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A Content Analysis of E-Newspaper Comments in Vietnam: Exploring the Dynamic Shifts in Public Perception of AI's Impact on Jobs

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ABSTRACT

Driven by ChatGPT's release, Vietnam experienced heightened public discourse on artificial intelligence's (AI) effects on employment. However, limited research exists examining how public perception in developing countries responds to such advancements. This study addresses this gap by analyzing over 200 AI-related articles and 7,800 comments on VnExpress, Vietnam's largest online newspaper, from December 2022 to 2023. Employing quantitative content analysis, we examine the dominant public perceptions regarding AI's impact on jobs and their evolution over the years. Findings reveal that concerns about job displacement were prevalent across diverse article topics, with negative views of AI causing mass unemployment to dominate and intensify over time. This escalating apprehension, amplified by the rapid advancements in AI technology, was evident in discussions ranging from AI's potential in specific sectors to broader societal implications. The discourse increasingly emphasized the perceived threat of widespread job losses due to AI automation, overshadowing potential benefits and opportunities. This study contributes valuable insights into the dynamic nature of public sentiment towards AI in a developing country context, highlighting the need for proactive measures to address anxieties and promote informed discourse on the future of work.

Keywords: AI perception, ChatGPT, content analysis, jobs, Vietnam

INTRODUCTION

The arrival of ChatGPT in November 2021 ignited public anxieties about artificial intelligence's future impact on the job market. Unlike previous technological revolutions, artificial intelligence (AI) threatens to displace not just manual labor but also intellectual tasks once thought

exclusive to humans. Simple forms of AI already tackle specific problem areas like image recognition, medical diagnosis, and weather forecasting, even venturing into autonomous driving (Flowers, 2019). This rise of automation and advanced AI is reshaping workplaces across industries, including high-tech manufacturing, by automating repetitive tasks and boosting efficiency. However, this progress is not without its shadows. A major concern revolves around job displacement, potentially leading to unemployment and necessitating widespread reskilling and upskilling efforts.

A plethora of studies have delved into the multifaceted impact of AI on organizations (Lin, 2023; Makridakis, 2017), the workforce (Acemoglu & Restrepo, 2018; Brynjolfsson & Mitchell, 2017), and even society as a whole (Floridi & Cowls, 2022). However, gauging public perception of AI's impact on jobs remains crucial for navigating its future development. Several studies have approached this challenge from diverse perspectives across different countries. For instance, Brauner et al. (2023) surveyed 122 participants in Germany, exploring their perceptions of AI in various contexts, from personal to industrial and social. They found that most respondents predicted AI would likely become a valuable tool as a subordinate at work. Conversely, Tyson and Kikuchi (2023) investigated American sentiment, finding that 52% expressed more concern than excitement about AI's rising presence. This highlights the global scale of public opinion. Kelley et al. (2021) conducted a vast survey across

eight countries: Australia, Canada, the US, Korea, France, Brazil, India, and Nigeria. Their analysis identified unique "sentiment groups" among respondents, revealing that perceptions of AI vary widely, ranging from excitement to worry, depending on the country. Interestingly, the study found contrasting sentiments in developing and developed countries. In India and Nigeria, for example, respondents overwhelmingly expressed "excitement" about the future of AI, whereas "worry" emerged as the predominant sentiment in developed nations.

While public perception of AI has garnered increasing research attention, regularly updating these insights remains crucial (Zuiderwijk et al., 2021). This article aims to fill two gaps in the current literature by exploring the Vietnamese public perception of AI's impact on the labor market.

Firstly, it departs from typical survey methods by analyzing 7886 public comments posted from December 2022 to December 2023 on VnExpress AI-related articles. VnExpress, the most widely read online newspaper in Vietnam, offers a rich landscape for examining public discourse. This approach facilitates capturing dynamic changes in perception over a year, particularly in light of ChatGPT's emergence. As Fast and Horvitz (2017) highlight, AI perceptions continuously evolve. However, few studies have measured these shifts with high granularity. For instance, Tyson and Kikuchi (2023) captured evolving American sentiment across three points in time: 2021, 2022, and 2023, finding a growing concern about AI's role in daily life. This study

contributes a more fine-grained analysis by examining these shifts monthly within a year of ChatGPT's launch, providing a unique window into the rapid evolution of public discourse immediately following a major AI advancement.

Secondly, this article focuses on a developing country perspective, which Kelley et al. (2021) show can differ significantly from dominant developed-country findings. Their study across eight countries revealed contrasting sentiments towards AI, with developing economies like India and Nigeria expressing greater excitement while developed nations leaned towards worry. However, their research did not include Vietnam, leaving a critical gap in understanding how public perception in this rapidly developing Southeast Asian nation aligns with or diverges from these trends. By investigating comments across 205 AI-related articles in a crucial window following ChatGPT's release, this study contributes valuable insights into Vietnamese public opinion and its potential divergence from the developing nation trends observed by Kelley et al. (2021).

The remainder of this paper is organized as follows. We begin by establishing theoretical groundwork, examining key perspectives on AI's influence, and highlighting existing research that analyzes public sentiment. Subsequently, we detail our methodology, followed by a presentation of the study's results. Finally, we discuss the implications and limitations of these findings, offering insights into future research in this dynamic field.

