerullo, 2023). However, there are no clear indications that applicants must reveal whether they have used AI. And even if employees are not allowed to use certain tools, they sometimes find a way to work around an employer's ban and secretly continue working with AI (Christian, 2023). This leads to a lack of transparency in the hiring process, which might lead to decreased trust between the organization and the applicant (Renkema, 2022).

Secondly, AI has advantages in various stages of the recruitment process after a job seeker has applied (Gusain et al., 2023). However, studies about the job seekers' use of generative AI during their application process have not yet been conducted. Within the application process, advantages could be

a decreased application time or fewer to no mistakes (Van Esch, Stewart Black, & Ferolie, 2019). Due to the high availability of empty vacancies (CBS, 2023), it can be expected that individuals who use (generative) AI tools in their private lives or who are already experienced with AI are also more likely to be open to the use of AI in the workplace. Another advantage of investigating applicants' AI use is to find out whether it has implications for the likelihood of being invited by companies.

Thirdly, exploring the use of generative AI in applicants' documents is important, as these are a representation of the capabilities, skills, and experiences of an applicant. A resume or cover letter is, in general, the first communication between an applicant and an employer (Burns et al., 2014). Questions arise about the authenticity of applicants using AI, potentially creating a distorted image of reality. Resumes, which typically contain qualifications and experiences, may not directly convey personality traits (Burns et al., 2014). However, applicants' personalities and clear and confident communication can partly impact someone's hirability. These are aspects that can be affected when using a generative AI tool.

So, even though there is a growing interest in AI, there is limited clarity on how applicants use AI, and on whether organizations permit and use AI within their processes. The extent to which AI is integrated into the job application process might impact the authenticity of vacancies and applications, which raises concerns for both applicants and recruiters. To evaluate the broader implications of AI in the recruitment process, it is crucial to fill in these gaps. Thus, building on the existing research and addressing these research gaps, the goal of this study is to investigate the implications of AI within the first steps of the recruitment process. This entails the perspectives of and consequences for both the organization and the applicant. This study tries aims to answer the following research question, *"What are the implications of the sequential use of AI within the first steps of the recruitment process for the organization and the applicant?"*. The answer to this question will help to understand to what extent AI can affect recruitment, but it will also shed light on the potential clashes that might be entailed through the sequential use of AI.

This study contributes in a theoretical and practical way to existing knowledge. First, it advances the theoretical understanding of AI within recruitment by introducing a new framework that integrates sociomateriality. This theory clarifies the undeniable entanglement between humans and AI in the recruitment process. Amongst other things, this study builds on the work by Lacroux and Martin-Lacroux (2022), answering whether recruiters would rely on algorithmic advice in subjective tasks like resume screening, and how this is perceived by applicants. By integrating those insights, the study offers a new approach to perceived (un)fairness, especially in sequential AI use, and the importance of human nuance, which paves the way for future research. On a practical level, this study confirms that AI use in recruitment leads to efficiency improvements for both applicants and

recruiters, and it shows the importance of conveying a personal touch in either a vacancy or a cover letter.

2. Theoretical framework

2.1. Overview of AI and how it is used in recruitment

The labour market is significantly disrupted by the current digital revolution and the industrial transformation (Pavaloaia & Necula, 2023). The emergence of novel technologies, particularly within the realm of communication and information, is disrupting the way organizations generate and capture value, by modifying existing work systems and shaping human interactions (Cascio & Montealegre, 2016). In most organizations, business operations are enhanced using technologies. Especially the use of disruptive technologies has been increasing in the past decade (Stanley & Aggarwal, 2019). One way in which technology can be disruptive is when it starts at the very bottom of the organization and then gradually moves up to the top of an organization. Further, organizations deal with disruptive technologies by adjusting or expanding the current resources, processes, and or values that are present in the organization (Stanley & Aggarwal, 2019). However, it should be noted that technology by itself does not disrupt a business or society, but only when it is aligned with greater efficiency (Budhwar et al., 2023). The adoption of disruptive technologies within organizations is considered vital to maintaining competitiveness in multiple areas, including the global talent market (Ore & Sposato, 2021). In the past, technological advancements have led to displacing workers in one industry while creating new industries in another area, e.g., low-skilled industries that are replaced with automation (Budhwar et al., 2023). So, as technology continues to reshape the labour market, organizations should proactively embrace and manage innovations to stay competitive amid ongoing digital and industrial transformations. This involves adaptability, investing in skills, and strategical positioning to ensure that they do not miss out on digital or technological opportunities.

It is not new that algorithms are applied at different stages of the hiring process, for example as a way to explore new candidate pools (Salem et al., 2022). Thus, it is important to first go back to the definition of AI, to see what it entails and how it can be applied within recruitment. There are different definitions of AI, that cover a variety of aspects. Firstly, Strohmeier (2022) defines artificial intelligence as “the set of digital technologies that mimic certain functions of natural intelligence (NI), such as perceiving, learning, knowing, or reasoning, to augment or automate human tasks, which conventionally require such functions of NI to be performed” (p. 2). Secondly, Horodyski (2023) emphasized that AI tools aim to mimic intelligent human actions, including speech recognition, phone conversations, or visual perceptions. Finally, Haenlein and Kaplein (2019) define artificial intelligence as “a system’s ability to interpret external data correctly, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation” (p. 5). What can be concluded of these definitions, is that artificial intelligence encompasses a variety of digital technology that partly

recreate natural intelligence or automates human tasks. Especially within HR, AI can be helpful as many tasks can be automated (Table 1).

Table 1.

Examples in the Literature of HR Practices that Are Executed with AI

Author	HR practices executed with AI
Budhwar et al. (2023)	Writing narratives to improve training and education for employees; Creating drafts of workplace communications regarding protocols and rules; Reviewing employment-related contracts; Employment security; Recruitment and selection; Performance appraisal; Pay.
Black & van Esch (2021)	Bypassing search firms by use of AI-enabled recruiting tools.
Hewage (2023)	Candidate sourcing; Resume screening; Skills assessment; Candidate selection.
Kaushal et al. (2023)	Recruitment; selection; onboarding; training-learning; performance analysis; talent acquisition-management; retention-application.
Murugesan et al. (2023)	Scan resumes and job applicants; analyse candidate data for succession rate; Indicators of low engagement or high turnover rates; Enhance learning and development programs; Personalize learning experiences; identify potential safety hazards.
Strohmeier (2022)	Big HR data; HR analytics; HR machine learning in recruiting; Machine learning in HR staffing; Machine learning in personnel selection; HR robotic process automation.
Vrontis et al. (2021)	E-recruitment; E-training; E-competence management HRM-decision-making with AI; Conducting background checks of job applicants; Extrapolate behaviours regarding job fit and performance; Analysing and collecting digital records; Predicting work-related issues.
Zhu (2021)	Constructing a talent database; Perform online interviews; Analyse compatibility of the applicant's competence; Cover salary levels of equal positions; Measure correlation between position level and salary.

The tight labour market leads to different challenges for organizations' recruitment and other HR practices to deal with. Amongst these challenges are the global workforce competition, passive job seeking, a decreasing job tenure, and a potential mismatch of demand and supply of skills (Koivunen et al., 2022). Another challenge is to improve diversity, for example having a higher number of females or minority groups, at a wide range of positions, including leadership quota (Salam et al., 2022). The use of AI in HR practices could have far-reaching consequences. From an organizational perspective, using AI could lead to "money and labour savings, speed improvement, task efficiency, relationship building between recruiters and candidates, unbiased talent search, processing a large number of resumes, or automation of recruitment processes" (Horodyski, 2023, p. 2). This is also emphasized by Salam et al. (2022), who highlight that algorithms can lead to advantageous outcomes, such as "speed, cost-effectiveness, potential objectivity, and uniformity in the process" (p. 652). In other words, there are

many benefits for employers, and more specifically, for recruiters to use AI in the recruitment process. AI recruiting defined as "any procedure that makes use of AI for the purposes of assisting organizations during the recruitment and selection of job candidates" (Hunkenschroer & Luetge, 2022, p. 977). For performance management, employee engagement and retention, and recruitment and talent acquisition, introducing AI could enhance efficiency, accuracy, and decision-making (Murugesan et al., 2023). For example, in the case of employee performance, AI could be used to identify potential gaps and revise which progress is needed to increase performance. Or, when reviewing many applicants, AI is used to increase the efficiency and accuracy of selecting suitable applicants (Budhwar et al., 2023). During the past years, many AI-driven recruitment tools have been developed. Examples of such tools can be found in Table 2. More AI recruitment tools will be discussed throughout the next sections.

Table 2.

AI-Recruitment Tools (Kazim et al., 2021)

AI recruitment tool	For what?
Hiretual	Aggregation of appropriate candidates
Paradox	Interviewing through a chatbot
MyInterview	Video interview assessment
Textio	CV-analysis, job advertisements
Traitfiy	Psychometric characteristics assessment through image
HireVue	Game-based assessments
Cammio	Video interviews

2.2. Generative AI tools to be used by applicants

Generative AI has become very popular (García-Penalvo & Vázques-Ingelmo, 2023). More specifically, ChatGPT has gained wide recognition as it is able to give human-like answers to most questions that are being asked (Budhwar et al., 2023). Further, it is the fastest-growing app of all time (Budhwar et al., 2023), aimed to generate "new content" that is created out of existing content that is found in online databases (Budhwar et al., 2023). Generative AI is a tool that integrates machine learning models "to generate new content, including text, audio, video, images, software codes and simulations, based on large datasets used to train the model" (Budhwar et al., 2023, p. 4). Examples of AI-generative tool that translates written prompts into text are Stability AI's Stable Diffusion (n.d.) and OpenAI's Dall-E (n.d.), which is already working on its third version. And these tools do not solely create images, they can also create videos.

An example of how AI-generated videos can quickly escalate is the video of the Republican National Committee. In this video, AI-created images appeared with international and domestic crises that are caused if Biden is re-elected in 2024 (GOP, 2023). And even though the images are fake, the software makes it look very realistic to voters. AI-generated tools are used by artists, journalists, and

politicians, and might be used by even more organizations and individuals (Thompson, 2023). Although this study is not about journalists or politicians, this example shows how easy and convenient it is for people to use generative AI tools, and how images can be created that might be twisted or distorted compared to reality.

Up until now, AI has had difficulties in detecting human characteristics, such as empathy and emotion (Ore & Sposato, 2021). Thus, it can be assumed that, similarly, AI would have difficulties with expressing empathy and emotion when writing (Zhou, 2021), for instance, a cover letter as part of an application. This is crucial to consider, especially when both the applicant and the recruiters are using AI throughout the application process. It could be favourable that the applicant 'speaks' a similar language as the algorithm, and the applicant has a higher chance of getting invited. However, it could also be unfavourable, as the employees have fed the algorithm with their preferences in their language (Chen, 2023). Besides the algorithmic language that the AI tool speaks, most AI tools are trained with English datasets. The algorithmic language that generative AI tools speak is recognizable as it relies on statistical patterns in text rather than considering the actual meaning of words and how to use those in sentences (Knight, 2022). Consequently, people whose languages are different from English could be deprived (Budhwar et al., 2023). Thus, generative AI presents opportunities for content creation – e.g, text or video – but raises also concerns about misuse and reality distortion. As the output quality increases, AI usage is likely to become more and more common in processes such as job applications, and algorithmic language nuances for both the applicant and the organization should not be underestimated.

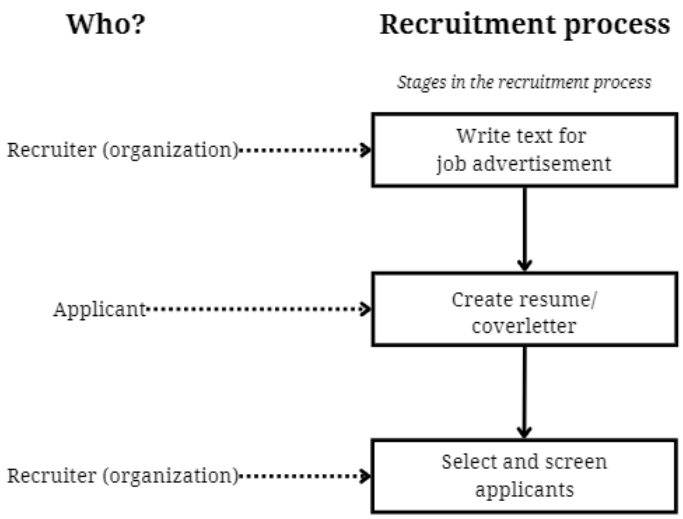
2.3. AI within the first phases of recruitment

The previous subchapters indicate the likeliness of organizations or applicants using AI somewhere along within the recruitment process. This likeliness potentially increases, as during the past years, a tremendous shift within the process by which employers find and hire new employees has taken place. Where it used to be through reliance on current employees to spread the word regarding a job opening or publishing job advertisement in newspapers, nowadays, all information on job openings of organizations can be found on online technology platforms, such as social media or Google (Kim, 2020). Recruitment is an area where AI can be easily used due to its wide applicability in different stages, which have been briefly described before. In this subchapter, we will dive further into the areas where (generative) AI can be used. Three areas in the recruitment process where AI can be applied are the writing of a vacancy text by an organization, the writing of a cover letter or a resume by an applicant, and sequentially, the screening of applicants by an organization (Figure 1). Even though these steps have been executed by humans for a long time, due to recent developments, these tasks

have been getting easier and more efficient due to the use of AI tools. An example of a tool is MyInterview (n.d.), which focuses on the professionalism and authenticity of applicants during video interviews. All tools contribute to hiring managers and talent acquisition specialists, who do not have to screen entire piles of resumes or cover letters and to job seekers, who receive a faster response to their applications. As O'Brien (2019) wrote on LinkedIn, language selection has an impact on every part of the hiring process, either on how the organization describes itself or the tone that is used by candidates. An example is that the applicant replicates the tone that is used by the organization in a vacancy text. In the following, we will further dive into the different stages of the recruitment process (Uggerslev et al., 2012; Abdul et al., 2020).

