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Research Articles:

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Aims and Scope Aims and Scope

The NIDA Development Journal (NDJ) publishes manuscripts that describe or synthesize research of direct relevance to development administration. Its main objective is to publish high quality, double blind peer-review papers using at least three referees that have not previously been published and that reflect the latest research in the area of policy, administration and development. The editors welcome a wide range of academic papers, including research articles, review articles, and book reviews.

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Message from the Editor

Dear Readers,

It is with great pleasure that we present to you the NIDA Development Journal, Volume 16, Number 2 (July - December 2024). This issue brings together a compelling selection of research that addresses critical challenges and opportunities in sustainable development, reflecting our commitment to fostering interdisciplinary dialogue and actionable insights.

Our featured articles delve into topics that are both timely and significant, offering fresh perspectives and practical implications:

- **"Wage-Gender Inequality in Labor Market: Discrimination or Others"** by Naphat Wuttaphan, sheds light on the persistent issue of wage-gender inequality. This paper explores its roots in discrimination, labor market dynamics, and psychological factors, providing a roadmap for HR professionals to address these disparities effectively.

- **"The Household E-Waste Management in Thailand: Challenges and Opportunities towards Circular Economy"** by Aweewan Mangmeechai, examines the pressing issue of e-waste in Thailand. By highlighting gaps in infrastructure and legislation, the paper offers strategies to advance a circular economy and reduce environmental impact.

- **"The Importance of Food Hygiene in Building Customer Trust and Repurchase Intentions in Bangkok Street Food"** by Akaraphun Ratasuk, explores how perceived food hygiene influences customer trust and loyalty in the vibrant street food sector of Bangkok. The findings underscore the role of hygiene in fostering sustainable business practices and enhancing quality of life.

- **"The Roles of Work- and Social-Related Social Media Usage in Facilitating Firm-Level Creative Capital and Innovative Job Performance"** by Xuemei Sun, investigates how social media platforms contribute to creativity and innovation in the workplace. The study offers practical insights for managers aiming to harness social media as a tool for professional collaboration and organizational growth.

- **"Determinants of Intention and Behavior of Responsible Consumption through Reduce Waste Generation in Thailand"** by Vesarach Aumeboonsuke, analyzes the behavioral drivers of responsible consumption in Thailand. This research provides valuable guidance for policymakers seeking to reduce waste generation and advance Sustainable Development Goal 12.

- **“Analysis of Gap Between Green Purchase Intention and Green Purchase Behavior: A Case Study of Vietnamese Students”** by Tien Chau Thuy Huynh, Han Nu Ngoc Ton, and Nguyen Huynh Nhu Ngoc, explores the “green gap” phenomenon. The study reveals key factors that influence the disconnect between intention and behavior in sustainable consumption, offering actionable recommendations for bridging this divide.

We are deeply grateful to our contributors for their invaluable research and to our reviewers for their rigorous evaluations. Each article in this issue represents a meaningful step toward understanding and addressing the complexities of sustainable development.

We hope this collection of work inspires thoughtful reflection and meaningful action in your own endeavors.

Warm regards,

Editor-in-Chief

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Contents

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Research Articles:

Wage-Gender Inequality in Labor Market: Discrimination or Others

Naphat Wuttaphan*

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Abstract

The wage-gender inequality and discrimination have been intensively examined for sustainable development goals. This paper investigates empirical potential estimation and the extent of wage-gender inequality in both traditional and contemporary analysis. Understanding the source of wage-gender discrimination and inequality gap will possibly assist HRD professionals in designing the HRD policy and implementation more manageable by analyzing the scope and patterns of the gender pay gap and identifying possible reasons for its existence. This paper emphasizes the wage-gender discrimination concepts, factors affecting wage inequality in the labor market which are heterogeneous jobs, heterogeneous workers, labor market discrimination, as well as the related psychological factors that might affect wage-gender discrimination. Moreover, the role and how HRD professionals could help to handle wage-gender discrimination and inequality will be discussed.

Keywords: Wage-Gender, Inequality, Discrimination, Labor Market

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ค่าจ้างที่ไม่เท่ากันตามเพศสภาพในตลาดแรงงาน: การเลือกปฏิบัติหรือสาเหตุอื่น ๆ

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บทคัดย่อ

ความไม่เท่าเทียมและการเลือกปฏิบัติด้านค่าจ้างตามเพศสภาพเป็นหนึ่งในเป้าหมายของการพัฒนาที่ยั่งยืน บทความนี้ทำการสำรวจ วิเคราะห์ และศึกษาการเลือกปฏิบัติทางเพศที่เกี่ยวข้องกับค่าจ้างทั้งในอดีตและปัจจุบัน ดังนั้น การเข้าใจที่มาของการเลือกปฏิบัติทางเพศและช่องว่างของความไม่เสมอภาคเพศจะช่วยให้ผู้เชี่ยวชาญด้านการพัฒนาทรัพยากรบุคคลสามารถออกแบบนโยบายและการปฏิบัติทางการพัฒนาทรัพยากรบุคคลได้อย่างมีประสิทธิภาพมากขึ้น โดยการวิเคราะห์ขอบเขตและรูปแบบของช่องว่างในการจ่ายค่าจ้างตามเพศสภาพและเหตุผลเบื้องหลังการจ่ายค่าจ้าง รวมทั้งปัจจัยที่มีผลต่อความไม่เสมอภาคในตลาดแรงงาน อาทิ ความแตกต่างด้านประเภทของงาน ความแตกต่างด้านทักษะของแรงงาน การเลือกปฏิบัติในตลาดแรงงาน และปัจจัยด้านจิตวิทยาที่ส่งผลต่อความไม่เท่าเทียมกันด้านค่าจ้างตามเพศสภาพ นอกจากนี้ยังรวมถึง บทบาท และวิธีที่นักพัฒนาทรัพยากรมนุษย์จะสามารถบริหารจัดการและช่วยส่งเสริมความเท่าเทียมกันด้านค่าจ้างตามเพศสภาพในองค์การได้อย่างมีประสิทธิผล

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Introduction

Almost all human rights agreements forbid discrimination and inequality based on gender. Although there has been a significant advancement in ensuring people's rights worldwide, countless women, girls, and LGBTQI+ still face discrimination and violence, resulting in a denial of equality, dignity, autonomy, and sometimes even the right to live (OHCHR, 2023). The term discrimination emerged in the early 17th century in English literature, Latin word is *discriminat* from the verb *discriminare, discrimen, discernere,* which means "distinguished between" (Oxford Dictionaries, 2013). Since the American Civil War the term "discrimination" generally evolved in American English usage as an understanding of the prejudicial treatment of an individual based solely on race, later generalized as membership in a certain socially undesirable group or social category. Before this sense of the word became almost universal, it was a synonym for discernment, tact and culture as in "taste and discrimination", generally a laudable attribute; to "discriminate against" is commonly disparaged (Norton, 2009; Simpson, 1989; Tardif, 1985). At present, discrimination has been broadened to several aspects not only racial, gender, age, disability, religious, national, or pregnancy discrimination but also occurs in many forms, such as socioeconomic status, education levels, or political beliefs, which all concerns some form of exclusion or rejection.