LITERATURE REVIEW

The Impact of AI on Employment

The accelerating intelligence and sophistication of technology, particularly AI, are predicted to profoundly impact the job market (West, 2015). As AI automates tasks previously performed by humans across a wide range of business processes, organizations are increasingly turning to it and automation to reduce production costs (Webster & Ivanov, 2020). This raises crucial questions about the relationship between AI and the labor market, with three main perspectives emerging: (1) pessimism about significant job losses, (2) neutrality advocating for skill adaptation, and (3) optimism about AI's potential to enhance workers and create new jobs.

The public's negative view is thof AI often hinges on the fear of AI replacing human labor, a view echoed by John Maynard Keynes's technological unemployment theory (Floridi & Cowls, 2022; Peters, 2019). This theory posits that structural unemployment becomes inevitable as AI advances, raising concerns like those that Fast and Horvitz (2017) expressed about AI potentially rendering human work obsolete. Numerous studies across various industries have documented similar worries among employees, who fear losing job security to the rising tide of technology and AI (Nam, 2019).

While some envision a bleak future where robots snatch human jobs, others present a more neutral view, suggesting that AI primarily transforms tasks, necessitating adaptation but not necessarily widespread job displacement. This view resonates with

Skill-Biased Technical Change theory, suggesting technological advancements like AI favor skilled workers, leading to income inequality (Berman et al., 1998; Violante, 2008). Studies by Chui et al. (2015) and West (2015) highlight this pressure to upskill, extending beyond low-wage jobs to executive tasks like data analysis and staff assignments. This is not merely an individual burden; organizations must adapt to remain competitive. Wisskirchen et al. (2017) note that AI will handle rote tasks, freeing humans from interpersonal communication and complex thinking. Webster and Ivanov (2020) echo this sentiment, emphasizing the need for workforce upskilling and organizational restructuring in the face of AI.

This transformative process is not without its challenges. Raj and Seamans (2019) identify the pressure to upskill during AI implementation. Brougham and Haar (2018) point to the uncertainty and potential negative impacts on employee well-being, including reduced commitment, career dissatisfaction, and even depression. The rise of AI presents a dynamic dance between humans and technology. While tasks may shift, individuals and organizations must be prepared to adapt and evolve their skill sets to navigate the evolving work landscape.

While the previous perspectives paint dramatically different pictures of AI's impact, one fearing job displacement and the other demanding intense upskilling, a third, less explored view offers a positive outlook. This perspective suggests that AI could increase productivity and potentially have minimal negative impact on employment.

The "Limits of Automation and the Human Touch" theory, promoted by McAfee and Brynjolfsson (2017), acknowledges the potential for automation in specific tasks but argues that many jobs, particularly those requiring social intelligence, creativity, and complex problem-solving, will remain inherently human. They argue that AI is better suited for routine, data-driven tasks, while humans excel in empathy, judgment, and interpersonal skills. This theory suggests that technology will likely complement and augment human capabilities rather than entirely replace them (Bhargava et al., 2021).

This optimistic stance, however, lacks substantial research backing. One survey by Tyson and Kikuchi (2023) aimed to gauge American perceptions of AI in daily life. Notably, only 10% of respondents expressed more excitement than concern about AI, marking a declining trend from 18% in 2021 and 15% in 2022. This limited enthusiasm for AI's influence extends to some specific workforces. Kochhar (2023) found that only 32% of workers in the information technology sector believe AI will personally benefit them more than harm them. While these pockets of optimism exist, broader evidence across various industries remains scarce to firmly support the minimal impact view.

This study anticipates that the proportion of Vietnamese respondents expressing a negative view of AI's impact on the labor market will significantly outweigh those expressing a positive view. This expectation stems from the force of

Keynes's technological unemployment theory within the Vietnamese context. This theory posits that as technology advances, particularly in the realm of AI, it can lead to job displacement and structural unemployment (Peters, 2019). In a rapidly developing nation like Vietnam, where a significant portion of the workforce may be engaged in routine tasks susceptible to automation (Granata et al., 2023), the fear of job loss due to AI could be particularly pronounced. This is because developing economies often lack the robust social safety nets and reskilling infrastructure of developed nations, making the potential for job losses due to AI a more salient concern. This notion is further supported by Hammer and Karmakar (2021), who, in their analysis of India's national AI strategy, highlighted the potential for AI to exacerbate existing inequalities and disrupt traditional employment sectors in developing economies. Therefore, this study hypothesizes that:

> **H1**: *The proportion of Vietnamese respondents expressing a negative view of AI's impact on the labor market is significantly greater than the proportion expressing a positive view.*

Despite the growing presence of AI in Vietnam, research exploring the general public's perception of this technology remains scarce (Chao et al., 2021; Truong et al., 2023). Existing studies often delve into specific industries like healthcare or education. By contrast, this paper aims to bridge the gap in knowledge by analyzing user-comment data to capture the broader public's perception of AI in Vietnam, offering valuable insights into public views and concerns surrounding this transformative technology.