Figure 1.

Actors Involved in the First Stages of the Traditional Recruitment Process



2.3.1. Step 1: Writing a vacancy text using AI

The first step in attracting new employees is having a vacancy text available that is appealing to job seekers. The job description should be labeled in a certain category, list the required skills, and it should be posted on websites (Van Inwege et al., 2023). Most recruiters get acquainted with this task over time, however, in a tight labour market, it should be as appealing as possible. Moreover, recruiters do not solely have one position that they need to fill, but more at the same time. So, writing an attractive vacancy text can take up some time and is, at the same time, a task that can be easily replaced by using an AI tool. An example of such a tool is the job description generator of Recrooit (n.d.). Here, hiring managers or recruiters must fill out a job title, general information regarding the company, a few keywords, and finally, a few perks of why a job seeker should start working at the company. However, there are also other tools that can be used to ensure that the text is inclusive.

Textio (n.d.) is a tool that uses AI within its augmented writing platform to give recruiters and hiring managers guidance on which language is most effective to use in vacancies. Here, the importance of language selection is shown. Textio helps to remove bias in job posts by filtering exclusive and inequitable words out of a text. Many publications have written about how certain words are more appealing to men, or that the use of other words reduces the number of women that apply. An example on LinkedIn regarding masculine words that are used in vacancies is “assertive”, “competitive”, or “dominant” (Kolt, 2017). On the contrary, words that are associated with female stereotypes are “support”, “interpersonal”, and “understand” (Gaucher, Friesen, & Kay, 2011). When words such as “aggressive” are used in vacancy texts, 44% of women and 33% of men are discouraged from applying to the organization (O’Brien, 2019). Further, besides the use of such words, the company that offers the job opening also matters. For example, a male-dominated organization has a greater tendency to use masculine language in its job advertisements as well (Gaucher, Friesen, & Kay, 2011). This also accounts for male-dominated occupations.

Requirements that are deemed of importance within job advertisements are, for example, education, experience, skills, certification, language skills, physical requirements, background checks, availability, personal qualities, and legal eligibility (Lukauskas et al., 2023). When employers clearly indicate the requirements for a job, recruitment procedures become more efficient.

In sum, it could be argued that there are many AI tools available to support recruiters in their tasks and responsibilities, such as writing a job advertisement. However, it is important that these AI tools are attractive, unbiased, and contain all elements that are relevant to the job to attract the right candidate.

2.3.2. Step 2: Writing a cover letter or resume with AI tools

Within most organizations, résumés serve as a sort of gatekeeper to the professional world (Fillenwarth et al., 2018). This is not without a good reason, as résumés include information regarding the applicant’s background – education, skills, previous work experiences, or volunteering activities. The pieces of an applicant’s background together form a puzzle that needs to be communicated to an organization. That is the crux of the matter because employers draw inferences based on how the information is presented to them, which might or might not lead to a job interview (Van Inwegen et al., 2023). Similarly to purchasing decisions, better writing can help a reader, or in this case an employer, to make better decisions (Van Inwege et al., 2023). Adding to this, recruiters judge applicants based on whether typographical mistakes are present or not (Hong et al., 2021). The way applicants present information to them is thus of importance.

In the tight labour market that we are currently in, applicants can use generative AI to optimize the writing of their cover letters efficiently. They can use AI tools to get a summarized overview of information from all sorts of databases. Lots of employment agencies or vacancy sites, such as the Dutch Randstad or Indeed, have published articles on how to write a cover letter (Randstad, n.d.). Furthermore, the Internet is full of examples of how to write such a letter, or how to avoid frequently made mistakes. A generative AI tool, e.g., ChatGPT, has access to all these websites that are filled with useful information. Rather than consulting these websites themselves to find relevant information, applicants can ask ChatGPT to write a cover letter for them, considering all the data that can be found online. Thus, AI summarizes all the information online regarding the writing process of a cover letter and repacks this into a general format that is ready to use (Budhwar et al., 2023). In this case, a formatted cover letter that is ready for application. And, not unimportant, ChatGPT can reproduce the information in such a manner that it is similar to a native English speaker (Budhwar et al., 2023).

In addition to this, there are more generative AI tools that can be used to either write cover letters or resumes. An example is CoverLetterWrite (n.d.), where people can use an AI assistant to personalize their motivation letter to the company's needs. Users only need to enter the link to the job post and their relevant experience, and a cover letter is written. Another example is the AI Resume Checker (n.d.), where AI provides a free review of one's cover letter, including personalized tips for improvement.

The other side of the coin is that using (generative) AI tools comes with a risk, which is reduced authenticity or maybe even plagiarism. Plagiarism can be defined as "the uncredited, knowing, and sometimes wholesale adaptation of work that is not one's own" (Fyfe, 2023, p. 1396). Through online access to information, it is often very tempting to plagiarize information. As described before, generative AI tools such as ChatGPT rewrite the information that is online available. This means that it is hard to detect from which source information has been gathered since no references have been added.

However, not all (generative) AI tools are focused on producing entire letters or resumes. There are also AI tools, such as Grammarly, that aim to provide suggestions to improve someone's letter. Grammarly does this by underlining words and phrases that are spelled wrong or used incorrectly within a sentence (Van Inwege et al., 2023). However, tools such as Grammarly do not solely look for spelling mistakes, but also for the presence of nonstandard phrases, commonly confused words, or capitalization.

Thus, it can be concluded that the way applicants present information in their cover letter or resume is an important rationale for employers to invite an applicant. To increase invitations, applicants could consider the use of (generative) AI tools. These tools can either help to write or structure resumes or cover letters, or they can be used to reduce typographical or grammatical errors.

2.3.3. Step 3: Screening and selection of applicants

Many articles write about the usefulness of AI in the pre-selection stage and the evaluation stage during job interviews (Hunkenschroer & Luetge, 2022). And this is not ungrounded, since companies receive between 20 to 200 applicants for every vacant position (Tsiskaridze et al., 2023). During this reviewing process, algorithms are often applied (Zhang & Yencha, 2022). The challenges and trends that are currently present within the labour market motivate companies and recruiting professionals to experiment with new application channels, for example, attraction bots (Koivunen et al., 2022). An attraction bot is a tool that sends someone's contact information and a few details to a potential employer, aiming for an applicant to show their interest (Koivunen et al., 2022). An example of such an attraction bot is Mya (Stepstone, 2021).

One of the tools that has been developed within e-recruitment is chatbots. A chatbot is able to answer general questions regarding the employer, job requirements, and application procedures (Schildknecht et al., 2018). In general, chatbots are increasing efficiency and performance, it is a service that is always available and without delays, and it is easy to use (Koivunen et al., 2022). Using a chatbot has a few advantages for organizations. Since the chatbot uses human-like languages and cues, end-users perceive the chatbot as human-like and as someone whom they can build an emotional connection with (Araujo, 2018).

Often-heard arguments about why the use of AI is debated within organizations are related to its opaque nature regarding decision-making and its fairness and effectiveness (Kellogg et al., 2020). This was also identified by Parent-Rocheleau and Parker (2022), who described it as transparency and fairness. Transparency encompasses for example the reasoning behind an algorithmic system for a particular task ('why'), whereas the 'how' explains the steps an algorithm takes toward a certain decision more comprehensible for end-users (Parent-Roucheleau & Parker, 2022). But first, we will dive further into the topic of opaqueness. Kellogg et al. (2020) mentioned three reasons why algorithms are considered opaque, of which two are deemed relevant for this study. These are intentional secrecy and require technical literacy. It is known that algorithms are being fed with data, however, the data that is used is often exclusive and not disclosed to other parties (intentional secrecy). Further, in the case of organizations, employees are mostly unaware of which data is collected about them and how this is being used (technical literacy) (Kellogg et al., 2020). Translating algorithmic opaqueness to recruitment professionals could mean that recruiters cannot rely on their own understanding of why certain applicants have been selected and others have not. In other words, an AI tool is opaque in terms of how it evaluates the applicants. This opacity is also emphasized by Burrell (2016), who states that there could be a mismatch between the mathematical procedures of algorithms and the training data,

and the semantic interpretation of humans. So, there might be a disconnection between the way algorithms work, the data they use, and how recruitment professionals make sense of the results, ultimately leading to misunderstandings or errors in the interpretation of the outcomes. Consequently, the algorithmic recommendation of the AI tool can lead to employees' resentment toward the tool as they do not understand how recommendations are made (Kellogg et al., 2020). Especially regarding the sensitive topic of recruitment, it is important to have insights into how algorithms operate as applicants must be declined based on certain grounds. Secondly, there are different arguments regarding the fairness and effectiveness of AI tools. Fairness is the extent to which decisions that are made by AI tools are perceived as fair. This will be further elaborated on in Section 2.4.1.

Artificial intelligence can work through a pile of cover letters a lot quicker than a human employee could. AI tools are fed with existing data that comes from an organization's e-HRM systems (Ore & Sposato, 2021). Feeding an algorithm is a highly labour-intensive process, as all outputs must be aligned with organizational needs (Budhwar et al., 2023). So, in essence, the organization is responsible for feeding the algorithm with information about its current employees. However, this could lead to a potential bias, as the perfect candidate could be out-of-the-box, or the vacant function could be entirely new in the organization.

2.4. Theoretical lens: sociomateriality

Technology plays an important part of our work-life, and can no longer be overlooked in most organizations. Similar to how public authorities relied on digital technologies to spread containment efforts during the pandemic, more organizations use technologies to simplify or efficiently deal with their work (Mora et al., 2021). Another example comes from the business domain where AI can lead to improved accessibility, efficiency, and cost reduction (Chen et al., 2023). So, AI can be viewed as a collaborator or as a replacement for an employee. Therefore, it is important to consider the interplay of technologies and humans rather than as separate units. In other words, treating AI and humans as distinct entities may introduce blind spots, which hinders a comprehensive understanding of their interplay (Orlikowski & Scott, 2008). There are without a doubt fundamental differences between AI and humans. For example, humans learn through experiences, whereas AI learns through data that has been provided to the algorithm, meaning they can only adapt within the scope of their programming.

Even though there are multiple well-known streams to evaluate technologies within organizations, Orlikowski's approach toward sociomateriality is considered to be the backbone of this study. Another known stream is Leonardi's work on sociomaterialty (2013b), who emphasized that the affordances and constraints are not inherent in the technology, but emerge through the interaction between the material and the social. In short, Leonardi's sociomateriality differs from Orlikowski's view,

as Leonardi seperates the social and the material as two distinct entities (2013b). As described earlier, blind spots could arise from this seperation. In this study, we argue that humans and AI are intertwined in the recruitment process. Therefore, the decision was made to use Orlikowski's perspective on sociomateriality.

In order to answer the research question, it is important to acknowledge the mutual shaping of AI and humans within the recruitment process. AI does not work independently from humans, their outcomes shape and are shaped by the actions and decisions of the other. Thus, sociomateriality helps us to understand the sociomaterial entanglements, which defines the implications for both the organization and applicants. Adopting a socio-material perspective is crucial to unravel potential challenges that emerge during the initial phases of AI usage in the recruitment process. Sociomateriality acknowledges the inseparability of technological and social elements, ultimately offering a more nuanced lens to identify and address the complexities that might be inherent in the integration of AI within this context. So, technology is not solely a tool that is used by people, but humans and technology exist in relation to each other (Orlikowski & Scott, 2008). Translating this to the recruitment process, sociomateriality helps us to understand how AI and humans constantly influence each other, shaping practices, perceptions, and outcomes for both recruiters and applicants. All in all, the sociomaterial perspective considers the relationship between the social and the material (Mutch, 2013; Heyder et al., 2023). An example of a technology that can be viewed through a sociomaterial lens is a smartphone. Rather than being a technological tool, the use and meaning of a smartphone are shaped by the social contexts in which they appear. Here, the social can be defined as elements that are related to human interactions, behavours, relationships, or cultural constructs (Orlikowski, 2007). So, the social includes the way individuals and groups communicate and collaborate, leading to shared meanings, norms, and practices. In the case of a smartphone, the way people interact has been influenced by smartphones. Rather than being at home and calling via a landline, people are expected to be constantly available via apps or social media. As a consequence, this might affect the work-life balance.

Material, on the other hand, is defined as physical objects, artifacts, and tangible components that exist in the environment (Orlikowski, 2007). However, it should be noted that materiality is not purely physical as it also consists of infrastructure or digital entities, such as enterprise applications that are used within organizations (e.g., CRM or ERP (Enou.Co, 2022)). In the case of a smartphone, the material refers to the hardware and the apps that are on the phone. The available apps reshape the way people interact with each other. This reflects how material can also be social, as it changes the social context.

From a human-centred perspective, the focus is on how humans perceive and interact with technology (Orlikowski, 2007). Within this perspective, the technology sort of fades away. Then, there

is also the techno-centric perspective that poses technology as a dynamic force that shapes organizational practices and structures (Orlikowski, 2007). However, based on a sociomaterial perspective, we view (generative) AI tools not solely as segregated technologies, but instead as integrated components of socio-technical systems. AI can be considered social as it is a product of human design and interaction. AI is also viewed as material, as it is a digital infrastructure. In total, human-AI collaboration influences the way people work within organizations and shapes social interactions. Thus, the social and material aspects of understanding technology in societal or organizational contexts are related to their inseparability (Orlikowski, 2007). Rather than viewing technology as a sole object, it is intertwined with social practices, human agency, and the broader environment in which it is used. For example, an AI tool that is used during the recruitment process is developed, managed, and operated by humans. This means that human biases or interpretations could influence how these technologies are developed or are being used within the organization. Another example is the broader environment in which technology is being used. Economic conditions, such as a recession, will likely affect the recruitment strategy, which, in turn, affects the use of an AI tool.