One of the 17 sustainable development goals (SDG) was announced by the United Nations in 2015, the 5th sustainable development goal is gender equality (UNDP, 2015). The objective of Sustainable Development Goal 5 is to ensure that all genders are given equal rights and opportunities to live a life free from discrimination, including workplace discrimination and any form of violence to promote gender equality and empower all genders. 9 targets are placed which are 5.1) ending all forms of discrimination against all women and girls everywhere 5.2) ending violence and exploitation of women and girls, 5.3) eliminating harmful practices such as child, early, and forced marriage and female genital mutilation, 5.4) increasing value of unpaid care and promoting shared domestic responsibilities, 5.5) ensuring full participation of women in leadership and decision-making, 5.6) ensuring access to universal reproductive rights and health, 5.7) fostering equal rights to economic resources, property ownership and financial services for women, 5.8) promoting the empowerment of women through technology; and 5.9) adopting, strengthening policies and enforcing legislation for gender equality (Ritchie, Roser, Mispy, Ortiz-Ospina, 2018; United Nations, 2017).

The promotion of gender equality is essential to achieve fairness and sustainable progress (UN Women, 2014). This paper aims to discover and clarify the factors affecting wage-gender inequality from various aspects points of view in the labor market, in order to set the boundary of the terminology of discrimination whether the organization discriminates or just results in the imperfect labor market and other heterogeneous human capital. Examining the differences in the pay gap across various aspect categories can provide insight into the intricate and interrelated factors that play a role in gender-based wage inequality.

Wage-Gender Discrimination

According to the World Health Organization (2009), gender disparities are apparent in various aspects such as educational and occupational achievements, asset ownership, and the prevalence of poverty among women. These disparities heighten the probability of violence against women. Social, political, and economic systems are structured in a way that privileges men over other genders such as women and LGBTQI+, resulting in limited opportunities and accountability for other genders, systemic subordination in the workplace, and the creation of authorities in hierarchies. This unequal power dynamic between genders is reinforced and perpetuated by societal norms that uphold male dominance, leading to various forms of inequality against other forms of genders (Farmer, Nizeye, Stulac, & Keshavjee, 2006; Dahal, Joshi, & Swahnberg, 2002; WHO, 2002). However, these issues lead to the differential in wage structure or compensating differentials in various ways where gender discrimination is placed in the workplace. The statistical analysis by Perrin and Hyland (as cited in World Bank, 2023) reveals that nearly 2.4 billion women of working age do not have access to equal economic opportunities, and 178 countries have legal barriers that prevent women from fully participating in the economy. In 86 countries, women face limitations in the type of jobs they can have, and in 95 countries, there is no guarantee of equal pay for equal work. Moreover, women have only three-quarters of the legal rights that men have, which translates to an overall score of 76.5 out of 100 for legal parity.

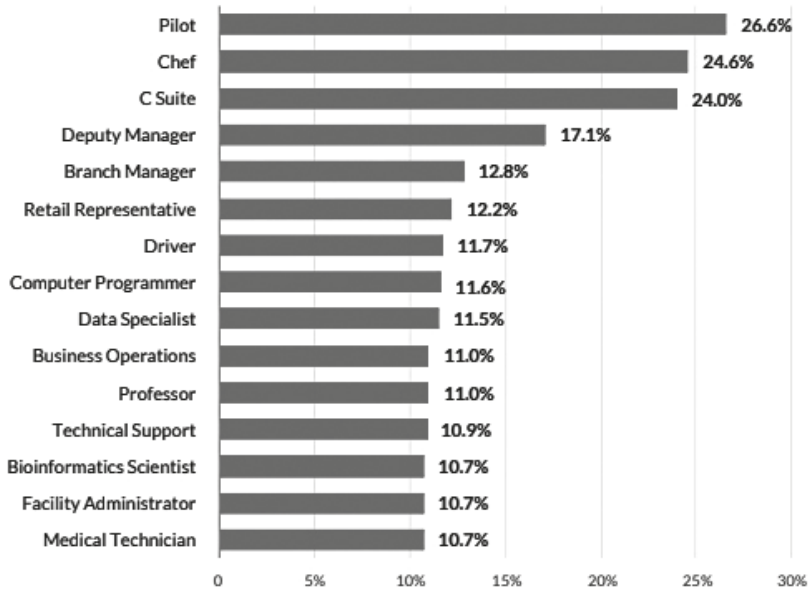

Figure 1: Occupational Gap Pay
Source: Glassdoor Economic Research (2019)

Figure 1 indicates the top 15 occupations in the USA. By adjusting the gender gap in base pay by a percentage higher average male pay which is controlled by age, education, experience, state, year, job title, and employer name. It found that the disparity in pay between genders varies across different professions where female pilots earn only 73 cents for every dollar earned by male pilots, which amounts to a pay gap of 26.6%. This gap is notably larger than the US adjusted gender pay gap of 4.9%. The profession with the second highest adjusted pay gap is chefs, with a gap of 24.6%, followed by C-suite executives, with a gap of 24% (Whiting, 2018). In terms of wage-gender discrimination, Haan and Reilly (2023) found that on average women earned 17% less than men in 2022, by a dollar earned by men, women earned 82 cents in the USA. However, the worldwide gender pay gap is 77 cents. Moreover, black women earned the lowest-paid in the rural by 73 cents per dollar earned by rural men while year-round full-time rural black and Hispanic women earned 56 cents compared to white and non-Hispanic men. Furthermore, non-Hispanic white men earned almost twice as much as Latinas in 2021, with Latinas earning only 54% of their pay. Similarly, Black women earned just 58% of what non-Hispanic white men earned in 2020. Native American women were paid only 60 cents for every dollar that non-Hispanic white men earned.