The Dynamic Change of Public Perception

Like any evolving technology, public perception of AI has been constantly changing. Studies like Fast and Horvitz's (2017) analysis of New York Times coverage over 30 years reveal a significant rise in AI discussion since 2009, coinciding with growing public concern about potential job displacement. However, it is important to consider the timing of their research, predating the 2022 launch of ChatGPT and the subsequent boom in AI-related debates. While their insights remain valuable, the landscape has undoubtedly shifted, prompting further investigation into how recent advancements and public discourse have shaped perceptions of AI's impact on society and the workforce. This paper fills this gap by recognizing the change in public perception since the launch of ChatGPT.

Grounded in the evolving landscape of public perception surrounding AI, this study posits that the negative view of AI's impact on jobs intensifies over time in Vietnam. This hypothesis aligns with the concept of technological momentum, which suggests that as technologies mature and become more integrated into society, their perceived impact, both positive and negative, amplifies (Hughes, 1987). However, in the context of a developing economy like Vietnam, this momentum

can be further propelled by specific socio-economic factors. As AI becomes more pervasive and its capabilities more apparent, concerns about job displacement and economic disruption will likely be amplified due to pre-existing anxieties about income inequality, limited social safety nets, and the challenges of rapid technological adoption (Goyal & Aneja, 2020). Furthermore, the perceived threat of AI may be heightened by the pressure to upskill and compete in a globalized job market, potentially leading to a sense of vulnerability and fear of being left behind. This notion is further supported by empirical evidence. Tyson and Kikuchi (2023) investigated American sentiment across three points in time (2021, 2022, and 2023), finding that the proportion of respondents expressing concern about AI's growing role in daily life increased from 39% in 2022 to 58% in 2023. This suggests a growing trend of negativity toward AI's impact, which may be even more pronounced in developing economies like Vietnam, which are facing rapid technological transformations and potential workforce vulnerabilities. Therefore, the study hypothesizes that:

> **H2:** *There is a significant positive correlation between the time elapsed since the launch of ChatGPT and the prevalence of negative views regarding AI's impact on the labor market.*

Contrasting Global and Vietnamese Perspectives on AI and Employment

While numerous studies have explored the multifaceted impact of AI on employment across different countries, a significant portion of this research has been conducted in developed economies. These studies often reveal a spectrum of public perceptions, ranging from cautious optimism to deep-seated anxieties about job displacement and economic disruption (Brynjolfsson & Mitchell, 2017; Kelley et al., 2021). For instance, surveys in the United States have consistently shown a growing concern about AI's potential to automate jobs and exacerbate income inequality (Tyson & Kikuchi, 2023). Similarly, studies in European countries have highlighted the public's apprehension about the future of work in the age of AI, with many individuals expressing fears of job losses and the need for extensive upskilling (Brauner et al., 2023). These findings underscore the global nature of the discourse surrounding AI's impact on employment and the diverse range of public sentiments across different contexts.

In contrast to the wealth of research on AI perceptions in developed countries, studies exploring public opinion in developing economies like Vietnam remain relatively scarce. This gap in the literature necessitates a deeper investigation into how the unique socio-economic and cultural contexts of developing nations shape public views on AI's impact on jobs. While some studies have examined specific sectors or demographics within Vietnam, a comprehensive understanding of the broader public's perception remains elusive (Chao et al., 2021; Truong et al., 2023). For instance, Truong et al. (2023)

investigated the attitudes and perspectives of Vietnamese medical students toward AI and its potential impact, finding that the majority viewed it as beneficial for their careers and public health management. Chao et al. (2021) surveyed 206 Vietnamese software engineering and computer science students, highlighting the need for a comprehensive and accessible AI curriculum in IT programs. This paper addresses this knowledge gap by analyzing VnExpress user comment data to capture the dynamic shifts in Vietnamese public opinion regarding AI's influence on the labor market. By contrasting these findings with the prevailing global perspectives, we can shed light on the potential divergences and nuances in how AI is perceived and understood in different parts of the world.

Online Newspaper Comments as a Lens on AI Perceptions

While previous studies on public opinion regarding AI and the labor market have primarily relied on surveys (Kochhar, 2023; Tyson & Kikuchi, 2023), this paper leverages the rich data available from user comments in the discussion sections of online newspapers. These comments share many similarities (user interaction and content creation) with those on social media platforms. Social media has become a go-to platform for both staying informed (Aharony, 2012; Zaleski et al., 2016) and sharing opinions on various topics (Alafwan et al., 2023; Humprecht et al., 2020). The easier it is to access social media, the stronger the connection people feel to it

(Lingam & Aripin, 2017). This connection is fueled by the ability for anyone to comment on social media posts (Ziegele et al., 2014), freely expressing their views on both public and sensitive issues. Although research specifically focusing on user comments in online newspapers is less extensive compared to social media research, it nonetheless offers valuable insights into public perception, especially within the context of traditional media consumption habits (Coe et al., 2014).