So, AI tools are not seen as a single artifact, but rather as something that is intertwined in the recruitment process, as integral components of broader socio-technical systems. Or, as Orlikowski views it, the development of technology is shaped by human actors who assign a variety of meanings to it, and utilize various features of it (Bras et al., 2016). In other words, an individual or an organization can use similar technologies, but as the social context differs, it can lead to different outcomes.

In the initial steps of the recruitment process, one could argue that generative AI tools are deeply embedded in the social and institutional contexts. Nowadays, technology is entrenched in people's lives and within organizations. Living without any technology would mean that someone must live extremely isolated. In most organizations, technologies are inevitable to execute jobs or for companies to operate (Manyika & Sneader, 2018). Technology helps us to communicate with people and organizations around the world with phones, computers, and the Internet. In the Western world, educational institutions are highly dependent on technologies for teaching, research, and administration (Singer, 2023). These examples show the extensiveness of how technology is intertwined into our lives. Or maybe, in the line of Orlikowski and Scott's (2023) reasoning, technology functions as something in higher spheres or as a veil that directs the world we live in. For example, AI can be seen as a technology that advances human potential. Whereas recruiters spend hours screening and selecting applicants, an algorithm can perform the same task in only a few minutes. Rather than looking for information on how to write a cover letter or what to put on your resume, AI provides us access to an abundance of information and knowledge, only by entering a few prompts.

The use and development of (generative) AI tools are co-constructed by both technological potential and social practices. This was also described in Leonardi (2013a, p. 60), namely that "there is no social that is not also material, and no material that is not also social". This sentence can be interpreted as multifold. It shows that the social and material are always linked, as they work together and imbricate each other. Further, it refers to how objects, or materials, have meanings in our society. For example, a door is not just simply wood, it also represents safety or as something to keep cold out of our houses. In the same line of reasoning, AI is not 'just' software, but it is a way of how we communicate and interact with each other. For example, the cover letter of an applicant is an 'affordance' of the AI tool that has been used to compose it. From an organizational perspective, a vacancy text that is composed by an AI tool is also an 'affordance'. Additionally, the environment that we live in potentially affects how we interact with technology. For example, when people around an individual use AI, it is more obvious that the individual would use it as well. Or, on a more superficial level, having access to the Internet is an undeniable prerequisite to using AI. Thus, generative AI tools influence how people work and interact. Consequently, AI tools are shaped by the needs and practices of their users.

In addition, AI tools and the social context within which they are used mutually shape each other, meaning that technology and organizations co-constitute each other. In other words, one would not be possible to use without the other (Schaupp, 2022). So, without a social context, the utilization of AI tools would be unattainable, and vice versa. The design, implementation, and usage of AI tools influence the way organizations or applicants function, while their practices, norms, and values also shape how generative AI tools are deployed (Orlikowski, 2007). On the one hand, the design and possibilities of generative AI are influenced by societal needs and preferences, e.g., quickly working through a pile of cover letters, whereas on the other hand, generative AI also shapes how tasks are performed and how information is generated in a social context, e.g., the selection of applicants. This enhanced efficiency is one way in which AI generates value. In all steps, using AI leads to time savings. It is quicker to enter a few prompts than to write an entire text. Further, it generates value by optimizing available resources. Using an algorithm to speed up data processing, in the case of resume screening, is an example of resource optimization, which in turn, leads to value creation for the organization.

When applying a socio-material lens to AI tools, it becomes clear that tools impact the recruitment process in different phases experienced by different people. This impacts the workflow of both the recruiters and the candidates, and consequently, how they interact with one another. However, this can raise ethical questions regarding the fairness and transparency of AI tools. AI is often considered to be opaque in its decision-making process, which ultimately influences perceptions of fairness (Kellogg et al., 2020). Using (generative) AI tools makes them become integrated into social

and organizational practices, for example, within recruitment departments or job seekers, and both intended and unintended consequences may emerge. An example of an intended outcome is a more efficient screening process of applicants for organizations. An unintended outcome might be that applicants turn out to be different than expected. These expectations could be set based on the cover letter or resume they presented that is produced with the use of a generative AI tool.

In conclusion, the integration of AI tools into the recruitment process reflects the inseparable relationship between the social and material elements. The sociomaterial perspective of Orlikowski and Scott (2008) emphasizes the interplay between human actors and technology. Applying this perspective on AI tools in the recruitment process, AI tools are not viewed as isolated artifacts but rather as integral components of broader socio-technical systems. This research adopts a socio-material perspective to understand the intertwined relationship between AI tools and the social practices of recruiters, applicants, and organizations as a whole. The consequences of using AI in the different phases of the recruitment process are not solely determined by the AI tool itself but are also influenced by how it is embedded in social contexts, organizational workflows, and individual behaviours. Ultimately, this learns us that the social practices of recruiters and applicants are inseperably intertwined with AI tools. So, not only the AI tools, but also the behaviours of humans can be understood seperately. The way recruiters and applicants engage with AI tools affects how it functions, and in turn, AI tools shape recruitment practices. If we view this through Orlikowski's sociomateriality lens, this means these sociomaterial practices have implications for organizational processes. An example of this implication in organizational processes can be seen in the third stage, 'Screening and selection of applicants', where AI tools can either mitigate or aggrevate biases. Ultimately, this could influence the overall fairness in the recruitment process.

2.4.1. Sociomaterial consequences: the algorithmic bias

The opaque nature of algorithms has been briefly described (Section 2.3.3.). Building on this opaqueness, is the presence of biases in algorithms, starting in the very beginning of the recruitment process. An example is the language bias of employees that seeps through the input for a job advertisement. A tool that can help reduce biases is Textio. This tool helps to remove bias in job posts by filtering exclusive and inequitable words out of a text. It is important to acknowledge biases in the beginning steps of a hiring process, to ensure that certain classes end up being underrepresented in an organization (Bigelow & Anderson, 2020). However, each organization has its own tone of voice. It is debatable to what extent an AI tool is able to deliver the same tone. Besides that, candidates might try to adapt their resumes desirably for the AI system by replicating certain words or sentences in their documents. The other side of the coin is that applicants do not get invited because they do not

correspond in the same language as the AI system. So, either way, an algorithm could potentially lead to favourable or unfavourable outcomes for an applicant.

There are multiple ways of looking at the fairness of algorithmic decision-making. The most common and accepted elements of algorithmic fairness are the absence of bias and discrimination (Nurski & Hoffmann, 2022). On the one hand, algorithms could diminish human biases, as they increase the objectivity, consistency, and fairness of decisions (Köchling & Wehner, 2020). On the other hand, there is a risk of discrimination and unfairness if organizations purely rely on algorithms. This risk increases when algorithms are trained with inaccurate, biased, or unrepresentative data (Köchling & Wehner, 2020) (Table 3). In turn, the algorithms reproduce these biased decisions (Kharbanda & Mukherjee, 2023). This is exemplified by the case of Amazon. The organization tried to create an algorithm to find the best candidates based on the performance data of the company. However, the algorithm kept delivering male candidates, meaning that there were no equal opportunities for men and women (Dastin, 2018). Last year, a bill in Colombia was introduced, requiring companies to audit algorithms for patterns of biases (Council of the District of Colombia, 2023). However, algorithms are often seen as a 'black box' (Manríquez Roa & Biller-Andorno, 2023), which makes it hard to unravel the patterns. Important to note is that algorithms usually trained with historical data.

Table 3.

Known Biases in Algorithms by Köchling and Wehner (2020)

Bias	Example
Historical bias	Pattern in employment data that contains more white men then Latino men
Representation bias	Groups or characteristics are underrepresented or overrepresented: less females than males in the data
Technical bias	Unequal treatment of different groups under important conditions
Emergent bias	Changed societal knowledge, population, or cultural values, usually a mismatch between users and system desingers

When a recruitment department uses algorithms, they are inherently being exposed to certain risks. These concerns are legitimated by Zhang and Yencha (2022). For example, employees must feed the algorithm. Their personal biases could be implemented in the algorithm. Or, when an organization wants to embark on a new path and tries to become more diverse, there could be a representation bias in their existing employment data. Other common biases of HR employees are the confirmation bias, the halo effect, the stereotyping bias, the in-group bias, the status-quo bias, the peak-end rule, and the order effects (Thomas & Reimann, 2023). These biases might seep through the AI tool, which eventually might lead to inequalities within organizations. Examples of inequalities are differences in offered salaries or retention rates (Salem et al., 2022). The previously mentioned biases exemplify how the social- human biases – influence the material – the training data set of the AI tool –, which again influences the social – being the outcome on whether to hire or not, for example. This is supported by

Kelan (2023), who also states that algorithmic bias can be seen as “a function of how technology and society are mutually constitutive” (p. 3), as societal interactions shape the development of technologies, which in turn, affect the range of possible social interactions. So, it can be concluded that the social and the material are intertwined, and how an action within either the social or the material has consequences.

So, investigating the sociomaterial implications of AI tools for applicants and recruiters will learn us how these tools reshape the social context, behaviours, and, ultimately, the organizational process. ‘Organizational’ does not solely refer to the specific organization for which a recruiter is working, but rather encompasses the entire job application process. Through Orlikowski’s sociomaterial lens, we gain insight into the interaction of human and technological practices, and the potential implications this might have on the future of recruitment. Thus, following Orlikowski’s perspective, this study will look further into the implications and practices of AI use in the recruitment process.

3. Methodology

3.1. Research design

This study uses a qualitative research design to gain an in-depth understanding of the sociomaterial concepts that might influence recruiters and applicants throughout the different phases of the recruitment process (see section 2). The studies that have been employed for this research are mostly qualitative, with a focus on the employer's perspective, or quantitative (Lacroux & Martin-Lacroux, 2022; Budwhar et al., 2023). The qualitative nature of such studies leads to a more in-depth understanding of the role of AI in recruitment (Hewage, 2023). However, those qualitative studies have mostly concentrated on gathering insights from the viewpoint of employers and organizations. In summary, studies have primarily relied on either qualitative methods that focus on the employer's or organizational' viewpoint, or quantitative methods, which means that certain aspects might have been overlooked. Therefore, this study will add to existing studies, as it incorporates a qualitative design, including both the employer's and applicant's perspectives.

In this study, the choice was made to use a qualitative research design in the form of a vignette study combined with in-depth interviews. In a vignette study, carefully constructed and realistic scenarios are presented to the participants (Aguinis & Bradley, 2014). Vignettes are seen as a way to gather more data than solely a traditional data collection technique, such as surveys or interviews, as they provide additional insights that otherwise may not have been obtained (Chen, Hsu, & Pearce, 2021). Further, vignettes are known to be more realistic and less abstract than ordinary survey questions (Steiner, Atzmüller, & Su, 2017). Like Park et al. (2021), scenario-based design is used in this study to illustrate how certain scenarios can be explained. For this study, scenario-based design in the form of vignettes gives individuals a background understanding of AI tools. Further, this design helps researchers to analyse the opinions, beliefs, and attitudes of participants (Park et al., 2021). The study at hand is a paper people study. This means that the focus lies on the responses of the participants to hypothetical scenarios (Aguinis & Bradley, 2014). In business studies, vignettes are used to study the ethical behaviours of managers or to investigate how different ways of presenting decisions influence trustworthiness (Norskov et al., 2020). Additionally, vignettes have also been used by social and health researchers to explore topics such as pre-natal HIV testing, mental health problems, or childhood immunization (Jackson et al., 2015). Vignettes are "descriptions of situations or problems and can take the form of textual descriptions, audio and/or visual representations" (Pennings et al., p.5). A more convenient definition of vignettes is that they can be defined as descriptions of imaginary situations (Jaspers et al., 2022). According to Jackson et al. (2015), vignettes can help to bring structure to interviews but they also help to provide an in-depth understanding as certain responses can be further discussed. In the case of AI tools within the application process, vignettes are especially helpful as

certain values, decisions, and judgments are shaped by context rather than existing in seclusion (Jackson et al., 2015).

The quick evolvement of AI tools is another reason that supports the use of vignettes in this study. In a vignette study, participants are presented visual stimuli – in this case videos of AI tools – to gather their perceptions and attitudes. In this study, the vignettes are short videos found on YouTube that show how an AI tool can execute a certain task and depict the interactions between applicants or recruiters and AI tools, which in turn shows the participants how these interactions influence the recruitment process. The advantage of video vignettes is that a scenario becomes visible and contains more contextual information (Chen, Hsu, & Pearce, 2021). Typically, participants are confronted with more than one vignette to elicit their views (Atzmüller & Steiner, 2010). This aligns with this study, as participants view three different vignettes. Further, the study has a within-subject design, as each participant judges the same set of vignettes (Atzmüller & Steiner, 2010). Video and audio are one way in which the realism of vignette studies is increased (Aguinis & Bradley, 2014). Moreover, video vignettes contain "information-rich stimuli to elicit responses" (Chen, Hsu, & Pearce, 2021). In addition, short video vignettes are seen as more engaging than conventional interview questions (Steiner, Atzmüller, & Su, 2017). Their perceptions and attitudes are shaped by the functionality of the AI tool and the social context, such as norms within the recruitment process, which reflects the sociomaterial entanglement of the participants and the vignette. An example of such a norm could be that job applicants have equal opportunities (Netherlands Enterprise Agency, n.d.). Participants' perceptions, in turn, could shape the use and perception of AI tools. In short, given that participants may lack understanding of how certain AI tools operate, vignettes serve as a way to grasp this understanding. By viewing the videos, they get a better comprehension of both the functionality of the different AI tools and the interplay between technology and humans that can influence the recruitment process. Further, it can be argued that the videos that participants watch are 'material', whereas the shared meanings and interpretations of participants can be considered as 'social'. Thus, the implications of AI use in the recruitment process can not only be viewed through a sociomaterial lens; the research method of this study can also be explained via this perspective.