Solving the problem of wage gender discrimination is not a simple matter and will require a comprehensive approach. It is worth mentioning that the strategies for resolving it could differ based on the specific country, industry, and culture involved. Furthermore, a concerted effort from the government, employers, and workers will be necessary to establish a more just and fairer workplace.

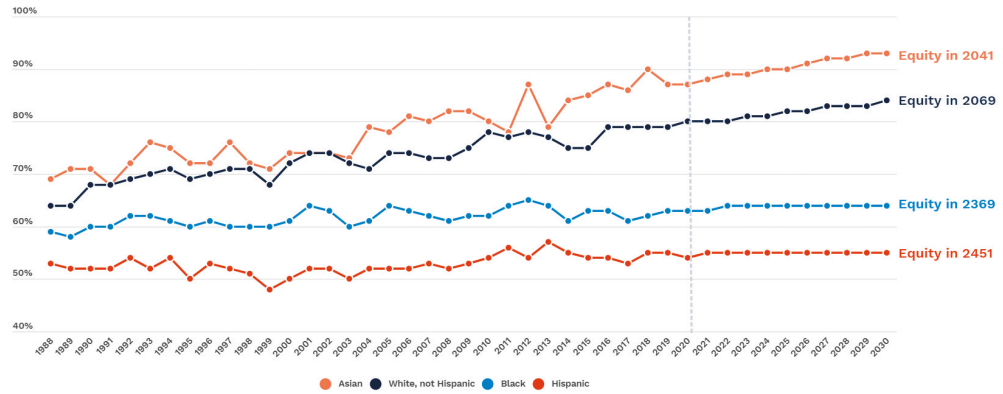

Figure 2: The 1988-2019 Trends

Source: U.S. Census Bureau (2020)

The gender pay gap by demographic by Forbes (2023) found that other forms of discrimination such as race, ethnicity, age, motherhood educational level, and human capital also affect wage gender pay even women's retirement by the fact that women receive lower pension benefits than men intensifies the disparity in retirement savings, ultimately leading to women having less than men in three crucial retirement aspects, namely Social Security, pensions, and savings on average, white men aged over 65 earn $44,200 per year, whereas white women over 65 have to manage with $23,100 annually. In comparison, Black women earn $21,900, and Latinas earn $14,800 per year on average (American Association of University Women, 2020). Figure 2 indicated that women's median annual earnings as a % of White, non-Hispanic men for full-time, year-round workers, 1988-2019 and projections using the 1988-2019 trends. Gharehgozli and Atal (2020) reveals that a larger discrepancy between male and female unemployment rates is linked to a smaller disparity in wages between genders. Additionally, while there has been a modest reduction in the gender wage gap, there has been a decrease in the wage-income proportion of

the lowest ten percent of earners to the highest ten percent of earners within each gender. This reduction has been more pronounced for women, indicating a rise in wage inequality within each gender. Comprehending the variations in wage gender pay inequality is beneficial for HRD professionals and can aid in illuminating the intricate and interrelated factors that result in gender-based wage discrepancies.

Factors Affecting Wage-Gender Inequality in Labor Market

It is important to note that factors often affecting wage-gender inequality are complex ways, making it difficult to address wage inequality through a single policy or solution. However, investing in human capital, occupational segregation, labor market imperfection, as well as psychological factors are categorized as follows.

Labor Force Participation

The rate of participation in the workforce is determined by dividing the number of individuals in the labor force by the overall population of individuals between the ages of 15 and 64 who are capable of working. This measure is further categorized by age group and expressed as a percentage for each group (OECD, 2023). Understanding changes in women's wages is closely linked to their participation in the labor force. This is because earning wages is dependent on having a job, and women's attachment to the labor force is a major factor in explaining the gender wage gap. The participation rate of women in the workforce experienced significant growth over the fifty years. This increase was mainly due to the increasing participation of married women, and it played a key role would helping to slight the wage gender gap inequality and other labor market outcomes for women (Goldin, 2006; Blau & Kahn, 2016). This implied that the more women participate in the labor market, the more women in the recruitment and selection process in the labor market and vice versa. However, the data show that women worldwide encounter limited income opportunities compared to men, with a lower likelihood of engaging in paid work or actively seeking employment. The global rate of women's participation in the labor force is just over 50%, compared to 80% for men. Women are also less likely to secure formal employment or access avenues for career advancement or business expansion. Even when women are employed, women typically earn less than men. The latest data from household surveys indicate that the gender gaps have worsened due to the COVID-19 pandemic (Kugler et al., 2021).

Heterogeneous Jobs

In labor market competition, employees and firms are heterogeneous and employers could not equally pay employee's wages because its differences in jobs. To understand wage inequality, wage determination in the labor market is required to comprehend. According to the perfectly competitive labor market where there are numerous firms to a specific labor filling in the identical job, as well as massive skilled laborers in identical human capital who independently offer their labor services. No single entity has manipulated the market, and factors such as information exchange, flow and labor mobility are operating optimally. So, the labor market is controlled by labor demand and supply where labor demand refers to an increase in a particular wage that leads to a decrease the employment, on the other hand, labor supply refers to the quantity of work that people are capable of and willing to offer at a specific wage rate, considering variables such as their competencies, educational background, work history, and the expense of using their time in other activities. Typically, an increase in the compensation offered for employment results in a rise in the amount of labor supplied, while a decrease in pay results in a decrease in labor supply (Blau, & Kahn, 2017; Card & Krueger, 2015). The determinations of labor demand consisted of product demand, productivity, prices and costs of other resources, number of employers, and technological advancements, where the labor supply determinations vary by nonwage income, other wage rate, preferences for work and leisure, nonwage aspects of the job, and number of qualified suppliers (McConnell, Brue, & Macpherson, 2021).