Studying public perception of technological advancements through analyzing public comments remains relatively underexplored. So et al. (2024) investigated the Korean public perception of generative AI and education through YouTube comments, focusing on sentiment analysis, and they ultimately identified a neutral stance. Neri and Cozman (2020) leverage Twitter data to demonstrate a substantial link between public awareness and concerns surrounding the risk associated with artificial intelligence. Their analysis suggests that AI is often perceived as a potential threat, and the specific nature of these anxieties is existential risk. Similarly, Gao et al. (2020) employ Sina Weibo, a Chinese microblogging platform, to examine public attitudes towards AI in healthcare. This paper aims to fill a gap in the literature by employing quantitative content analysis to delve deeper and gauge the public perception of AI's impact on employment in a developing country, offering a more comprehensive understanding of public thoughts and concerns.

METHOD

This study employs a quantitative content analysis approach to systematically examine public perceptions of AI's impact on jobs as reflected in online newspaper comments. The newspaper we examined was VnExpress, an online-only publication with the highest readership in Vietnam. Launched in 2001, VnExpress was the first online newspaper in the country. According to *Most Visited Websites* (n.d.), VnExpress ranked among the top 8 most visited websites in Vietnam in 2023. It captures almost 60% of all Vietnamese e-newspaper traffic, with nearly 43.2 million monthly visitors (users; VnExpress, 2023).

We chose VnExpress for three main reasons. First, VnExpress's audience demographics, as reported by *VnExpress. Net Traffic Analytics, Ranking & Audience* (n.d.), further highlight its relevance for capturing public sentiment in Vietnam. The majority of its readership falls within the 25–34 age group (28%), followed by the 18–24 age group (18%) and the 55–64 demographic (18%). These age groups represent a significant portion of the Vietnamese workforce and are likely to be most impacted by the potential changes AI could bring to the job market. Moreover, the gender distribution of the readership is relatively balanced, with 60% male and 40% female users. This allows for diverse perspectives to be represented in the comments analyzed in this study.

Second, technology and AI topics were regularly featured on VnExpress. Published by FPT Corporation, the largest private technology company in Vietnam, VnExpress often presents AI-related topics regarding various aspects of everyday life, particularly the impact of AI on different jobs and the job market. These topics attracted public attention and generated numerous comments, providing a rich dataset for this research.

Third, VnExpress's discussion forum shares key similarities with forums of other major online newspapers in Vietnam, like Dantri and Thanh Nien. Like these other newspapers, VnExpress requires users to log in to comment, allows users to rate others' comments, implements some form of comment moderation, and allows users to choose their whole or partial screen name. These similarities should enhance the generalizability of our findings.

VnExpress invites readers to engage in lively discussions at the end of each online article through a "Join the Discussion" button. These discussions are open for anyone to browse, but only registered users can participate by posting their thoughts. Each comment is linked to the username chosen during account creation, and commenters have the option to add an image for further personalization.

Data and Analysis

Articles were selected using a keyword search strategy within the VnExpress database over one year (December 2022 to December 2023). The keywords "Trí tuệ nhân tạo" (Artificial Intelligence in Vietnamese) and "AI" were used to identify relevant articles. Articles lacking comments

or featuring comments unrelated to the labor market were excluded, resulting in a final sample of 205 articles. From these articles, 7,886 comments were extracted, of which 2,866 were deemed relevant to our research focus on AI's impact on jobs and employment. A purposive sampling technique was employed to select comments that explicitly addressed the relationship between AI and the labor market, ensuring the data's relevance to the research objectives.

We had the assistance of a research assistant who received thorough training on the coding procedures for a week. For each article containing at least one relevant comment, we coded its topic, date, and total number of comments. The article topic, defined as the main focus of the article, was identified based on the predefined categories listed by VnExpress. We also recorded the article publication date and the total number of comments, including relevant and irrelevant comments on our research topic.

For each comment on the impact of AI on jobs and employment (JAI_comments), we categorized its "View" on AI's job impact as positive, negative, or neutral (Table 1). We also identified the "Industry" mentioned in each comment, which referred to the main sector perceived to be affected by AI. Finally, "Reader Like" was measured by the number of "thumbs up" ratings assigned to each comment by other registered users on the VnExpress platform (which lacks a "thumbs down" system).

Intercoder Reliability

Intercoder reliability was assessed to ensure the consistency and accuracy of the coding process. The author and the research assistant independently coded a representative sample of 50 comments. The chance-corrected agreement was measured for each coded category using Krippendorff's alpha coefficient. All coded

Table 1

Operational definitions and examples of three views of AI (a=0.73)

Category	Operational Definition	Example
Positive	AI reduces unemployment or has a minimal impact on it	"This AI is going to make many people unemployed" is a wrong thought; on the contrary, this AI will help people work better and more effectively. Low- and mid-skill jobs are almost unaffected by AI. Highly skilled positions benefit even the most from this technology.
Negative	AI increases the level of unemployment overall (or in an industry)	...did you know that it contributes to pushing thousands of workers into unemployment? The future will develop like this: when AI gradually replaces human workers, people's income will be absent or reduced, leading to no money to spend.
Neutral	AI will replace current jobs with new jobs or simply force people to upskill rather than create unemployment	...in the end, people with intelligence, flexible response skills, and adaptability to changes created by humans are still the factors that cannot be replaced/unemployed. Instead of worrying, you should invest in yourself from now on to take advantage of this AI resource in the future.

variables demonstrated satisfactory levels of reliability, with alpha values ranging from 0.73 to 1.00.