3.2. Data collection

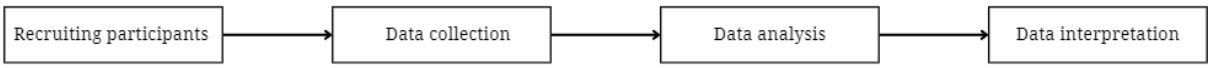
3.2.1. Sample

The research process consists of different steps, including the recruitment of participants, the collection of data, the analysis, and finally, the interpretation of the data (Figure 2). The recruitment of participants is an iterative step. This is important because it could be that already interviewed participants come up with new, potential participants that will be included in the sample

as well. This procedure is also known as snowball sampling. An advantage of snowball sampling is that the researcher has access to individuals that otherwise remain inaccessible (Woodley & Lockard, 2016). The decision to do so is made because recruiters and hiring managers often have a larger network of individuals with likewise professions. In this way, their network can be recruited as well.

Figure 2.

Sequential Research Steps



Two sampling strategies have been used to gather participants, being (1) purposive sampling, and (2) snowball sampling. First, a purposive sampling strategy was used, including specific inclusion criteria. The reason for purposive sampling is that the sample better matches the aims of the study, which ultimately leads to better data outcomes (Campbell et al., 2020). For this study specifically, it was important to use purposive sampling, as participants need to be involved on either the applicant or recruiter side. Therefore, individuals within the researcher's network have been contacted. Secondly, people were targeted via LinkedIn. Nowadays, many people share that they have found a new job, which made it more convenient for the researcher to find those individuals. Further, most people have indicated their profession on their profile, which made it also easier to find recruiters to reach out to.

Within the sample, two groups can be distinguished. The first group consists of the recruiters. They were eligible for inclusion if they (1) are currently working as a recruiter, and (2) have knowledge of or have worked with a (generative) AI tool, such as ChatGPT. The second group is the applicants. They were included in the study if they (1) have searched for a job in the past two years, and (2) have knowledge of or have worked with a (generative) AI tool. Besides that, the aim was to gather a broad perspective, and therefore, not too many inclusion criteria are important. To answer the research question, the goal was to conduct a minimum of fifteen semi-structured interviews. The sample of this study consists of 18 participants. A short description of the participants can be found in Table 4. Initially, the goal was to have a 50/50 spreading of participants who are recruiters and who are applicants. This would mean that an equal amount of people had to share their perspectives regarding AI in the first stages of the application process.

Table 4.

Demographic Profile of the Participants

Participant number	R/A[1]	Gender[2]	Age	Industry	Role
1	A	M	22	Technical	R&D engineer assistant
2	A	F	26	Measurement devices in food and medical	Content marketeer
3	A	F	27	Health/hospital	Research employee
4	R	F	25	Food and beverages	Recruiter
5	R	F	32	FMCG	Talent Acquisition Lead
6	R	F	22	Food and beverages	Talent Acquisition Intern
7	R	M	43	ICT Consultancy	Chief Technical Officer[3]
8	A	F	25	Education and health sciences	Scientific teacher
9	R	F	23	Job placement	Marketing & communication employee
10	A	M	27	Energy	Enterprise architect
11	A	M	27	Online retail	Data engineer
12	R	F	45	Production industrial machines	Corporate recruiter
13	R	F	32	Job placement	Recruitment manager
14	A	M	26	Education	Financial trainee
15	A	M	24	Production industrial machines	Assistant business developer
16	R	M	23	Non-profit	Recruiter
17	A	M	24	IT	Data specialist
18	R	F	28	Insurance	Young professional recruiter

[1] Recruiter (R) or applicant (A)

[2] Gender: male (M), female (F), non-binary (X) or prefer not to say (U)

[3] In his role, he interviewed over 100 people in the past seven years

3.2.2. Procedure

This study has a semi-structured nature. This means that part of the interview was structured, and a part of the interview depended on the answers the participants gave. In general, the interview consisted of four parts (Appendix A). These four parts were a general introduction to the study and, consequently, the three phases as a separate part. The interview started with further information about the study, and verbal and written consent was obtained (Norskov et al., 2022). First, a short

explanation of the study was given and more information on the structure of the was provided. Like the study of Lacroux & Martin-Lacroux (2022), the procedure started with the participants answering a series of questions regarding their socio-demographics and professional career, and their experiences with the recruitment process. The first part ended with open-ended questions regarding AI in general, and the extent to which the participant is currently using AI, and more specifically, within the recruitment process. This aligned with the procedure of Horodyski (2023), who asked questions related to the (professional) experience with the use of the AI tool, such as the type of AI tools that they have used. This is similar to the people EVM study of Raaijmakers et al. (2014), who first presented information on the topics involved in the study as a background for the participants.

Then, the next parts of the interview started. Each time, a different vignette was presented to the participants, covering the topics of Section 3.3 (Appendix B). In Table 5, a short description of the vignettes can be found. So, in the first round, recruiters were presented with a vignette that describes a situation of whether they have used AI to write a job advertisement. For the applicants, the first round consisted of a vignette of whether they have recognized AI language within a job advertisement, or other sorts of specific languages (e.g., masculine language). In the second round, recruiters were presented with a vignette describing a situation of whether they have experienced applicants using AI to write their cover letter or resume, and what their thoughts were if applicants would do this. Applicants were asked whether they have used AI to write a resume or cover letter, and why (not). For the final round, recruiters were asked whether they have experience with an algorithm that helps them screen and select participants. After reading the vignette out loud, the participants were asked follow-up questions to get a deeper understanding of their thoughts and feelings regarding the topic. At the end, participants were asked whether their opinion regarding the use of AI tools during the application process has changed and whether they have other questions or remarks regarding the topic. This included questions regarding the advantages and disadvantages of AI tools (Horodyski, 2023).

Table 5.

Description of the Vignettes

Phase	Vignette	Description
Write a vacancy text	Textio (n.d.)	Online tool that helps to write a job post for you. It highlights harmful language like gender bias, age bias, able-ism and jargon, and suggests better alternatives. Every job post is scored to product who will apply. The higher the score, the more appealing the job ad is for women and people of colour.
Write a cover letter/resume	ChatGPT	Applicants can copy and paste the vacancy in ChatGPT and prompt to write a cover letter based on this vacancy. Then, they can also copy and paste their own LinkedIn-profile. These two combined result in a cover letter that can be used to apply for a job.
Screen and select applicants	ATS	Recruiters determine the words that should be present in an applicant's cover letter or resume. These words are related to work experience, education, qualifications, and skills. When an applicant applies, the document is scanned by the ATS and rated based on the number of words that matches with the criteria of the recruiter. At the end, a top of applicants becomes visible for the recruiter.

3.3. Data analysis

The data was analysed according to the procedural steps for template analysis, as described by Brooks et al. (2015). Before the data collection, an *a priori* approach was used to create codes based on themes that have been found in prior literature (Connell et al., 2021). This aligned with the writings of Gioia et al. (2012), who emphasized that terms, codes, and categories emerge early in the research. In total, this led to 13 codes and 68 subcodes. These *a priori* codes can be found in Appendix D. Additionally, a short definition of the code has been added. As can be seen, one code consists of the phases within the recruitment process as subcodes. Other examples of how codes have been defined from the theoretical background are the third and fourth codes, which show how the social or the technical of sociomateriality are present in the interview. This is important, as sociomateriality is the theoretical underlining of this study.

The data collection started by conducting the interviews. The interviews were transcribed using Amberscript. Then, the second step was executed, as described by Brooks et al. (2015). This was done by printing four interviews and highlighting important themes and concepts and drawing relations between themes. While reading through the interviews, core thematic concepts were identified, such as loss of authenticity. In this way, the researcher got familiarized with the answers of the participants. The way of working helped with the fourth step, which aimed to organize the themes that have been found into meaningful clusters. This is known as inductive coding (Connell et al., 2015).

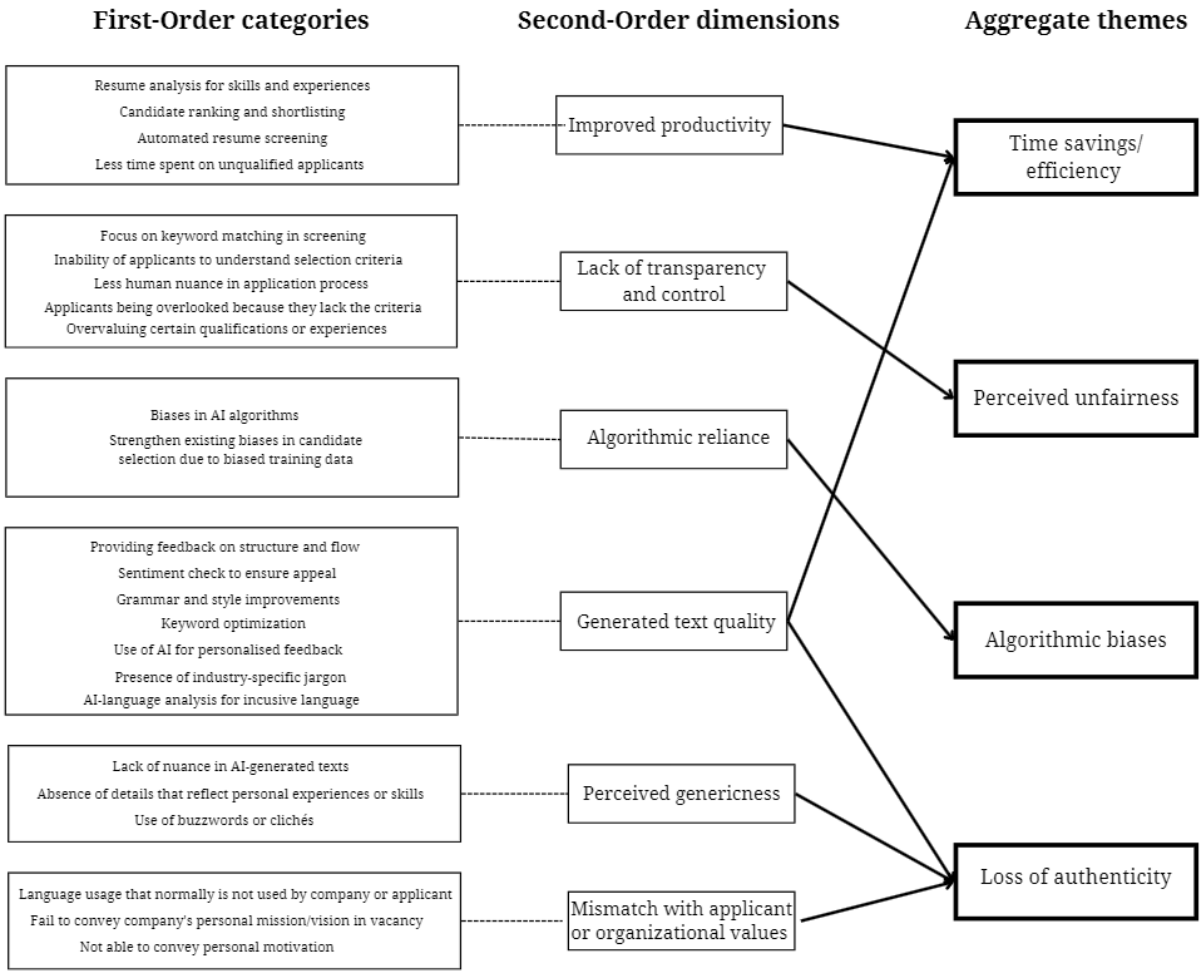
Based on these outcomes, the initial coding scheme was further developed (step 5). This coding scheme included new categories, combined categories, or deleted categories compared to the *a priori* coding scheme. The changes were mostly related to concepts that were not presented in the initial coding scheme. For example, more reasons why AI is used are added in Code 5, 'Reasons to use'. Related to psychological and emotional factors is trust, but also a lack of trust in AI leading to a new subcode. The subcodes belonging to 'Recruitment processes' were incomplete, as some recruiters mentioned more tasks than others, leading to more subcodes. Furthermore, new codes were added related to the frequency of using AI tools during the application process, in general, and at work/study. Besides asking the reasons why people would use AI, a new code was added why people would not use AI. Another important change was a new code that indicates which AI tool is mentioned. This will eventually create a simplified overview of how certain AI tools are being perceived, such as Textio. Ultimately, this axial coding process led to emerging concepts that helped to describe and explain the phenomena that were present in the collected data (Boeije, 2010; Gioia et al., 2012).

Then, the researcher continued to code the other interviews according to the new coding scheme (step 6). All interviews were coded by using ATLAS-ti software. Ideally, the image that was created by coding the interviews will lead to an image that shows the relationships between emergent concepts. More specifically, the emergent concepts will contribute to answering the research question. This research technique is also known as a template analysis. The initial coding scheme that was created is further revised and refined based on the available data (Brooks et al., 2015). In total, this led to a coding scheme with 26 codes and 165 subcodes.

A summary of the concepts and themes that were found in the interviews can be seen in Figure 3. A short description of the codes that were deemed relevant to answer the research question is described under 'First-order categories'. Taking these codes all together resulted in the themes under 'Second-Order dimensions'. Finally, the themes that are of influence when applying AI in the recruitment process can be found under 'Aggregate themes'. Appendix D highlights the codes and exemplary quotes that represent this structure. The four aggregated themes will be further discussed in the next sections.

Figure 3.

Data Structure with First-Order, Second-Order and Aggregate Dimensions



4. Results

The following section presents the findings of the study. Exemplary quotes of the participants are used to illustrate the key points. Overall, the analysis shows that participants are open to use AI and most of them actively try to engage with AI in their work or study. Some of them use AI on a frequent basis in their day-to-day tasks.