Heterogeneous and levels of jobs can impact wage gender discrimination in multiple ways. One of these is through compensating wage differentials, where jobs that require less education, skills, or experience tend to have lower wages. According to Manning (2011), compensating wage differentials are differences in wages between jobs that have varying levels of unpleasant or hazardous working conditions, such as exposure to harmful substances or hazardous equipment, and jobs that are deemed to be safer or more comfortable. Essentially, these wage differentials exist to compensate workers for taking on jobs with unpleasant or hazardous working conditions. These wage differences occur because workers demand a higher wage to compensate them for the negative aspects of their jobs. The concept of compensating wage differentials highlights the notion that individuals

are willing to exchange higher wages for non-monetary benefits, including working conditions, job security, or work hours. This can contribute to the gender wage gap if women are overrepresented in these jobs. Occupational segregation is another way in which heterogeneous jobs can affect wage gender discrimination, as some industries or occupations may be dominated by one gender, and jobs held by women are often undervalued and paid less than similar jobs held by men. Additionally, the prevalence of part-time jobs, which are commonly held by women due to caregiving responsibilities or other constraints, can further exacerbate wage gender discrimination as part-time jobs often have lower pay than full-time jobs. Furthermore, due to gender differences in occupational choices, when men and women also often occupy different levels of the job hierarchy within occupations, so executive women tend to face a glass ceiling more than men (Blau, & Kahn, 2017). It is invisible barriers that prevent women and minorities from advancing to the upper levels of an organization, particularly in the workplace. Besides the drivers of wage gender differential may result from other heterogeneities such as unions, and absolute and relative firm sizes.

Skill Biased Technological Change

A radical wage gender gap might be derived from a skill-biased technological revolution. This type of technology is often associated with skill-biased technological change, which is the phenomenon where technological advances favor workers who possess higher levels of education and skill. According to Autor, Levy, and Murnane (2003) a skill-biased technological change refers to the phenomenon where technological advances favor workers who possess higher levels of education and skill, while reducing the demand for workers who possess lower levels of education and skill. In other words, new technologies are introduced, which often require workers to have a higher level of education and skill to operate and maintain them effectively. This tends to increase the demand for skilled workers and increase wages, while reducing the demand for less-skilled workers and decreasing their wages. Skill-biased technological change can exacerbate income inequality by widening the gap between the wages of skilled and less-skilled workers, and may contribute to other social and economic disparities. Besides, skill bias leads to educational background, however, at the global level, men still tend to have higher levels of educational background

and attainment in science, technology, engineering, and mathematics (STEM) disciplines, especially in lower-income countries except for high-income countries that young female's educational level has precisely reached 56.6%, compared to only 44.1% for young men (Hewitt, 2020). Especially in mathematics, a cognitive skill, has received significant attention. Disparities between genders in terms of mathematical aptitude, as demonstrated by test results, could be linked to variations in wages and professions across genders (Blau, & Kahn, 2017).

According to a recent report by Britton, Dearden, Erve, and Waltmann (2020) found that 85% of women who graduate from the university experience a positive net lifetime return from education, compared to only about three-quarters of men. Although women have higher levels of participation in higher education, it may not necessarily lead to greater opportunities in the workplace. On average, a university education results in a net increase in earnings of approximately 20%. However, the difference in returns between male and female graduates is significant. The estimated gain to the government per student attending higher education is around £110k for men and only £30k for women in the UK.

Heterogeneous Workers

Noting that differences in job types and employers play a significant role in causing wage-gender inequality, it is also possible that heterogeneous characteristics among workers could also contribute to this disparity. Assuming that jobs are identical, employees possess different levels of human capital and preferences for work aspects. In reality, employees are not homogenous human capital. Human capital can be defined as the collection of knowledge, skills, abilities, and personal attributes that individuals possess and utilize to effectively perform in the workplace (Wuttaphan, 2017). Essentially, it encompasses the knowledge, skills, and talents that individuals acquire through education, training, and experience, which in turn enable them to generate economic value and contribute to the progress and advancement of organizations and economies (Becker, 1993; Schultz, 1961). Companies invest in human capital because it is perceived that the workforce is a valuable asset and anticipate that the investments will yield a favorable return in the future. The aim is to ensure that the resources invested in employees will generate a positive value and contribute to the organization's success in the long run (Wuttaphan, 2017). So heterogeneous workers in stock of human capital lead to wage differentials. However, in terms of training,

the International Labor Organization (2017) said that women still face training bias called “unconscious gender bias” (ILO, 2017). It refers to a type of bias that occurs unintentionally and automatically, based on an individual's mental associations regarding gender, which are shaped by cultural traditions, norms, values, and experiences. These automatic associations can influence decision-making processes by providing a rapid assessment of an individual's gender, based on gender stereotypes. It’s obvious that gender discrimination is placed by not being selected for the training program, so that the women’s skills, and knowledge, will not be accumulated, and leads to less likely to be promoted to a higher position in the workplace compared to males. Women may face increasing disadvantages due to having less experience compared to men.

Moreover, differences in preferences for nonwage aspects affect wage-gender inequality, which can be explained by the Hedonic theory of wages, it posits that an individual’s pay is influenced not only by the job's characteristics but also by the non-monetary factors linked to it, such as job satisfaction, work environment, and other inherent aspects that affect the individual's overall work experience. This theory suggests that jobs that provide desirable non-monetary attributes tend to offer higher wages, while those that are less attractive in these aspects are compensated with lower wages. It assumes that people prefer job characteristics beyond just the financial rewards and that employers offer higher wages to retain and attract employees with specific job-related preferences. The theory is often utilized to account for wage variations between occupations that require similar levels of education and skill (Rosen, 1974; McConnell et al., 2021). Fernandes, Huber, and Vaccaro (2021) confirmed that differences in wage expectations vary across genders which fostered wage-gender inequality in the labor market. So, norms, psychological attributes, and non-cognitive skills affect wage-gender inequality (Blau, & Kahn, 2017). In terms of Norms, women's career advancement can be hindered by workplace norms, such as the prevalence of men in senior leadership positions, which reinforces the “think-manager-think male” perception. Companies should be aware of the representation of minorities and the effect it has on the stereotyping of social groups. In addition, policies such as quotas can sometimes create the impression that having a few women in visible positions is enough to achieve gender equality, which may lead to a lack of effort to address the underlying issue of gender bias (ILO, 2017).