RESULTS

Prevalence of Job-related AI Comments (JAI_comments)

Our first question investigated the prevalence of discussion about AI's impact on jobs within online discussions. We found a substantial amount of such discussion, with over one-third of all comments (36.3%) mentioning AI in relation to jobs and employment. Furthermore, JAI comments remained highly prevalent even when looking at individual articles. The proportion of JAI comments within articles varied widely, ranging from 2% to 100% ($M = 46.7\%$, $SD = 28.6\%$, $Mdn = 45.8\%$).

Interestingly, longer discussions appeared to exhibit a lower rate of JAI comments. As illustrated in Table 2, increasing the number of comments per discussion led to a decline in the percentage of JAI comments (χ^2 (3, $N = 7886$) = 160.4, $p < 0.01$).

This significant result held true when using various alternative strategies for grouping comment numbers per discussion. For example, discussions with 6–20 comments had a higher percentage of JAI comments than those with 21–50 comments (χ^2 (1, $N = 2933$) = 15.3, $p < 0.01$).

Our second question investigated whether JAI comments were habitual or contextual by examining their association with article categories (Table 3).

The results suggest that lifestyle articles garnered the highest proportion

Table 2

Prevalence of JAI_comments based on discussion size

Statistic	Total number of comments made in the Article Discussion			
	1-5	6-20	21-50	51-325
Mean percentage of JAI_comments	73.6	49.1	40.4	34.4
Standard Deviation	31.2	25.1	26.4	24.3
Number of articles	27	76	59	43

Table 3

Prevalence of JAI_comments based on article category

Category	Number of Articles	JAI_Comments	Total Comments	Percent of JAI_comments (%)
Digitalization	132	1773	5191	34.2
Science	15	71	183	38.8
Education	8	73	222	32.9
Business	10	168	492	34.1
Life	7	186	275	67.6
Others	33	595	1523	39.1
Total	**205**	**2866**	**7886**	**36.3**

of JAI comments (67.6%). The top three articles in the lifestyle category with the highest proportion of JAI comments are, respectively, "*Losing Jobs Because of AI*," "*10 Professions That Are Difficult to Be Replaced by AI*," and "*The Number One Quality That Google Bosses Want in Employees*." In contrast, articles about digitalization, science, education, and businesses received roughly one JAI comment for every three comments posted. This difference is statistically significant across article categories, even when comparing the lifestyle category to the second-highest category ("Others") in terms of the percentage of JAI comments (χ^2 (1, N = 1798) = 77.4, p < 0.01).

Public discourse surrounding AI's impact, extends beyond general concerns about jobs and unemployment. By analyzing online discussions, we delved deeper into specific industries perceived to be most affected. The results were striking, with over half (57.6%) of comments mentioning the impact of AI, specifically referencing the information technology and telecommunications sector. Public concerns seem focused on AI-driven automation potentially disrupting these industries, though the exact nature of the change remains debatable. Additionally, 6.9% of JAI comments highlighted the education sector, suggesting public anticipation of significant reforms driven by AI in this area. While the full scope of these changes is yet to be seen, public discourse recognizes AI's potential to reshape specific industries profoundly.

Prevalence of Negative Views on JAI_comments: Support for H1

Table 4 clearly shows that negativity dominates discussions about AI's impact on jobs. Nearly 59% of JAI comments express concerns, while only 25% hold a positive outlook. This difference is statistically significant, with a z-score of 26.0 (p < 0.01). The "likes" further echo this trend: over half (57%) favor negative comments, compared to just 23% for positive ones (z = 103.0, p < 0.01). This suggests a strong undercurrent of anxiety surrounding AI's potential impact on jobs, driven by concerns about displacement, skill obsolescence, and economic disruption. The analysis of JAI comments and associated "likes" strongly supports H1. The results indicate that the proportion of Vietnamese respondents expressing a negative view of AI's impact on the labor market significantly exceeds

Table 4

Prevalence of negative views on JAI_comments

View	Number of comments	Percentage of JAI_comments	Number of Likes	Percentage of total likes (%)
Negative	1683	58.7%	25721	56.7
Positive	711	24.8%	10542	23.2
Neutral	472	16.5%	9095	20.1
Total	**2866**	**100.0%**	**45358**	**100.0**

the proportion expressing a positive view, confirming the hypothesis of prevailing negative sentiment.

However, it is important to note that the remaining 41% of JAI comments reflect a mix of positive and neutral perspectives. This underscores the complexity of public discourse on AI's impact on jobs. Here, concerns coexist with potential optimism for the future of work and AI's role.

Across all article categories on VN Express, negativity reigns supreme in discussions about AI's impact on jobs (Table 5). Negative views consistently outnumber positive and neutral perspectives, particularly in science, digitalization, education, and business, comprising over half of all JAI comments. This negativity is exemplified by the top three articles with the most negative views: "*There Will Be No More Programmers in the Next 5 Years*," "*Bill Gates: 'Humans Can Only Work Three Days a Week Thanks to AI*,'" and "*Year of Job Loss for Many IT Personnel*." These headlines paint a bleak picture of AI's potential, highlighting fears of widespread job displacement.