4.1. General perception and usage of AI tools

To start off the interview, participants were asked to give a description of AI. It is important to note that this description did not have to include anything related to HR, recruitment, or the application process. The comprehensiveness of the descriptions differed among the participants. When taking a broader societal stance, a similar division where some people know more about AI than others can be expected. Based on the depth of the participant's answers, a division came forward between people who know more or less about AI. This division is illustrated using quotes of two participants:

> *"Doing predictions or creating things or answering questions based on lots of data"* – Participant 8, applicant

> *"It is essentially a system that has been trained on specific input data, has formed a model from that, and can generate new output data based on instructions, using the data it was trained on. Nowadays, this often results in text"* – Participant 7, recruiter

Even though there is a clear difference in the descriptions of the participants, most of them perceived AI as smart, supportive, predictive, and self-learning. Thus, all participants managed to give a description of AI, and a majority could mention a few AI tools when asked to do so. ChatGPT was the most common mentioned tool by the participants. The other tools that were mentioned by participants were also dependent on their level of knowledge regarding AI. A few examples are company AI software, medical support tools, Grammarly, and AI assistance in existing programs, such as PowerPoint. An area where AI is applied more and more is the medical field. For example, to automatically detect deviations in imaging or scanning records of patients. Other reasons to use AI tools at work include generating texts, improvements in texts, and convert text to social media posts.

4.2. Current time spent of recruiters to write a vacancy text

The recruiters that participated in this study indicated that they spend quite some time on writing a job vacancy. In their text, they try to convey a message. The vacancy should entail all relevant information about the function, the requirements, and it should enthusiasm people. One of the participants indicated that this would cost about three hours. The time spent on writing a vacancy

varies between the recruiters[1]. The time spent increases even more when recruiters do not have inspiration or have trouble finding synonyms for certain words.

4.3. Potential time improvements when using AI: introducing Textio

Most participants had a positive attitude toward Textio. Both recruiters and applicants agreed that the time recruiters currently spend on writing a vacancy text could easily by automated by Textio. The benefit of automated writing by AI was especially seen in large organizations, as they often have a similar type of vacancy that comes frequently available. Besides being fast and efficient, recruiters were also positive to the inclusive language use of the tool. Without any effort from their side, an organization can still be perceived as inclusive. Another advantage that recruiters saw was that Textio includes SEO-marketing when generating a text. One of the participants elaborated:

> *"Well, I do see added value in this. Writing texts is one thing; you have an idea of what you want to write, and that needs to be put on paper. On the other hand, it's also about a good interplay of sentences in a convincing writing style, error-free, and things like that. It simply makes you more productive." – Participant 7, recruiter*

Even though there are lot of positive notes dedicated to Textio, there are some concerns. Both recruiters and applicants were concerned whether the own style of the company comes forward in the text. The potential loss of authenticity will be discussed later. All in all, it can be concluded that applicants and recruiters do see the benefits for an organization to use Textio – being increased efficiency and time savings-, but they are wondering if those benefits are not at cost of the authentic image of the organization that that posts the vacancy.

4.4. Current state of writing a cover letter or resume

During the interviews, it became clear that all the applicants that participated in the study wrote a cover letter next to handing in their resume. First, the relevance of cover letters was discussed. Recruiters in this study did perceive the importance of a cover letter differently. Both parties acknowledged that writing a cover letter can be a time-consuming task. This is especially the case when candidates apply at multiple companies. Both applicants and recruiters perceive the cover letter as a manner for an applicant to get at the table. One recruiter said:

> *"The goal of a motivation letter is to get you to the table; after that, you can have the conversation." – Participant 7, recruiter*

Some of the applicants indicated they used AI, whereas others did not think about this. It should be noted that those participants did use technologies during their application process – some of them decided to use Google to ask their questions. Besides the use of technologies, some also

[1] The years of experience of recruiters is not accounted for in this study.

referred to family and/or friends to help them by proof-reading their cover letter. One of the participants explained his choice:

> *"In addition, I relied on peer reviews from friends and family because they know me well. That's why I deliberately didn't use a tool, as it can make things very objective but may not provide an accurate picture of who I am as a person." - Participant 17, applicant*

4.5. Applicants' perspective in favour of using ChatGPT to write a cover letter

The AI tool in the vignette that was used in the phase to write cover letters was ChatGPT. Only one of the applicants indicated that they fully relied on ChatGPT to write their cover letter – meaning they performed the same actions as shown in the vignette. One other applicant created a document using ChatGPT and then added some personal touches.

The participants who did use ChatGPT did so for broadly two reasons, being (1) to give input on how to start, and/or (2) to proofread and give feedback afterwards. Some applicants combined the two reasons and added personal information afterwards in the text that was generated by ChatGPT. One of the participants explained his reason to use ChatGPT:

> *"Among other things, I used ChatGPT for my CV. It's particularly useful for that. If I've written a text and the wording I want to use isn't quite right, I put it into a tool and ask for five variations. Then I look at what I find interesting from those, decide if I want to use it, and ensure it fits my way of speaking." – Participant 1, applicant*

4.6. Participants' perspective against the use of ChatGPT

Not all applicants were in favor of using ChatGPT in the stage of writing a cover letter. Multiple reasons were given against the use of ChatGPT, being (1) mistakes in the generated text, (2) lack of authenticity, and (3) fear of getting caught.

First, some of the applicants feared that mistakes might end up in the generated text. Mistakes can be caused since ChatGPT is fed with data that can be found online. Everyone can publish things that might be untrue. Consequently, this can end up in the texts that are generated with ChatGPT. An example of such a mistake is wrong numbers or incorrect mission statements that are copied from websites that end up in the cover letter of applicants. Therefore, participants are also a bit reluctant to fully trust the outcome of ChatGPT.

Secondly, applicants are afraid that their text will become easily recognizable. This could either be because their personality does not get through or because the text is superficial. This also makes recruiters doubt whether asking for a cover letter makes sense if an applicant copies and pastes the vacancy into ChatGPT and hand in the output Or, ChatGPT can write sentences in a certain style or use

unconventional words, which makes it easy to detect for readers. One of the participants explained how she experienced this situation:

> "*Sometimes I do recognize it. […] A colleague had prepared something. And then I thought, you didn't write this yourself, this came from ChatGPT. And it turned out that I was right.*" - *Participant 2, applicant*

Thirdly, some of the participants fear that they are getting caught when they use ChatGPT to write their cover letter. And their fear is not unsolid. One recruiter indicated that she would perceive it as something negative when it was very clear that AI would be noticeable in an applicant's cover letter. Again, the fear can be partly attributed to the language proficiency of the tool. One applicant shared:

> *"I'm always afraid that a company that you're applying to would notice his. That it's written so perfectly. I find that nerve-wracking." – Participant 2, applicant*

4.7. Current state of screening and selection by recruiters

The third phase – the screening and selection of applicants for a job interview – was mostly done by the recruiters themselves. One recruiter indicated that their company was working on an AI selection tool, like the vignette that was shown in the study. Only one of the recruiters was already working with ATS, and elaborated on how the tool works within their organization:

> *"In the ATS we use, I specify 'this is what it needs to be,' then I provide some job titles, and we also always add job titles to a candidate's profile. When you do this, it automatically generates a top list of candidates who match and score well for that job." – Participant 9, recruiter*

The recruiters in this study reckoned that the screening and selection of applicants is a time-consuming task. Besides the time it takes them, they are sometimes also afraid of missing out on good candidates. Most of the recruiters think that it would help them if the screening process would (partly) be automated.

4.8. Foreseen challenges when applying AI screening and selection

In general, both applicants and recruiters had a quite critical view regarding the ATS. From the point of view of applicants, they would not be happy if their application had been screened using an ATS. According to them, employers decide the words that serve as selection criteria, and thus decide on who is going to be selected. For example, at some organizations, employees of a sales department are called 'account managers', whereas in other organizations, they are called 'relation managers'. One of the participants illustrated this:

> *"It's mostly a dumb tool. I understand the application, but it's essentially scanning the text and looking for words. If this word is present, it adds 1 point, but if these words are*

missing, it subtracts 6 points. […] It's possible that someone who does the same job but has learned different jargon might be filtered out if they don't use the specific words. […] So, I think the idea is nice, but the execution is questionable. It's just basic word searching."
– Participant 1, applicant

This concern is mostly related to the wording of the qualifications of applicants, and their fear of being automatically rejected if they fail to mention the specific word. When applicants were reviewed by a recruiter, applicants perceive this as less likely to happen as recruiters know different synonyms for certain job titles.

From the recruiters' point of view, they emphasized the efficiency of the ATS. Using an AI tool in this phase leads to a reduction of resumes that need to be screened by recruiters. However, one of the recruiters noted that using an ATS would be mostly beneficial in an organization that has many similar vacancies, or if vacancies become frequently available. If there are many different job openings that need to be filled, first, much time has to be spent on deciding which words should be used as selection criteria for the ATS. In the case of many distinct vacancies, initially, this leads to reduced efficiency. Recruiters wonder whether the time they spend on coming up with synonyms for job titles, skills, and qualifications is regained when they have to do this often for a function that is not open frequently. Besides frequent job openings, recruiters also see improved efficiency in the case of processing large volumes of applications.

4.9. A sociomaterial perspective on AI integration in the hiring process: the interwovenness of social and material aspects

To fully understand AI tools in the first phases of the recruitment process, it is important to understand how the separate elements, being social and material, influence AI tools. To ensure a greater understanding, first, the material aspects of AI tools will be discussed, and afterwards, the social aspects. This section will end by describing the implications of AI in the application process through the eyes of participants.

4.9.1.Participants' perceptions regarding the material aspects of AI

This section focuses on the material aspects of AI tools that are present during the application process, and the participants' experiences regarding this. Many technological elements of the material side are deemed irrelevant for this study and are therefore left out of this study. Examples of such elements are data storage and the hardware infrastructure. The material aspects that will be elaborated on in this paragraph are related to software- this is a material aspect of AI tools. The software on which the AI works is something that might be hard to embrace. To ensure

comprehensibility throughout this text, two elements will be considered, being (1) machine learning algorithms, and (2) training data. These two elements are present in the three tools that were used as vignettes in this study. However, a difference can be made between the generative AI tools Textio and ChatGPT on the one hand, and ATS on the other hand.

In the case of Gen-AI tools, neural networks are developed to process language. This is, on the one hand, the prompts that users send into the tool, and on the other hand, the responses to the prompts in the form of generated text. For example, in Textio, recruiters only have to give one or two words, and an entire vacancy text is generated by the tool. As this tool is developed to generate vacancies, no other prompts have to be given prior to text generation. Contrarily, in ChatGPT, applicants have to copy and paste the vacancy text and indicate with clear prompts what they expect from the tool. They can direct the outcome by giving clearer prompts, for example, to give variations for certain parts of the text. These neural networks to process language belong to the first element, machine learning algorithms. Two participants directly referred to machine learning algorithms, whereas other participants referred to language processing as described above. Additionally, participants indicated that they used ChatGPT as an information source, resulting in fully generated cover letters, variations, or just grammar checks on self-written texts.

Secondly, the training in data was also discussed during the interviews. Most of the participants were aware that GPT models are trained on massive datasets, consisting of texts, websites, books, articles, and prior inputs of people using AI tools. Consequently, the participants were aware that the tool's outcomes are influenced by how the dataset is trained. Especially in the case of Textio, it is important to consider how the data set is trained, since the tool proposes to generate text in the company's own style. One of the participants wondered:

> *"I think it is interesting how they generate the text, if they load a lot of text and that the model is trained based on those texts". – Participant 1, applicant*

4.9.2.Interactions between humans and AI: Social aspects of AI tools in the application process explained

Next to discussing the material aspects of AI, it is also important to consider the social elements of the use of AI tools in the application process. Examples of social aspects according to sociomateriality are human interactions, cultural constructs, shared meanings, shared norms, and shared practices. Once again, the social part of AI tools can be discussed endlessly in this part. However, the focus will be on four elements that were found during the interviews, being (1) communication, (2) knowledge, (3) job impact, and (4) cultural shifts. Again, it should be noted that these are not the sole social elements of AI tools.

To start, the way participants communicate with AI tools came forward. As stated earlier, recruiters only have to type one or two words to generate an entire vacancy text with Textio, compared to when they have to write a document themselves. The way recruiters interact with the tool is based on their needs. Besides the text that is written, Textio shares an overview of points where the text can be further improved. An example of an improvement is to make the text more inclusive. Using an AI tool alters the way people traditionally communicate. Instead of sharing knowledge with other people or retrieving information by asking someone else, AI tools enable a one-way process where humans can fulfill these needs by asking the AI tool. So, where recruiters used to ask their colleagues for feedback, the process of giving feedback is already incorporated into Textio.

Secondly, as ChatGPT always provides an answer – whether this is correct or not-, people perceive the tool as an authority in terms of knowledge. Even though this was not directly stated by the participants in this study, the actions performed by them confirm the participant's trust in the outcomes of the tool for grammar checks, translations, answer to questions, and inspiration. Whereas some of the applicants indicated they still used their relatives for feedback, many shared that they asked ChatGPT to check or write parts of their cover letter. Additionally, participants indicated that ChatGPT sometimes know what the participants themselves did not know. The phenomenon where someone understands what you are trying to say without explicitly stating what you want to say is known as 'shared understanding', a communicative feature of GenAI tools. One participant explained how she experienced this 'shared understanding' with the AI tool:

"I recognize the feeling that I know what I want to say, but I do not know the right words".

– Participant 8, applicant

Thirdly, the recruiters in this study indicated that using AI in their day-to-day job influences how they would perform their tasks. The recruiters agreed that some of their tasks are repetitive, like some of the job openings they have to fill. AI could automate some of their tasks, but recruiters were not afraid of losing their job due to this automation. Contrarily, they perceived it as a positive change because it would make them more efficient. The automation of tasks by AI would save the recruiter's time. This does not solely relate to the writing of vacancy texts, but also to the screening of selection of applicants. In the case of automated writing of job openings, recruiters only have to read the generated text outcomes of a tool such as Textio. In the case of automated screening and selection, recruiters would trust the tool to take over the selection when there are lots of applicants. Rather than scanning resumes, they would use the saved time to contact applicants and hold job interviews. All recruiters were positive to spend more time with candidates, especially face-to-face, than performing repetitive tasks or tasks that can easily be automated, such as writing vacancy texts or screening applicants. One of the participants described her experience:

"If I have to ensure that a job description has greater appeal, it takes quite a lot of time. Time that could have been spent having the job posting online already, allowing me to fully dive into contacting candidates and setting everything up." – Participant 9, recruiter

The final social element that came forward during the interviews is cultural shifts. As with many technological developments, AI changes the way people communicate with each other and how they have social interactions. This can be influenced by education level, experience with technology, or age. An example of how age affects the way people handle technological advancements is how the current generation searches all the information they need online, whereas older people are more likely to visit stores. For the application process, it could also mean that the younger generation prefers a direct message on LinkedIn, whereas people from other generations are more used to formal email communication. Additionally, using AI tools in the recruitment process can lead to changes in the workplace culture. Tasks are automated and less humans are needed to perform the same task. The efficiency is likely to increase, which means that employees have time to spent on other responsibilities.