Psychological Factors

Psychological factors, numerous research found that psychological traits have both direct and indirect impacts on the gender pay gap. (Nyhus & Pons 2011; Cattan 2013). Mueller and Plug (2006) found that extroversion, agreeableness, conscientiousness, neuroticism, and openness affect the wage-gender gap by 7.3 - 16.2% (Semykina & Linz, 2007). Moreover, locus of control, challenge and affiliation in 3.0-8.4%, self-esteem, work, and family important in 4.4-14.5% (Cattan, 2013; Fortin, 2008), risk, competitiveness, and career orientation in 2.5-27.6% (Manning & Swafford, 2008), time preference in 11.5-14.1% (Nyhus & Pons, 2011), taste for competition 8.4-10.1% (Reuben, Sapienza, & Zingales, 2015). The gender pay gap can be attributed to the difference in agreeableness between men and women, as men tend to be more disagreeable than women. So, men are often rewarded for exhibiting this trait, while women are not. Finally, in non-cognitive skills, especially negotiation skills, studies have indicated that men and women differ in the likelihood to negotiate, with women being less likely to do it compared to men. This disparity in negotiating over salaries, promotions, and raises may contribute to women being paid less than men. The discrepancy in negotiation behavior between genders might be a result of social factors, such as women being taught that negotiation is aggressive or not feminine (Blau, & Kahn, 2017; Bertrand, 2011; Croson & Gneezy, 2009). Competition, in general, men tend to be more competitive than women. Research has found that men who perform poorly tend to be more competitive than women who perform well. Women who excel in their performance often miss out on financial benefits by avoiding competition, while men who perform poorly tend to engage in excessive competition to maximize the payoff. The distinction in competitive inclinations between genders (Blau & Kahn, 2017; Bertrand, 2011). In terms of risk aversion, women tend to be more risk-averse than men. This implies that occupations with variable earnings are expected to pay more to attract workers willing to take on higher levels of risk. As a result, women may earn less than men if women avoid jobs due to a greater risk aversion. Additionally, risk aversion may impact job performance in certain occupations, such as compensation management (Croson & Gneezy, 2009).

Wage-Gender Discrimination

The gender wage gap can be primarily attributed to heterogeneity, but it may also arise due to imperfections in the labor market, such as discrimination, gender biases, and imperfect information. These factors contribute to labor market discrimination, which in turn affects wage-gender inequality. McConnell et al. (2021) confirmed that other factors that affect wage differential are labor immobility, *"an impediments to the movement of labor"* (p.269), which is classified as geographic immobility, institutional immobility, and labor market race and gender discrimination as sociological immobility. It seems that women are concentrated in specific types of jobs, which leads to a decrease in pay for those jobs while increasing pay in other occupations. If obstacles are preventing skilled women from transitioning from lower-paying jobs to higher-paying ones, then there may be persistent wage gaps between men and women. The categories of wage-gender discrimination are divided into pre-market, and post-market, which pre-market occurs when a female is discriminated before entering the labor market by the process of its market during the HRM process of recruitment and selection. On the other hand, post-market discrimination occurs when females encounter discrimination after entering the labor market such as training biases.

According to Gary Becker (1957), a classical book on the Economics of discrimination summarized three types of discrimination models through labor economics aspects, which are 1) the taste for discrimination model, 2) statistical discrimination, and 3) the crowding model. Where the taste for discrimination model "envisions discrimination as a preference or 'taste' for which the discriminator is willing to pay" (McConnell et al., 2021, p. 435). This idea is based on the notion that some employers and their workers desire to keep a distance, either physical or social, from certain groups. For instance, a group of white male employers and employees might not wish to socialize with female employees who are black. As a result, these employers may opt not to hire black women, as they and their employees prefer not to work with them. Assuming that there is no discrimination among the workers, employers will view workers as substitutable and will hire them randomly with identical wages but employers who discriminate will only hire women if they can pay them less than men to compensate for the perceived difficulties of employing women. Male workers who hold discriminatory beliefs will demand a higher wage to work with women, resulting

in higher relative wages for men. Discriminatory clients or customers who are reluctant to buy goods or services from women will reduce the productivity of female workers in terms of revenue generated, leading to lower relative wages for women (McConnell et al., 2021; Blau, & Kahn, 2017). To extend this, if an employer is not prejudiced, the cost of hiring a male employee would simply be the wage rate of a female. If the wage of a male is Wm and the wage rate of the female is Wf. and if the employer is prejudiced, the cost of hiring a female employee would be calculated as the female worker's wage, Wf, plus the monetary value of the discrimination coefficient, denoted as "*d*", it refers to a situation where an employer perceives the cost of hiring labor from a particular group to be higher than the cost of hiring labor from another group. This coefficient is denoted as "*d*", resulting in a total cost of W_f + d. For a prejudiced employer to be indifferent between hiring a male or female worker, the total cost of hiring each worker would need to be the same at $W_m = W_f + d$, therefore, a prejudiced employer would only hire a female worker if their wage rate is lower than that of a male worker. To hire a female employee (When, $W_f = W_m - d$), a prejudiced employer must offer a lower wage than what they would offer a male employee, and this difference in wages must be equivalent to the discrimination coefficient. For example, if the wage of a male is 300 Bath, and the monetary value of the psychic costs the employer attaches to hiring a female is 20 Bath (d = 20), then that employer will be neutral on employee male or female only when the female wage is 280 ($W_f = W_m - d$ or 300 - 20). However, if the male requires a wage rate too high, an employer will hire a female to control the labor costs. The concern about the size of "*d*" depends on the change in social attitude and antidiscrimination legislation, as well as variables associated with the supply of female and male workers. 2) Statistical discrimination, means that employers frequently make the mistake of evaluating individuals based on the average traits of the group to which they belong, rather than assessing them based on their own unique personal attributes including physical strength, for example, married females are more likely to quit the job than a male for pregnancy, or the insurance rate of hiring males will be higher than the female because the male is more likely to commit in an accident more than females, so males are discriminated in some occupations. And 3) the crowding model, assumes that the human capital of males and females are

equally productive, the crowding model suggests that discrimination towards specific groups like women or minorities can lead to individuals being confined to particular occupations. This is due to the biased perceptions that employers may have about certain groups, which can restrict their job options. Consequently, people from these groups may end up in lower-paying jobs that are overrepresented, resulting in wage inequality between different groups. The crowding model is frequently utilized to explain the unequal representation of specific groups in certain occupations, as well as the existence of wage gaps between various groups (McConnell et al., 2021; Tomaskovic-Devey & Skaggs, 1999; England, 1992; Reskin, & Roos, 1990). This wage-gender discrimination generates a dilemma for the business, one for the rational choice and one for dealing with the discrimination as a cause. The economic disadvantages of women such as anticipated marriage, motherhood, and childbearing are the essential rational point of view by many employers. Moreover, the other concerns of whether to discriminate or not might depend on the individual motivation, quantitative skills, the subject of study at school, cognitive skills, type of training and training quality, and etcetera. While it is not possible to provide an exact calculation of how much of the wage gap is caused by discrimination, based on statistical evidence, it is confidently concluded that discrimination is a significant factor in the labor market that organizations are urged to diminish.