The Shift of Public Perception to a Negative View Over Time: Support for H2

Public perception of AI's impact on jobs took a dramatic turn following the launch of ChatGPT in December 2022 (Figure 1). Initially, cautious optimism prevailed, with negative and positive views nearly neck-and-neck (51.3% negative vs. 44.7% positive). However, the months that followed witnessed a stark shift. By September 2023, negative sentiment skyrocketed to a staggering 78.2%, a clear reflection of growing public anxiety about AI displacing jobs (Table 6).

While there were temporary fluctuations, the overall trend remained negative (Figure 1). Months with positive spikes, like April and July, saw a rise in neutral comments rather than a genuine embrace of AI's job-creating potential. Notably, November witnessed a surge in positive and negative views, suggesting a potential return to a complex, balanced discourse. December 2023 ended with the highest negativity (75.3%), highlighting the enduring public concern about AI's impact on employment. While further analysis is

Table 5
Prevalence of negative views based on article category

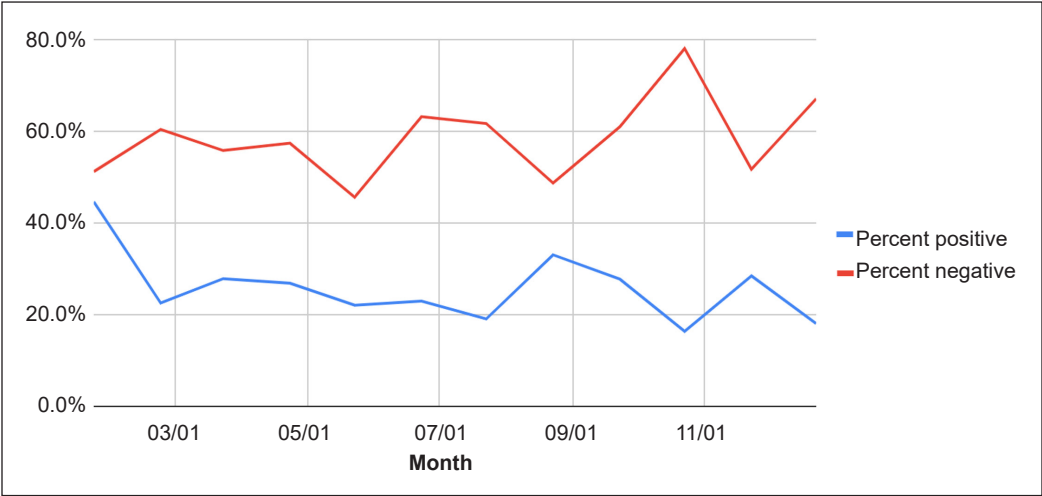| Category	Negative	Percent (%)	Positive	Percent (%)	Neutral	Percent (%)	Total JAI comments
Science	55	77.5	13	18.3	3	4.2	71
Digitalization	1106	62.4	432	24.4	235	13.3	1773
Education	44	60.3	20	27.4	9	12.3	73
Business	96	57.1	30	17.9	42	25.0	168
Life	91	48.9	68	36.6	27	14.5	186
Other items	291	48.9	148	24.9	156	26.2	595

Figure 1. The change in JAI_comments after the ChatGPT launch

Table 6
Views on JAI comments after the launch of ChatGPT (December 22 to December 23)

Month	Positive	Negative	Neutral	Total	Percent positive (%)	Percent negative (%)	Percent neutral (%)
12/22	67	77	6	150	44.7%	51.3%	4.0%
01/23	44	118	33	195	22.6%	60.5%	16.9%
02/23	76	152	44	272	27.9%	55.9%	16.2%
03/23	52	111	30	193	26.9%	57.5%	15.6%
04/23	61	126	89	276	22.1%	45.7%	32.2%
05/23	62	171	37	270	23.0%	63.3%	13.7%
06/23	38	123	38	199	19.1%	61.8%	19.1%
07/23	120	177	66	363	33.1%	48.8%	18.1%
08/23	35	77	14	126	27.8%	61.1%	11.1%
09/23	9	43	3	55	16.4%	78.2%	5.4%
10/23	39	71	27	137	28.5%	51.8%	19.7%
11/23	84	312	68	464	18.1%	67.2%	14.7%
12/23	24	125	17	166	14.5%	75.3%	10.2%

needed to understand the specific drivers of this sentiment, it is clear that ChatGPT's emergence significantly intensified public anxieties about AI and its potential effects on the workforce.

Using two-sample comparisons, we also tested whether the distribution of negative, positive, and neutral views changed significantly over time. We compared the first seven months since ChatGPT's launch (December 2022–June 2023) with the last six months (July 2023– December 2023). The chi-square test revealed a significant change in the distribution, with more negative views

and fewer positive views in the later period (χ^2 (2, N = 2866) = 7.84, p < 0.05). To ensure the robustness of this finding, we conducted additional comparisons: the first six months after launch (December 2022–May 2023) to the last six months (July 2023–December 2023) (χ^2 (2, N = 2667) = 9.17, p < 0.05), and the first six months of 2023 to the last six months of 2023 (χ^2 (2, N = 2716) = 9.91, p < 0.05). All tests revealed a significant shift in public perception, with more people inclined towards negative views when commenting on the impact of AI on jobs. These results align with and confirm the hypothesis H2.