4.9.3. Applying a sociomaterial perspective to the recruitment process: Change in outcomes caused by human-AI collaboration

As described before, the participants did not get direct questions regarding sociomateriality. They did answer questions about the social and material aspects of the proposed AI tools. Each interview ended with questions regarding the participants' dependency on technologies and whether they foresee any changes in the process caused by the usage of AI. Even though the vignettes were displaying future developments for most of the participants – and not the current state they are working in, broadly, four implications for the organizational process were indicated, (1) loss of authenticity, (2) savings and increased efficiency, (3) algorithmic biases, and (4) perceived unfairness of AI.

The first outcome, being the loss of authenticity caused by AI, is a concept that is also recognized by the existing literature (Runco, 2023; Beerends & Aydin, 2024). This loss is specifically for the phase of writing a vacancy text or writing a cover letter. Or, in other words, stages where a GenAI tool is used. One way in which authenticity, or the lack of it, can be determined is based on the language proficiency of the tool. Even though many people trust AI to generate a text for them, the participants did see some liabilities. Generally, they see two risks, being (1) AI might generate things that are not true, and (2) AI might write things that do not reflect you as a person or as an organization. Pretending to be different than who you are in a cover letter might also have consequences for the job interview. Some recruiters indicated that certain things that were written did

not come up during the conversation they had or were incorrect. If applicants could not come up with an explanation for the wrong information, some of the recruiters perceived this as a dealbreaker.

Elaborating on the second risk, AI tools such as ChatGPT are sensitive to use so-called buzz words in the generated text. This can partly be caused by the material aspect of Gen-AI tools, meaning that they are trained by texts that are found online and by the input of people who use the tools. Besides the generation of buzz words, some people also fear that texts are generated are like each other to a certain extent. Again, they perceived this as a loss of authenticity caused by the AI tool. Consequently, it could be argued that a cover letter in its current form is no longer sufficient. One of the participants contributed:

> *"I think profiles will be viewed differently, and the same goes for cover letters. That's going to change very soon. The process will be restructured. Because yes, anyone can present themselves differently. […] And when it comes to writing, I also think it won't come across as very authentic anymore, and it will all feel like the same story". – Participant 9, recruiter*

Secondly, recruiters acknowledge that time can be saved by automating certain tasks. One way in which tasks can be automated or can be executed by AI is writing vacancy texts. This can either be done by Textio or by ChatGPT. In case of Textio, even more time is saved, as only a few words have to be entered. When ChatGPT is used, it is important that recruiters write the prompts in the right way to ensure that the output fulfills their requirements. Another way in which AI can help recruiters in their day-to-day tasks is the screening of applicants by using an ATS. However, applicants also profit from using AI when writing a cover letter. Participants perceive it as easier and faster to create a cover letter or a resume. Consequently, it makes it easier to quickly apply for multiple jobs at the same time.

Again, the output for applicants depends on the prompts that they enter in ChatGPT. However, it could be argued that a tool such as ChatGPT improves generated cover letters over time, since it trains itself with the data it is being fed with. As applicants provide feedback on the generated output, ChatGPT 'learns' what works and what does not work.

Another outcome that emerged from the interviews is the perceived unfairness caused by AI. This theme was not included in the research framework but was something that came up frequently during the interviews. The perception of fairness – or unfairness – was mostly related to the ATS. There are two directions within the concept of perceived unfairness caused by AI, being (1) loss of human touch, and (2), having doubtful selection criteria.

To start with, recruiters valued having a final say in the screening, but even more important, they feared the loss of contact with applicants. In the case of applicant selection by an ATS, they only receive a list of names that should be contacted rather than selecting the applicants themselves. As a result, recruiters might not know exactly why someone has been selected, only that they fulfilled the previously determined requirements for a certain percentage. However, some recruiters rather select

on competencies than on experience or education. Ultimately, this could mean that they do not receive the top percentage of people that they would prefer to hire for a certain function. Additionally, there is a fear that the ATS does not consist of the right synonyms to select people. Even though recruiters have to indicate the words that serve as selection criteria, they might not be able to give all the different synonyms that exist for a certain experience or skill. Therefore, participants mostly perceive it as unfair. One of the participants explained her fear:

> *"A bit doubtful, because they say they use a scoring system, but there are, of course, many synonyms for a given word. So, if someone uses a different word than what the system is searching for, how does the system ensure that the applicant still gets through and receives a good score?" – Participant 6, recruiter*

The other way around, applicants also valued to be viewed by a human eye rather than to be automatically filtered. This is partly because applicants do not trust the outcomes of the ATS. One of the reasons is related to the synonyms that are chosen by recruiters and might not cover the experiences and skills of applicants. Another reason is that participants are unsure if the decision of the ATS would be the same as when a recruiter would perform the screening. So, both recruiters and applicants perceived the human aspect as something that cannot be detached from the recruitment process. One of the participants explained:

> *"I can imagine that, if it's well regulated, it could be more objective, but also that with all the developments, it might become a bit more superficial. So, if the applicant writes their cover letter with AI and the employer selects with AI, you lose the human touch." – Participant 8, applicant*

The fourth outcome of AI tools in the recruitment process is the potential presence of algorithmic biases. In Section 2, multiple algorithmic biases have been mentioned, being (1) historical bias, (2) representation bias, (3) technical bias, and (4) emergent bias. Algorithmic biases are a good example of how social and material are related. A feature of the AI tool, in this case the ATS, is that it can recognize patterns in data sets, and it is trained to do so. However, the social aspect is that humans select the data on which the AI tool is being trained. This exemplifies the interwovenness of humans and AI, and in turn, the algorithmic biases that can result from this. Participants feared that recruiters have to come up with synonyms for the selection criteria of the ATS, and when recruiters would use the algorithm, they would find out that they did not cover all the synonyms for the qualifications. The bias when there is a mismatch between users (recruiters) and system designers is known as an 'emergent bias'.

However, the most common biases that participants feared were technical biases in the ATS. For example, an algorithm that trained itself and comes up with own selection criteria. Another

example of a technical bias is a facial recognition algorithm that is trained to recognize a white person more easily than a black person (Levity, n.d.). Translating this bias to an ATS, it could mean that the algorithm is trained to prefer documents that are written with AI over documents that are written by people. One of the participants explained:

> *"It depends a lot on how those tools are trained. For instance, if you train a tool using a bunch of motivation letters in a particular style, and spend a day handling many motivation letters that are either selected or not by AI, and then use another AI to train for the best possible motivation letter, you might end up with a situation where one tool writes letters that the other tool will select. As a result, you're not really selecting based on quality anymore." – Participant 8, applicant*

To conclude, the four outcomes of AI usage during the recruitment process show the interwovenness of technology and humans. On the one hand, technology does not determine the way a cover letter is written or whether someone is selected, but it does provide input. However, this input is based on the training data or prompts provided by humans. On the other hand, humans do not determine the result, because they are influenced by the input given by technology. Sociomateriality helps us to understand how humans and AI, or the social and the material, are embedded.

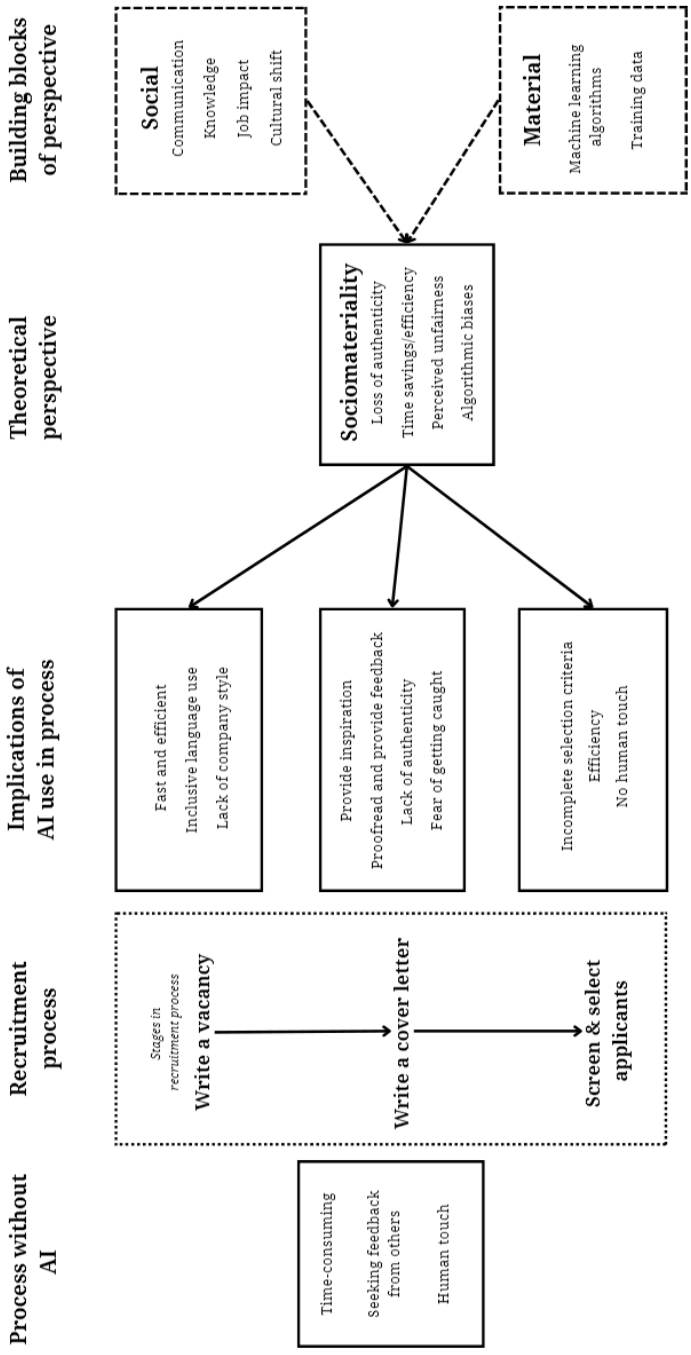
4.9.4. Towards a framework for AI integration in the recruitment process: a sociomaterial perspective

The findings of this study have been summarized in a framework (Figure 4). The framework tries to entail how a sociomaterial perspective can be applied to AI integration in the recruitment process. The recruitment process serves as a core subject of the framework. On the left side, the effects of the recruitment process are shown. The process without AI is time-consuming, people seek feedback from peers regarding what is written, and it entails a human nuance from either recruiters or applicants. On the right side of the recruitment process, the implications of AI use in the organizational process are shown. It becomes clear that AI has different implications for the hiring process. Different effects come forward which, in turn, can be linked to each stage in the organizational process. For example, when AI is applied in the stage of 'Write a vacancy', the implications are that it is fast and efficient, and it considers inclusive language use, but it also might lack the company's own style in the produced text. In the second stage, 'Write a cover letter', the positive implications of AI are that it provides inspiration, and it can proofread the text and provide feedback. The negative implications are that it might lack authenticity and there is the risk of getting caught. In the final stage, 'Screen and select applicants', AI might lead to left out candidates or biases in hiring decisions caused by incomplete selection criteria, and there is no human oversight in the selection process. A positive implication of AI usage in the selection stage is that it leads to increased efficiency.

When applying a sociomaterial perspective, the integration of AI in the recruitment process can be better understood. The underlying sociomaterial practices that came forward during this study are a loss of authenticity, perceived unfairness, algorithmic biases, and on a positive note, time savings and efficiency. These four themes are the result of the interwovenness between humans and AI, or, as the building blocks on the right side describe, the social and the material. The building blocks help to grasp an understanding of their interplay, and how this affects the use of AI in the recruitment process, and ultimately, the implications these entanglements have for organizational processes.

Figure 4.

Summarized Framework of Findings



5. Discussion

This study aimed to investigate the implications of AI in the first steps of the recruitment process, using the perspectives of both the organization and the applicant. Ultimately, the study should help to answer the research question, *"What are the implications of the sequential use of AI within the first steps of the recruitment process for the organization and the applicant?".* Firstly, this study provides insights into the recruitment process as it is now. Albeit for different reasons, it can be concluded that the current process is time-consuming in all the investigated stages, being (1) writing of a vacancy text, (2) writing a cover letter or resume, and (3) screening and selection of applicants. Besides being time-consuming, in the second stage, people value feedback from others, which means that more than one person has to spend time on one task. Finally, people value the human nuance during the process, especially during the screening and selection of applicants.

Orlikowski's sociomaterial perspective was used to indicate how AI usage in the various stages would impact the recruitment process. This perspective strengthens the understanding of how humans and AI are intertwined. The findings confirm that AI tools and humans mutually shape each other's capabilities and limitations through their interactions (Scott & Orlikowski, 2014). Seeing humans, being recruiters or applicants, and AI as one entity instead of something that is separated helps us to create an image of the implications of AI tools, and humans' experiences towards these implications. As a result, the findings show that using AI in the recruitment process might lead to the following implications, (a) a loss of authenticity in AI-generated texts, (b) time savings and increased efficiency for both applicants and recruiters, and (c) perceived unfairness during writing and screening, mostly at the expense of candidates.