How HRD Professionals can Help?

HR professionals can contribute significantly to reducing wage inequality within organizations and promoting an equitable work environment by implementing, 1) conducting gender pay equity analyses to identify any wage gaps across gender within the organization. This involves comparing the salaries of employees in similar roles, considering factors such as experience, skills, and performance. By identifying any disparities, HR can take steps to rectify the imbalances. According to Fryer, Pager, and Spenkuch (2013) found that conducting pay equity reviews facilitated diminished wage disparities in a large organization. Moreover setting occupations, job and position proportions and percentages across gender by determining the index of segregation (Macpherson & Hirsch, 1995). The Segregation Index is a tool for assessing occupational gender segregation initiated by Duncan (1961).

The Duncan Segregation Index assesses occupational segregation by gender and determines if there is an overrepresentation of one gender compared to the other in a particular occupation or labor force. It quantifies the percentage of employed women (or men) who would need to switch occupations to achieve gender equality in the distribution of occupations. A value of 0 on the Duncan Segregation Index signifies complete gender integration, where the proportion of women in each occupation matches their overall employment share. On the other hand, a value of 1 indicates absolute gender segregation, implying that men and women are completely separated in the workforce.

Table 1: A Sample of the Index of Segregation

Jobs/positions	Male (%)	Female (%)	Differences (%)
A	60	40	20
B	20	20	0
C	10	20	10
D	10	20	10
	100%	100%	40

According to table 1, the Segregation Index equals 40 percent divided by 2, it equals 0.02, which indicates a high level of gender integration or a low level of gender segregation. 2) establishing transparent compensation policies, however, HR professionals are required to work as a strategic partner, and be change agents that work closely with management in order to develop clear and transparent compensation policies by outlining the criteria or principles for determining compensation mixes. Transparent policies play a crucial role in promoting fairness and mitigating the risk of bias or discrimination in making compensation decisions. In accordance with a study of Bamberger, Biron, and Meshoulam (2014) confirmed that transparent compensation policies positively influenced employees'perceptions of fairness. 3) Implementing clear salary ranges and bands for different job positions within the firm by setting upper and lower bounds in salary ranges for each job role based on market rates and job specifications. It helps create consistency in pay and reduces the potential for gender wage discrimination. 4) Review and revise job descriptions to accurately reflect the responsibilities and requirements of each position.

Accurate job descriptions can help eliminate biases and address wage disparities including gender-specific wording in job advertisements can influence the perceived value and salary potential of the position (Hersch & Shinall, 2018). Comprehensive and explicit job descriptions ensure accurate employee classification, which in turn impacts their compensation. This prevents the underestimation of specific roles and contributes to resolving wage disparities. 5) Promote diversity and inclusion. Human resource professionals have a pivotal role in actively advocating for diversity and inclusion within the organization. By cultivating a diverse workforce, companies can nurture a wide range of perspectives and experiences, facilitating the identification and resolution of wage-gender inequalities. HR can implement inclusive blended-recruitment practices in job application until the interview process, diverse talent developmentprograms, and impartial performance evaluations as part of their efforts to achieve this objective. McKinsey (2020) showed that companies with diverse executive teams outperformed their peers and were more likely to have gender and ethnic diversity in their workforce. 6) Provide training and education. Determine the inequality and discrimination clearly what is and what is not for avoiding the misconception, and misunderstandings. Training and education programs can help managers and employees with fair compensation practices, unconscious bias, and equal employment opportunities. By increasing awareness and understanding of wage gender inequality issues, HR can work towards creating a culture that values fairness andequity. 7) Supporting career development and advancement by providing training, mentoring programs, and clear pathways for sustainable development, the company can help employees acquire the skills and experiences needed for higher-paying roles, thereby reducing wage disparities across time. A study by Shaw and Bryant (2019) highlighted the importance of career development programs in reducing gender pay gaps. 8) Review the performance management especially the OKR (Objective key results) and appraise employees according to their performance. 9) Regularly review and update compensation practices by adjusting the compensation structure annually. It is crucial for HR professionals to regularly assess and revise compensation practices to ensure alignment with industry norms, dynamic market conditions, and evolving employee expectations. By conducting regular wage-gender compensation package reviews, organizations can maintain

competitive pay structures and minimize the occurrence of wage-gender inequalities. 9) Encouraging employee feedback and engagement by creating mechanisms for employees to provide feedback on compensation and raise concerns related to wage inequality including open communication channels and engagement surveys can help identify potential issues and allow HR to take appropriate actions throughout the diversity management. And 10) advocating for wage-gender pay equity initiatives. HR professionals can collaborate with management and leadership to champion pay equity initiatives both internally and externally. This can include supporting legislative measures, engaging in industry dialogues, or partnering with fellow HR professionals to exchange effective strategies for addressing wage inequality (Guillaume et al, 2017). However, when implementing such strategies, the organization is required to review its organization's cultural styles, as well as carefully calculate the index of segregation, and the participation of employees is truly recommended. In addition, the new challenge in the future of the wage-gender discrimination issues will be replaced by technological advancement such as artificial intelligence (AI) that affects individual wages and the stability of employment for all genders by initiating a mathematical equation to calculate the score of wage that a particular worker will be gained. A suitable system is required to reduce wage-gender inequality.

Conclusion

The gender pay gap is a complex issue that is influenced by various factors. These factors include discrimination, age, work hours, parenthood (including time taken away from work), occupational segregation, and preference for flexible work arrangements, education levels, and the types of occupations that men and women typically hold. It is important to note that women often face limitations in taking on overtime or irregular shifts due to outside responsibilities, which can contribute to lower wages. Furthermore, the discontinuity in work experience resulting from taking time off during childbearing years can also contribute to lower wages for women. Another contributing factor is the reliance of employers on past salary history when determining compensation, which can perpetuate wage discrimination as women move from one job to another. (Blau, & Kahn, 2017; Goldin, 2014).