We also tested H2 by regression analysis with the following two models using 13-month data points:

Model 1: *Percent of negative comments = β0 + β1 * Time + ε*

Model 2: *Percent of positive comments = β2 + β3 * Time + ε*

The regression results presented in Table 7 support H2. In Model 1, where the dependent variable is the percentage of negative comments, the coefficient for 'Time' is positive (0.013) and statistically significant at the 10% level (p-value = 0.06). This indicates that, on average,

the proportion of negative comments regarding AI's impact on the labor market increased over time since the launch of ChatGPT. Furthermore, Model 2, with the percentage of positive comments as the dependent variable, reveals a negative and statistically significant coefficient for 'Time' (-0.012, p < 0.05). This suggests a decrease in the proportion of positive comments over the same period. Taken together, these findings demonstrate a clear trend towards a more negative perception of AI's impact on employment as time progressed following the introduction of ChatGPT, thus confirming H2.

It is worth noting that a potential limitation of the regression analyses conducted in this study is the relatively small sample size of 13 observations. While the results provide valuable insights into the trends in public perception, the limited number of data points may constrain the statistical power of the analysis, potentially increasing the risk of Type II errors (failing to reject a false null hypothesis).

DISCUSSION

Our analysis reveals a significant trend in public discussions surrounding AI: concerns about its potential impact on jobs. We examined online discussions and found that over one-third of all comments explicitly addressed this issue. This prevalence cuts across various AI-related topics, suggesting widespread interest and apprehension. The prominence of job-related concerns resonates with Identity Theory (Lee et al., 2006; Stets & Burke, 2000), which

Table 7
Impact of time on perception of AI and employment

Variable	Model 1	Model 2
Intercept	0.507**	0.331**
Time	0.013*	-0.012**
R-squared	0.279	0.318
Observations	13	13

Note. *p-value < 0.1, **p-value < 0.05

emphasizes the link between our jobs and self-perception. Work provides individuals with a sense of purpose, belonging, and social status. Consequently, when technological advancements threaten job security, it can trigger a perceived threat to self-identity, leading to heightened awareness and potential worries about the future. Further supporting this connection, public surveys consistently rank job displacement due to AI as a major concern (Brauner et al., 2023; Kelley et al., 2021). Even casual social media commentary reflects this focus (Neri & Cozman, 2020). Our findings suggest that concerns about AI's impact on jobs are not limited to developed countries. Even in developing nations with lower levels of technology and automation, individuals share similar anxieties about the potential consequences of AI on employment.

Second, following ChatGPT's launch, our analysis revealed a notable trend in Vietnam's public discussions surrounding AI: a dominance of negative views. Nearly 59% of public comments expressed concerns about unemployment or being replaced by AI, while only 25% held a positive outlook on AI's potential to increase productivity without job displacement. This imbalance was consistent across all AI-related topics. Several factors could contribute to this phenomenon. Uncertainty Reduction Theory posits that individuals seek to minimize uncertainty in their lives (Kramer, 1999). Jobs often provide a sense of predictability and routine, offering comfort and stability. When new technologies like AI emerge, their potential impact on jobs can be unclear,

creating anxiety and a desire to regain control. Individuals may attempt to understand and prepare for potential job market changes by expressing negative views and concerns, even if they lack complete information. Furthermore, it is important to consider the socio-economic context of Vietnam. With a rapidly developing economy and a large workforce transitioning into new industries, anxieties around job security and automation might be heightened (Hipkin, 2004). This could contribute to a more pronounced negativity bias in public discussions about AI compared to other countries.

Third, our analysis reveals a striking shift in public perception of AI over the past year since ChatGPT's launch. Notably, negative views experienced a significant increase, climbing from 51.3% in December 2022 to a concerning 75.3% in December 2023. Conversely, positive views dwindled dramatically, dropping by 30.2% during the same period. This dramatic shift can be partially explained through the lens of Social Exchange Theory (Cropanzano & Mitchell, 2005). At its core, Social Exchange Theory posits that individuals engage in social interactions based on perceived costs and benefits. In this context, jobs represent a crucial social exchange, providing income, stability, and career progression. Individuals subconsciously recalculate their jobs' potential costs and benefits when a new technology like AI emerges. This dramatic shift suggests a potential recalibration of public perception about AI's impact on jobs. We can speculate that initial uncertainties surrounding ChatGPT's capabilities may

have led to a neutral stance. However, as individuals gained more information and exposure to AI over the past year, the perceived risk of job displacement might have been reevaluated. This could explain the decline in positive views and rise in anxieties expressed through negative comments, reflecting heightened concerns about future job security.