Even though generative AI tools, such as Textio and ChatGPT can help many people in their writings, the challenges they pose should not be underestimated. The findings of this study indicate that there is a potential risk that an organization or an applicant's authentic self might not be transferred in a generated AI text. More precisely, no one's true self might come forward as the generated text stays rather shallow. Generative AI tools struggle with coherency in texts (Thanh et al., 2023). As an applicant, it is important to stay coherent throughout the cover letter, and during the job interview. Therefore, it is important to remain authentic, so it does not cost an applicant energy to be coherent in their story. As an organization, a vacancy text serves as a first impression of the company and how it wants to be perceived. So, coherency between the different vacancies is important to create the right image.

Furthermore, the findings of this study show that time is saved, and work gets done more efficiently when AI is used in the different stages of the recruitment process. This is mostly caused by the automation of tasks. The most common example is the ability of AI tools to process large volumes of data quickly, meaning that recruiters can start working right away (Fraij & László, 2021). Besides the

improved efficiency in the selection process, AI can also help to access a wider candidate pool (Thakur et al., 2023). Other benefits are acceleration of the process for the candidate and accessing potential employees worldwide (Tsiskaridze et al., 2023).

Even though using an AI tool during the screening and selection phase makes the work of recruiters more efficient, the concerns of both applicants and recruiters should not be underestimated. The results of this study support the findings of Kharbanda and Mukherjee (2023), who stated that humans need to monitor the process that is executed by AI and should ensure the fairness of AI decision-making. In this study, recruiters acknowledge their own role and the extent to which an AI tool would help them. However, they trust their own 'eye' – their gut feeling, their ability of critical thinking – when screening applicants (Kharbanda & Mukherjee, 2023). It can be argued that an AI selection tool efficiently works through large piles of cover letters. The findings show that employees need to ensure that the selection criteria do not contain biases and are complete. All in all, it is about the human-AI collaboration. Or, as some authors refer to it, the synergy between AI and human expertise (Kharbanda & Mukherjee, 2023; Tsiskaridze et al., 2023).

To better contextualize the findings of this study regarding perceived (un)fairness caused by AI, it is important to consider the difference in which the participants knew something and assumed something. This is especially important for the perceptions regarding the ATS. Only one recruiter indicated that their employer currently has an ATS, and one recruiter indicated that their employer is working on an ATS. So, it could be that participants perceived it negatively because they simply did not know more about it than the vignette showed them. One could therefore argue that they assumed that an ATS is unfair rather than it being unfair. A potential explanation for this could be AI anxiety, which is caused by the unknown consequences of AI decisions (Li & Huang, 2020).

The synergy between AI and humans is important to note, as the findings in this study show how both recruiters and applicants doubt the fairness of AI. Their fear is not ungrounded, as the Amazon-case in Section 2 showed. Biases can easily slip into an algorithm during its development. For example, the developer might be biased by their own knowledge, resulting in preferences for gender, skills, backgrounds, or ethnicity that are present in the screening algorithm (Qamar et al., 2021). Similarly to the findings of (Schick & Fischer, 2021), applicants have a skeptical attitude towards AI in this stage, because they lack understanding of how they are being screened.

All in all, the sociomaterial perspective in this study taught us that AI tools in their current state only can be used when paired with a human, and it sheds light on the consequences of their entanglement. The human-AI collaboration is built in mutual dependency, and the implications it has for the recruitment process are co-created. To save time and increase efficiency, humans have to collaborate with AI tools. To prevent a loss of authenticity, AI tools are dependent on humans. It is up to us to determine how much value we, as recruiters and applicants, attach to the outcome and how

we want to interpret it. Or, as ChatGPT (2024) frames it: “AI may streamline the hiring process, but the heart of recruitment still lies in understanding the nuances of human potential”.

5.1. Theoretical implications

The findings of this study indicate that loss of authenticity and perceived unfairness are the greatest challenges of AI usage in the recruitment process. Apart from one another, but especially combined, the findings show that it has severe consequences for the experiences of both applicants and recruiters during the recruitment process. Until now, there are no studies that confirm that the sequential use of AI in the first stages of the recruitment process affects one another. The only argument in favor of this assumption would be ‘the risk of overfitting’, where AI performs well on training data but fails to apply to new data (Karras et al., 2020). It could be that the algorithm would only work on the cover letters it is trained with, but it does not necessarily mean that cover letters generated by AI are preferred over human-written cover letters. Even though there are factually no consequences for sequential use, applicants and recruiters perceive it has negative consequences for them. Future studies should investigate whether the positive effects of time savings and increased efficiency outweigh the negative feelings regarding reduced or missing authenticity and unfairness people have.

The biggest discrepancy between this research and existing studies is the perceived (un)fairness. Multiple studies reported a reduction in human bias when organizations use an AI selection tool. For example, Hunkenschroer (2021) stated that the reduction of human bias had a positive effect on the fairness of the hiring process. This can be interpreted as that the usage of an algorithm makes the selection process fairer. This research contradicts this finding, as it shows that AI selection leads to a negative perception of fairness by applicants. This aligns with the findings of Wesche and Sonderegger (2021), who found that automated selection procedures negatively affect applicant reactions. A reason for the contradictory findings could be that perceptions of fairness are related to one’s position within the selection process (Rigotti & Fosch-Villaronga, 2024). So, even though recruiters might find the process fairer when applicants are selected by AI, job seekers can perceive this differently. However, it should be noted that the study of Hunkenschroer (2021) was a scenario study that had a greater reliance on the AI-software compared to this study.

Additionally, studies wrote about the advantages of AI selection, which are time savings and reduced biases (Hunkenschroer, 2021; Salam et al., 2022; Horodyski, 2023). In contrast, the findings of this study indicate that applicants and recruiters do not fully trust the outcomes of an algorithm due to the potential presence of a technical bias. It would contribute to the research on this topic if the perceptions regarding AI selection are situation-dependent and, if so, which situations it is dependent on. An answer to this question can help organizations determine whether they implement AI selection

and under what conditions, and it can help them to clearly communicate their selection process to applicants if future studies find this necessity.

An important remark regarding perceived (un)fairness caused by AI is the newly established AI Act (AIA) by the European Parliament (2024) to ensure that AI use is regulated and that "AI systems are safe, transparent, traceable, non-discriminatory, and environmentally friendly". Without extensively explaining this regulation, the consequences for organizations are that they can no longer use an AI tool as a sole decision-maker to select candidates. The act thus forces organizations to have their AI tools overseen by people to prevent harmful outcomes. Additionally, organizations need to ensure that sufficiently representative input data is used to train the AI tool. At the time of data collection, this act was not established. Therefore, it is recommended that future studies incorporate the AI act when investigating the perceived (un)fairness of AI tools. The outcomes of these studies could also contribute to a broader debate on how perceptions of fairness might have changed due to the newly established AI regulation.

Further, future studies should dive into the topic of reduced authenticity caused by AI. On multiple fronts, this research indicated the presence of authenticity loss caused by AI. It can be concluded that people value the human craft that is present in documents, similarly to how they value the human touch in the recruitment process. As stated by Aguinis et al., (2024) "Do not use AI hoping it will replace human empathy and ethical decision-making it does not" (p.7). Therefore, it is important to investigate the extent to which authenticity loss is perceived negatively, or if there are any situations in which it is acceptable.

5.2. Practical implications

This study does not only contribute to theoretical knowledge, but also provides practical implications for recruiters, organizations, and software (AI) developers. Recruiters can benefit from the use of AI during the recruitment process, and AI can lead to greater organizational efficiency. Time can be saved by text writing and by not going through applicants who are unsuitable for the job, because of applying AI in these steps of the hiring process. Repetitive and time-consuming manual tasks can easily be automated, which leads to time savings as well. However, it is important to note that AI tools lack the nuance of humans, such as instincts and emotions. The research indicates how recruiters perceive the use of AI in the recruitment process, and it shows organizations how applicants perceive AI use during the process. Additionally, the outcomes of this study can help AI developers improve existing AI tools to make them more suitable for recruiters. In turn, this can lead to widespread adoption of AI technology in some stages of the hiring process, making the process more efficient and pleasant for recruiters.

The findings of this study also have practical implications for applicants. On a positive note, AI in the recruitment process leads to a faster process for job seekers. When they use AI to write their cover letter, it is faster done than when they write it on their own. This enables applicants to quickly apply to multiple organizations without putting a lot of effort into it, especially when writing is not their most developed skill. The findings of this study tell applicants how recruiters perceive AI usage when writing a cover letter. The other side of using AI is namely that applicants have to be aware that their cover letter might lack personality, making them more generic or superficial. Consequently, recruiters might detect this and reject the candidate. Additionally, an individual applicant can easily apply at multiple organizations through AI-generated cover letters, but other applicants can do this as well. This emphasizes the importance of a personalized cover letter to stand out from the competition.

Further, when organizations use an ATS, applicants can expect a quicker response because the screening process goes faster. However, the downside of AI tools in the hiring process is that applicants might not know how AI evaluates them, or which criteria are used to evaluate. Consequently, they might be left in the dark if they are rejected unless organizations decide to follow up on automated rejections. So, applicants should be aware of the way their rejection is communicated to them to see if they want to undertake steps toward the organization if they feel like they have been treated unfairly.

5.3. Limitations and directions for future research

Applying an experimental vignette study on the topic of AI in the recruitment process is relatively new. The output – being the findings of the study – depends on the quality of the input – being the vignettes that participants saw. Even though the vignettes have been selected with great care, one remark should be made. To ensure a greater comprehensiveness of participants, vignettes that include an explanation have been selected. Thus, the limitation could be that participants were influenced by how the AI tools were explained in the vignettes. Future studies could consider developing the vignettes by the researcher rather than using pre-made movies found online.

The participants of this study have been found using snowball sampling and purposive sampling. Especially the latter is a limitation, as the researcher recruited participants partly via LinkedIn. Ultimately, this means that not everyone was able to participate in the study. This could have led to a somewhat biased perspective. Additionally, the sample size of this study is relatively small. Since only nine applicants and only nine recruiters have been interviewed, the findings of this study cannot be generalized to all applicants or all recruiters. To ensure data adequacy and validity, the goal was to create saturation rather than generalization. Saturation is another benchmark to reach this goal (Guest et al., 2006). However, it is recommended that future studies include a greater sample size. According to Hennink and Kaiser's analysis on saturation in qualitative research (2022), 9-17 interviews

were fulfilled. Even though this study entailed 18 participants, it was a mix of applicants and recruiters who contributed to the research by drawing an initial image of their perceptions of AI in the recruitment process. To dive further into the findings, it is therefore recommended to interview more people who are either applicants or recruiters to see if their perceptions differ when closely investigated. For example, their perceptions related to perceived unfairness that is caused by AI.

Another limitation related to the participants of this study is related to participant-specific information, especially related to organizations and recruiters. This research did not account for the years of experience of a recruiter or the frequency with which someone has applied, and it could be this influenced the outcomes of the study. For example, when having more experience, it can be expected that it is easier to write a vacancy text or a cover letter. When having to give in synonyms for the ATS, more experienced recruiters likely know more synonyms. This might result in a better ATS. Further, the degree to which organizations are open to AI might have influenced whether recruiters were already working with AI or not. Regarding the applicants, the study did not account for their educational level. However, all the applicants who participated in this study were higher educated. Some of the participants studied at a technical university and learning about AI was part of their curriculum. The development of incorporating AI and machine learning into the curriculum of universities is happening more often (Kuleto et al., 2021). Another factor that might have influenced the perception toward AI is the industry that participants work in, as industries might perceive technologies differently. All in all, this could have influenced their acceptance of AI. Therefore, future studies could include these characteristics.

The interviews have been held in Dutch. This means that the interviews were transcribed in Dutch as well. To process the results, the answers of the participants have been translated do English. Consequently, it could be that some of the intended meanings of the participants got lost in translation. However, the severity of this limitation is doubtable because it contradicts the indeterminacy of translation of Quine (1970). In short, there are multiple translations for sentences and words, and in the end, the intention of the answer should come across.

6. Conclusion

This study contributed to the greater image of AI usage in the early stages of the recruitment process, by providing insight into the perceptions of both applicants and recruiters. While existing studies mostly focused on the role of AI in recruitment from the perspective of organizations or AI selection from the perspective of job seekers, this study combined both perspectives. This study aimed to answer the main research question, *"What are the consequences of the sequential use of AI within the first steps of the recruitment process for the organization and the applicant?".*

The findings show how AI is currently integrated into recruitment and application practices, with both applicants and recruiters expressing concerns over its use. While AI increases efficiency, this is accompanied by fears about a loss of authenticity and perceived unfairness. Traditional components of recruitment, such as a cover letter, might become less relevant due to the growing role of AI. Both applicants and recruiters agree that the sequential use of AI negatively impacts the overall recruitment experience, where the benefits of increased efficiency are outweighed by the downsides of reduced authenticity and fairness. The existing theoretical frameworks do not fully cover the implications of AI use in these early recruitment stages, especially regarding perceived fairness. The findings highlight that AI tools, in their current form, lack the nuance and maturity that is required for automated decision-making. This thus emphasizes the need for human oversight to ensure fairness in the process. Given the rapid advancements of AI tools, adopting Orlikowski's sociomateriality approach helps us to better understand the perceptions of fairness and the importance of human involvement related to AI in the recruitment process. This study thus lays a foundation to understand the entanglement between humans and AI and calls for more research into the interplay between job seekers, recruiters, and AI.

All in all, it can be concluded that the answer to the research question is that while AI contributes to making the first stages of the recruitment process more efficient, it also introduces challenges related to the perceived loss of authenticity and fairness for both applicants and recruiters. As a result, maintaining the human touch is crucial to balance efficiency with a more nuanced, fair recruitment process. The message is clear: as AI continues to evolve, the recruitment process needs to evolve too. The process is not solely about becoming as efficient as possible, it is about redefining the role of a human touch throughout the process.

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Appendices

Appendix A: Interview agenda Dutch

1. Algemene informatie

Introductie van de onderzoeker. Het doel van het onderzoek delen met de deelnemer. Beschrijving van de verschillende interviewonderdelen. Aangeven dat data anoniem en vertrouwelijk wordt behandeld en veilig wordt opgeslagen. Deelnemer tekent informed consent-formulier. Aangeven dat deelnemers op ieder moment kunnen stoppen met het meedoen aan het interview, ook na de tijd. Deelnemers kunnen op aanvraag een transcriptie van hun interview ontvangen.