Analyzing the gender pay gap from different perspectives within the labor market can help differentiate between discrimination by the organization and the impact of an imperfect labor market. Examining the pay gap across various categories, including heterogeneous jobs occupations, human capital, education, and work experience. Organizations could be advantaged by a better understanding of the complex and interconnected factors that contribute to gender-based wage inequality. Theoretically, if entire employees and jobs are homogenous and the labor market is perfectly competitive, in an ideal scenario, workers would transition between different jobs until wages across all markets became equal. Before HRD addresses whether it is discrimination or others, several aspects of nonwage such as the danger of job injury and deaths, fringe benefits, job characteristics, locations, as well as the regularity of incomes or the prospect for wage development including psychological factors will be carefully determined. However, this is an initial assumption of wage-gender discrimination. This paper explored the possible wage-gender discrimination that might affect the organization's diversity management in the era of sustainable development. So, there are still many issues both visible and invisible affect wage-gender discrimination that need to be further studied.

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The Household E-Waste Management in Thailand: Challenges and Opportunities towards Circular Economy

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Abstract

Thailand has been facing challenges in handling e-waste as the country does not have regulations on e-waste management. Most of the practices are being performed by informal sectors that lack technology, infrastructure, and knowledge. This research aims to understand the e-waste management and challenges and opportunities towards circular economy. The results show that the transportation distances from households to recycling facilities passes through many middlemen before arriving at a recycling company's gate. If this e-waste had been collected and recycled, it can create value added and reduce CO_2 emissions at the same time. To achieve the circular economy, the logistic should be improved. For certain type of e-waste, the fee might be charged form consumers. Full recycling facilities (e.g. circuit board, battery) is needed. Appropriate legislation dealing specifically with e-waste, control of its dumping, implementation of extended producer responsibilities are the key issues to promote circular economy of e-waste.

Keywords: E-waste Management, Circular Economy, E-waste Recycling, E-waste Management flow

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การจัดการขยะอิเล็กทรอนิกส์ในครัวเรือนในประเทศไทย: ความท้าทายและโอกาสสู่เศรษฐกิจหมุนเวียน

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บทคัดย่อ

ประเทศไทยพบว่ามีความท้าทายในการจัดการขยะอิเล็กทรอนิกส์เนื่องจากขาดการกำหนดข้อบังคับในการจัดการของขยะอิเล็กทรอนิกส์ การดำเนินการส่วนใหญ่นี้มักถูกดำเนินโดยส่วนผู้ประกอบกิจการรายย่อย เกษตรกร ซึ่งขาดความรู้ทางเทคโนโลยี โครงสร้างพื้นฐาน และความเข้าใจ งานวิจัยนี้มีวัตถุประสงค์เพื่อเข้าใจการจัดการของขยะอิเล็กทรอนิกส์และความท้าทายและโอกาสที่เกี่ยวข้องกับหลักเศรษฐกิจหมุนเวียน ผลการวิจัยแสดงให้เห็นว่าระยะทางการขนส่งจากครัวเรือนไปยังสถานที่รีไซเคิลผ่านผู้กลางหลายคนก่อนมาถึงประตูของบริษัทรีไซเคิล ถ้าหากขยะอิเล็กทรอนิกส์นี้ถูกเก็บรวบรวมและรีไซเคิลได้ มันสามารถสร้างมูลค่าเพิ่มและลดการปล่อยก๊าซคาร์บอนไดออกไซด์พร้อมกัน เพื่อทำให้เกิดเศรษฐกิจหมุนเวียน การจัดการโลจิสติกส์ควรปรับปรุง เพื่อประสบความสำเร็จ สำหรับประเภทขยะอิเล็กทรอนิกส์บางประเภทอาจมีค่าธรรมเนียมจากผู้บริโภค การมีสิ่งอำนวยความสะดวกที่เกี่ยวข้องอย่างเต็มรูปแบบ (เช่น แผงวงจร แบตเตอรี่) เป็นเรื่องสำคัญ การบังคับกฎหมายที่เกี่ยวข้องโดยเฉพาะกับขยะอิเล็กทรอนิกส์ การควบคุมการจำหน่าย การปฏิบัติหน้าที่ของผู้ผลิตที่ถูกขยายออกไป เป็นปัจจัยสำคัญในการส่งเสริมเศรษฐกิจวงจรของขยะอิเล็กทรอนิกส์

คำสำคัญ: การจัดการขยะอิเล็กทรอนิกส์ เศรษฐกิจหมุนเวียน การรีไซเคิลขยะอิเล็กทรอนิกส์ การจัดการขยะอิเล็กทรอนิกส์

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Introduction

The production and use of electrical and electronic devices have rapidly increased and, as technology changes fast, the prices of these products have decreased, causing the rapid changes to new models. This shortens the life expectancy of electrical and electronic equipment. Therefore, the country should be concerned about the issue of electrical and electronic waste management in all sectors.

E-waste includes discarded electrical and electronic devices that enter the waste stream from various sources— out- dated air conditioners, telephones and cell phones, personal computers, electronic toys, televisions, and others (Mundada et al., 2004). E-waste is classified as a hazardous substance because the parts contain heavy metals and hazardous chemicals. Improper disposal by burning or landfilling will directly harm people's short- and long-term health and the environment, such as the underground sources of surface water (Buranasingha, 2016). For example, cathode-ray tubes (CRTs) used in television and computer monitors contain significant amounts of lead. In addition, printed circuit boards contain plastic, copper, chromium, lead solder, nickel, and zinc. Many other electronic products have batteries that contain nickel, cadmium, and other heavy metals (Mundada et al., 2004).

The quantity of e-waste all types discarded in Thailand in 2012 was 357,000 tons and increased to 384,233 tons and 421,335 tons in 2015 and 2019, respectively, and this tonnage is likely to increase by more than 40% in the next 10 years (Manomaiwiboon, 2018, Pollution Control Department, 2019).

Over 35 countries, notably western European countries, have adopted legislation for the management of electrical and electronic product waste. In Asia, Japan, Taiwan, China, and India have been implementing their respective e-waste regulations. Other countries are in the process of enacting legislation, such as Vietnam, Indonesia, and Laos (Klangphol et al., 2019). Many developed countries have applied extended producer responsibility (EPR) and developed very clear regulations for e-waste management; for example, Japan enforced the Container and Packaging Recycling Law in 1997 and the Law for the Recycling of Specified Kinds of Home Appliances in 2001. The latter law covers four home appliances: TV sets, air conditioners, refrigerators, and washing machines. Freezers were added to the list in April 2004 (Kojima et al., 2009). Consumers pay disposal fees at the time of purchase.