CONCLUSION

This analysis of public discourse in Vietnam reveals a pervasive anxiety surrounding AI's impact on jobs, confirming both hypotheses. The dominance of negative views, escalating significantly after ChatGPT's launch, underscores the strong link between employment and technological advancement, resonating with Keynes's technological unemployment theory (Peters, 2019). This echoes findings from other studies (Brauner et al., 2023; Tyson & Kikuchi, 2023) where job displacement due to AI emerged as a major public concern; the observed shift towards heightened negativity aligns with the concept of technological momentum (Hughes, 1987), where the increasing integration of AI amplifies anxieties, particularly in developing economies like Vietnam, facing rapid technological transformations and potential workforce vulnerabilities. This mirrors observations by Hammer and Karmakar (2021), who highlighted the potential for AI to exacerbate inequalities and disrupt traditional employment sectors in similar contexts. The findings underscore the need for proactive strategies to manage public

anxieties and ensure a smooth transition in the face of AI-driven changes to the workforce.

Implications for Theory and Practice

This study offers several key theoretical contributions. Firstly, it provides compelling empirical support for Identity Theory in the context of technological disruption (Lee et al., 2006). The strong link between job security concerns and negative AI perceptions in the Vietnamese context reinforces the notion that individuals' identities are closely tied to their occupations. The prevalence of such concerns highlights the potential for AI to trigger a perceived threat to self-identity, leading to heightened anxieties and a negative outlook on technological advancements. This finding underscores the importance of considering the psychological and social implications of AI beyond its purely economic effects. Secondly, this study highlights the explanatory power of technological momentum in understanding the evolution of public opinion towards emerging technologies (Hughes, 1987). The observed intensification of negative views over time, particularly following the launch of ChatGPT, demonstrates how the increasing visibility and integration of AI into society can amplify negative perceptions. This finding suggests that technological momentum can be crucial in shaping public discourse and attitudes toward technological advancements, especially in developing economies experiencing rapid technological transformations. Finally, this study contributes to the growing body of literature

on the social and economic implications of AI in developing countries (Bjola, 2022). Focusing on Vietnam provides valuable insights into how public perceptions in these contexts may differ from those in developed nations. The findings suggest that anxieties surrounding AI's impact on employment may be heightened in developing economies due to factors like income inequality, limited social safety nets, and the challenges of rapid technological adoption. This highlights the need for tailored strategies and policies to address these concerns and ensure a just transition in the face of AI-driven changes.

This study carries significant practical implications for policymakers, educators, and industry leaders in Vietnam. The findings highlight the urgent need to address the widespread public anxieties surrounding AI's impact on employment. This can be achieved through proactive strategies that include transparent communication about the potential benefits and risks of AI, coupled with targeted education and upskilling initiatives to empower the workforce to adapt to the changing demands of the job market (Goel et al., 2024). Policy frameworks should prioritize a just transition, ensuring adequate social safety nets and support systems for those whose livelihoods may be disrupted by AI-driven changes. Furthermore, fostering AI literacy through accessible education and public awareness campaigns is crucial to equip individuals with the knowledge and skills necessary to navigate the evolving technological landscape (Adıgüzel et al., 2023). Promoting a balanced understanding of AI's capabilities and limitations can help alleviate anxieties and foster a more constructive and future-focused approach to AI adoption in Vietnam. This will contribute to a smoother integration of AI into the economy and ensure that its benefits are shared equitably across society.

Limitations and Recommendations for Future Research

While our analysis of 205 VnExpress articles with 7886 public comments offers valuable insights into public perception of AI's impact on jobs in Vietnam, it is crucial to acknowledge limitations and identify avenues for further research.

Firstly, our study solely focused on VnExpress, Vietnam's most popular online newspaper. This limits the generalizability of our findings, as we cannot determine if the observed trends are unique to VnExpress readers or reflect broader public sentiment (Coe et al., 2014). While VnExpress shares similarities with other big online newspapers, exploring comments on other platforms could provide a more comprehensive understanding of public opinion.

Secondly, the VnExpress discussion forum requires users to log in, potentially influencing the nature and demographics of commenters. While the forum's structure aligns with other newspapers, investigating platforms with different comment policies could reveal variations in public discourse.

Finally, it is vital to acknowledge that our study's measures of public perception have limitations. Firstly, some comments express multiple viewpoints concurrently,

requiring us to categorize the dominant sentiment. While we strive for accuracy, this process might introduce some margin of error. In addition, individual perceptions can evolve. While we capture users' opinions when commenting, we cannot track potential changes in their views later. This dynamic nature of public perception remains a challenge in capturing a fully nuanced picture.

Future research should attempt to address these limitations and consider other possibilities as well. Firstly, expanding the data source beyond a single news outlet is crucial. Analyzing comments from diverse news platforms, social media hubs, and online forums would paint a richer picture of public perception across different demographics and media preferences. Secondly, investigating platforms with alternative comment policies could prove insightful. Exploring forums with different login requirements or moderation styles could illuminate how these factors influence the expression and intensity of public concerns about AI and job displacement. Do anonymity and minimal moderation amplify negativity, or do they simply attract different sets of individuals with varying perspectives? Finally, conducting qualitative research through in-depth interviews or focus groups would offer invaluable depth and nuance. Delving into the motivations and experiences of individuals expressing anxieties about AI would provide a far richer understanding of the underlying fears and expectations shaping public perceptions. This deeper approach could help identify specific concerns within different demographic groups, inform targeted efforts to address anxieties and foster constructive dialogue about the future of work and AI.

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