2. Introductie van de deelnemer

Recruiter: geslacht, leeftijd, welke industrie werkzaam, hoe is de recruitment afdeling ingericht, hoe veel ervaring, verantwoordelijkheden/taken binnen het wervingsproces, hoe wordt de functie genoemd binnen de organisatie.

Sollicitant: geslacht, leeftijd, welke industrie werkzaam, welke functie, hoe lang geleden gesolliciteerd, een motivatiebrief/CV geschreven tijdens het solliciteren

3. Kennis toetsen over AI

- In hoeverre heeft de deelnemer kennis van AI?
- Hoe zou jij het beschrijven?
- Welke tools ken je?
- In welke gebieden denk je dat de toepassing van AI nuttig is?
- Heb je zelf wel eens AI tools gebruikt?
    - Zo ja, welke?
        - Hoe heb je dit ervaren?

4. Algemeen

4.1. Recruiter

- Wordt AI momenteel gebruikt binnen jouw organisatie?
- Heeft jouw organisatie de intentie om AI te implementeren? Zo ja, in welk gebied
- Wordt er door jou of jouw collega's AI gebruikt op een moment binnen het wervingsproces?
    - Zo ja, waar? Welke tools gebruiken jullie hiervoor? Zijn deze door het bedrijf zelf ontwikkeld of zijn het bestaande tools?
    - Zo nee, waarom niet?
- Hoe kijk je tegen de implementatie van AI in binnen jouw afdeling? Denk je dat het voordelig is voor jouw taken?

4.2. Sollicitant

- Heb jij AI tools gebruikt tijdens je sollicitatie proces?
    - Zo ja, welke tools?
    - Zo nee, waarom niet?
- Gebruik je AI tools in je dagelijks leven (bijvoorbeeld voor het opzoeken van recepten of vakantiebestemmingen)?
- Gebruik je AI tools in je huidige baan?
- Voor recent afgestudeerden: Heb je AI gebruikt tijdens je studie?

Deel 1: Het schrijven van een vacature tekst

1. *Recruiter*

- Wat zijn je gedachten na het zien van de vignette?
- Hoe veel tijd en moeite stop je momenteel in het taalgebruik van een vacaturetekst (inclusief, masculine, diversiteit promoten)?

2. *Sollicitant*

- Wat zijn je gedachten na het zien van de vignette?
- In hoeverre neem je het taalgebruik over dat is gebruikt in de vacaturetekst? Let je op aanwijzingen voor een inclusieve werkomgeving?

Deel 2: Het schrijven van een motivatiebrief/CV

1. *Recruiter*
    - Wat zijn je gedachten na het zien van de vignette?
    - Wat denk je over het gebruik van AI door sollicitanten in sollicitatiedocumenten?
        - Authenticiteit, een realistisch beeld creëeren
    - Zie je voor-/nadelen voor het sollicitatiegesprek?
2. *Sollicitant*
    - Wat zijn je gedachten na het zien van de vignette?
    - Moest je verplicht een CV/motivatiebrief uploaden tijdens je sollicitatieproces?
    - Denk je dat het mogelijk is om jezelf te laten zien als je AI gebruikt tijdens het schrijven van je brief/CV?
        - Zo ja, in hoeverre? Zo nee, waarom niet?
    - Als je nog een keer moet solliciteren, zou je dan AI gebruik overwegen?
        - Zo ja, waarom? Zo niet, waarom niet?

Deel 3: Screenen en selecteren van sollicitanten

1. *Recruiter*

- Wat zijn je gedachten na het zien van de vignette?
- Vind jij dat het gebruik van AI in deze fase van het recruitment proces gecommuniceerd zou moeten worden naar sollicitanten?
    - Zo ja, waarom? Zo nee, waarom niet?
- Zijn er in jouw ogen gevolgen voor sollicitanten met een outside-the-box profiel wanneer er AI wordt gebruikt in deze fase?
    - Zo ja, hoe zou jij hier mee om gaan?
- In hoeverre vertrouw je de uitkomst van AI in deze fase?

2. *Sollicitant*

- Wat zijn je gedachten na het zien van de vignette?
- Wat zijn je gedachten ten aanzien van het gebruik van AI in deze fase van het recruitment proces? Zie je voor-/nadelen?
- In hoeverre denk je dat het gebruik van AI tijdens het schrijven van een CV/motivatiebrief gevolgen heeft voor de screening en selectie door AI in de daaropvolgende fase?

Algemeen:

- In hoeverre ben je afhankelijk van technologieën tijdens het sollicitatieproces?

- Als we naar het gehele recruitment proces kijken, wat verandert er volgens jou door de komst van AI?
- Hoe ervaar je deze veranderingen?
- Zijn je gedachten over het gebruik van AI in de eerste fases van het sollicitatieproces veranderd gedurende dit interview?
    - Zo ja, op welke manier? Zo niet, hoe denk je er nu over?
- In hoeverre heeft dit interview ervoor gezorgd dat je AI tools zou gebruiken in het sollicitatieproces?
- Is er nog iets wat je kwijt wil over dit onderwerp waar ik nog geen vragen over heb gesteld?
- Heb je nog andere opmerkingen/vragen over dit onderwerp of dit onderzoek in het algemeen?

Appendix B: Vignettes

Topic	Vignette
Writing a vacancy tex	Watch this video of how Textio works https://www.youtube.com/watch?v=F7zRLnkUS-I&ab_channel=Textio
Write a cover letter/resume	Watch this video of how ChatGPT can write a cover letter https://www.youtube.com/watch?v=B9wcPWlemgo&ab_channel=AlexCleanthous
Screen and select applicants	How does resume screening sofware work? (vanaf 0:33) https://www.youtube.com/watch?v=4_BHmDKSc6s&ab_channel=BigInterview

Appendix C: Interview agenda and vignettes in English

1. General Information

Introduction of the researcher, sharing the purpose of the research with the participant. Description of the different parts of the interview. Indicate that data will be treated anonymously and confidentially and stored securely. Participants sign the informed consent form. Mention that participants can stop participating in the interview at any time, even after it has been conducted. Participants can request a transcript of their interview.

2. Introduction of the Participant

- Recruiter: gender, age, industry of employment, how the recruitment department is structured, years of experience, responsibilities/tasks within the recruitment process, and the job title used within the organization.
- Applicant: gender, age, industry of employment, current position, how long ago they applied, whether a cover letter/CV was written during the application process.

3. Assessing Knowledge of AI

- To what extent does the participant have knowledge of AI?
- How would you describe it?
- What tools do you know?
- In what areas do you think the application of AI is useful?
- Have you ever used AI tools yourself?
    - If yes, which ones?
- How was your experience?

4. General Questions

4.1. Recruiter

- Is AI currently used within your organization?
- Does your organization intend to implement AI? If yes, in which area?
- Do you or your colleagues currently use AI at any stage of the recruitment process?
    - If yes, where? What tools do you use? Are they developed in-house, or are they existing tools?
    - If no, why not?
- How do you feel about the implementation of AI within your department? Do you think it is beneficial for your tasks?

4.2. Applicant

- Have you used AI tools during your application process?
    - If yes, which tools?
    - If no, why not?
- Do you use AI tools in your daily life (e.g., for looking up recipes or travel destinations)?
- Do you use AI tools in your current job?
- For recent graduates: Have you used AI during your studies?

Part 1: Writing a Vacancy Text

1. Recruiter

- What are your thoughts after watching the vignette?
- How much time and effort do you currently invest in the language of a job description (inclusive, masculine, promoting diversity)?

2. Applicant

- What are your thoughts after watching the vignette?
- To what extent do you adopt the language used in the job description? Do you look for clues about an inclusive work environment?

Part 2: Writing a Cover Letter/CV

1. Recruiter

- What are your thoughts after watching the vignette?
- What do you think about applicants using AI in application documents?
- Authenticity, creating a realistic image.
- Do you see advantages/disadvantages for the interview process?

2. Applicant

- What are your thoughts after watching the vignette?
- Were you required to upload a CV/cover letter during your application process?
- Do you think it is possible to present yourself authentically if you use AI to write your cover letter/CV?
    - If yes, to what extent? If no, why not?
- If you had to apply again, would you consider using AI?
    - If yes, why? If no, why not?

Part 3: Screening and Selecting Applicants

1. Recruiter

- What are your thoughts after watching the vignette?
- Do you think the use of AI in this stage of the recruitment process should be communicated to applicants?
    - If yes, why? If no, why not?
- In your opinion, are there any consequences for applicants with an unconventional profile when AI is used in this stage?
    - If yes, how would you address this?
- To what extent do you trust the outcomes of AI in this stage?

2. Applicant

- What are your thoughts after watching the vignette?
- What are your thoughts on the use of AI in this stage of the recruitment process? Do you see advantages/disadvantages?
- To what extent do you think the use of AI when writing a CV/cover letter affects the screening and selection by AI in the subsequent stage?

General questions

- To what extent are you dependent on technologies during the application process?
- Looking at the entire recruitment process, what changes do you foresee with the introduction of AI?

- How do you experience these changes?
- Have your thoughts on the use of AI in the early stages of the application process changed during this interview?
    - If yes, in what way? If no, what is your current view?
- To what extent has this interview influenced your decision to use AI tools during the application process?
- Is there anything else you would like to share on this topic that I have not yet asked about?
- Do you have any other comments/questions about this topic or the research in general?

Appendix D: Overview of data structure and sample quotes

Theme 1: Time savings/efficiency (2nd order dimensions)	*Description of different sub types based on open coding (1st order categories)*	*Sample/example quotes*
Improved productivity leading to time savings/efficiency	Resume analysis for skills and experiences	"When you work at a big organization and you have many similar vacancies, it is very easy."
	Candidate ranking and shortlisting	"I think it would be really nice to have a sort of pre-selection. Instead of reading 100 responses, you only have to focus on 20 or so who are potentially relevant."
	Automated resume screening	"If it only looks at competencies and experiences, I think it is a good solution, especially if there are lots of applicants it can be used fast and easily."
	Less time spent on unqualified applicants	"I think this is ideal. Because you can just say: I only want to see candidates who fulfill these and these requirements."
Theme 2: Perceived unfairness (2nd order dimensions)	*Description of different sub types based on open coding (1st order categories)*	*Sample/example quotes*
Lack of transparency and control	Focus on keyword matching in screening	"As I said, I think the uniqueness that gets lost, and there is an increasing focus on specific words, with the rise of buzzwords only growing larger."
	Inability of applicants to understand selection criteria	"As a candidate, I would be okay with knowing what the evaluation procedure is for my CV."
	Less human nuance in application process	"I want to see what it uses to filter and which people are not selected, to get a feeling whether it is the same decision as I as a human would have made".
	Applicants being overlooked because they lack the criteria	"You don't look for competencies or organizational fit. You only look at job fit and experiences. So I definitely see that as a disadvantage".
	Overvaluing certain qualifications or experiences	"I think the idea of the tool is very good, but the application, in this specific way, is just about searching for specific words."

Theme 3: Algorithmic biases (2nd order dimensions)	*Description of different sub types based on open coding* (1st order categories)	*Sample quotes*
Algorithmic reliance	Biases in AI algorithms	"I think that if you don't use the right terms for a certain experience you have, or if you don't use them correctly, you might end up on the discard pile immediately."
	Strengthen existing biases in	"It's a very well-known story that people with an Islamic name in the Netherlands have a harder time to find a job."

	candidate selection due to biased training	

Theme 4: Loss of authenticity (2nd order dimensions)	*Description of different sub types based on open coding (1st order categories)*	*Sample/example quotes*
Generated text quality	Providing feedback on structure and flow	"And also just for checking, indeed, for spelling mistakes, and all that sort of things."
	Sentiment check to ensure appeal	"Writing texts is one thing; you have an idea of what you want to write, and that needs to be put on paper. On the other hand, it's also about a good interplay of sentences in a convincing writing style, error-free, and things like that. It simply makes you more productive."
	Grammar and style improvements	"If I need to create a report or write a piece on a specific topic and I want to check my text or get new input."
	Keyword optimization	"I would immediately want to use it, because there is also a bit of marketing in, SEO, you know, finding the right words, make it more easy to be found on the Internet."
	Use of AI for personalized feedback	"I would describe it as a tool for assisting with your tasks, such as in recruiting, helping with writing job descriptions, and quickly answering questions if you're stuck."
	Presence of industry specific jargon	"It's possible that someone who does the same job but has learned different jargon might be filtered out if they don't use the specific words."
	AI-language analysis for inclusive language	"I think such a tool would help. It's obviously difficult to gauge how others think, but I can imagine it would have an impact on women."
Perceived genericness	Lack of nuance in AI-generated texts	"If I've written a text and the wording I want to use isn't quite right, I put it into a tool and ask for five variations. Then I look at what I find interesting from those, decide if I want to use it, and ensure it fits my way of speaking."
	Absence of details that reflect personal experiences or skills	"If you do it that way, someone else with the same background would get almost the same result if they filled it out."
	Use of buzzwords or clichés	"I now believe that many buzz words are used these days – popular terms that don't necessarily add value but sound fancy. I'm especially concerned that such terms are used so much that a lot of text starts to look similar, and the originality is actually lost."
Mismatch with applicant and organizational values	Language use that normally is not used by company or applicant	"You don't know what the potential downsides are. A person could also manipulate it to work in their favour."
	Fail to convey company's personal mission/vision in vacancy	"I find it interesting that it claims to generate text based on your company style and type of words, and I'm especially curious about how that works – how they do it, just loading a lot of text and then training the model on it or something like that."

Not able to convey personal motivation	"What I liked about my internships and experiences, which tasks and responsibilities I liked and why I would want something, or which experiences I learned by having contact with patients or conducting a study, that sort of things."