On the contrary, many developing countries either have not imposed any regulations or failed to implement such a policy. For example, Thailand does not have regulations on e-waste management. In additions, the country still lacks necessary data/inconsistent information about the amount of e-waste as well as a facility for collecting, dismantling, and recycling.

The unorganized or informal sectors have long been actively involved in e-waste collection, handling, dismantling, and recycling. However, their activities are mainly being performed without technology, infrastructure, and knowledge.

Meanwhile, the activities of these informal sectors can have serious impacts on the environment and human health. The informal dismantling and recycling workers are scattered nationwide and are divided into sorting and dismantling communities. Although some communities are aware of the hazardous substances in e-waste, most communities are more concerned with their current livelihood than their health and environmental issues. In communities where all households operate according to the same practices for sorting and dismantling, there is competition for the acquisition of the wastes. As a result, workers search for e-waste outside their designated areas and go longer distances and take a longer time to get their desired amount of waste.

The circular economy is an economic system aimed at minimizing waste and making the most of resources. Unlike the traditional linear economy, which follows a “take, make, dispose” model, the circular economy seeks to keep products, components, and materials at their highest utility and value at all times. In essence, it's about creating a closed-loop system where resources are continuously reused, recycled, or repurposed (The Ellen MacArthur Foundation, 2023).

The four key successes of e-waste management involves these following aspects: economic, environmental, social, and technology (Fetanat et al., 2021). Importantly, it is impossible to design effective e-waste policies toward circular economy if the government does not know the amounts of e-waste and their distribution flow, second-hand markets, the informal sorting and recycling sectors, and export quantities and destinations. Based on all of this background, the objectives of this study are:

1. Collect statistical data on the amount of e-waste and distribution per province (focusing on four types of e-waste: TVs, desktop computers, air conditioners, and cell phones)
2. Study the current quantity of e-waste distribution and create a geographic information system (GIS) showing the quantity of distributions and the sorting, dismantling, and recycling of e-waste.
3. Provide recommendations for e-waste management.

The contribution of this study is to understand the situation of e-waste management in Thailand and to provide better disposal practices towards circular economy. In addition, this study are to help government, recycling sectors, and society understand e-waste generation, disposal behaviors, and e-waste management in Thailand to design effective e-waste policies towards circular economy. This study can be the case that represents the country that lack of the e-waste management regulations. Challenges and opportunities are discussed.

Methodology

Estimated amount of e-waste generated per year and understanding the flow of e-waste in Thailand

Estimated amount of e-waste generated per year based on government data

Some government agencies reported estimated e-waste, however, their data are inconsistent. Thus, to understand the e-waste generated, secondary data were compiled from the Pollution Control Department (Pollution Control Department, 2012b, Pollution Control Department, 2012a, Pollution Control Department, 2012c, Pollution Control Department, 2019) and the Department of Industrial Works (Department of Industrial Works, 2018). See Table 1 for the summary of methods for estimating four types of e-waste and distribution by province and Tables A1-A2 for estimated e-waste detail.

Table 1: Summary of Methods for Estimating Four Types of E-waste and Distribution by province

Product	Estimation Amount of E-Waste		E-Waste Distribution by Province	
	Methods	Sources	Methods	Sources
Cell phone	1) Estimate quantity of e-waste by each category 2010-2050 2) Forecast of domestic electronic and electric devices sales 2012-2025 3) Forecast of e-waste 2012-2026 4) Cell phone sales in Thailand 2016-2019	Department of Industrial Works (2018) Pollution Control Department (2012b) Pollution Control Department (2012b) (Online manager, 2019; IT DAY, 2020)	Use data on the number of mobile phone usage by province of the population aged 6 years and over. Use this data to distribute discard mobile phone in 2019. See section 3.1.1.	tional Statistical Office (2018)
Desktop computer	1) Estimate the quantity of e-waste by each category 2010-2050 2) Amount of e-waste 2012-2019 3) Forecast of domestic electronic and electric devices sales 2012-2025 4) Forecast of e-waste 2012-2026 5) Number of desktop computers used in a household 2014–2018	Department of Industrial Works (2018) Pollution Control Department (2019) Pollution Control Department (2012b) Pollution Control Department (2012b) National Statistical Office (2018)	Used data on the number of desktop computers used in households by province to distribute discarded desktop computer in 2019. See section 3.1.1.	National Statistical Office (2018)
Air conditioner	1) Estimate the quantity of e-waste by each category 2010-2050 2) The amount of e-waste 2012-2019 3) Forecast of domestic electronic and electric devices sales 2012–2025 4) Forecast of e-waste 2012–2026 5) Number of domestic air conditioners sale 2010-2019	Department of Industrial Works (2018) Pollution Control Department (2019) Pollution Control Department (2012b) Pollution Control Department (2012b) Office of Industrial Economics (2015)	Used data on the number of households that have air condition by province multiply with total number of households in each province. Then distribution of discarded air condition in 2019 can be calculated. See section 3.1.1.	National Statistical Office (2015) Office of Industrial Economics (2019)
Television	1) Estimate the quantity of e-waste by each category 2010–2050 2) Amount of e-waste 2012–2019 3) Forecast of domestic electronic and electric devices sales 2012–2025 4) Forecast of e-waste 2012–2026	Department of Industrial Works (2018) Pollution Control Department (2019) Pollution Control Department (2012b) Pollution Control Department (2012b)	Use data on the number of households that have TV then multiply with the number of households by province. Then the distribution of discarded TV by province can be calculated. See section 3.1.1.	National Statistical Office (2017) National Statistical Office (2019)

The National Statistical Office, Office of Industrial Economics, and newspaper also reported data on air conditioners, mobile phones, and desktop computers used in households (National Statistical Office, 2015, National Statistical Office, 2017, National Statistical Office, 2018, National Statistical Office, 2019, Office of Industrial Economics, 2015, Office of Industrial Economics, 2019, Online manager, 2019). For the sale data or the number of devices used in households were obtained from secondary data. The average lifetime usage data was from questionnaires (detail is discussed in section 2.1.3) and secondary data. Then, the amount of e-waste generated was estimated. To find the distribution of e-waste distribution by each province, the equations below were applied.

For cell phones and desktop computers:

$$\frac{\text{(Number of discarded celll phones in 2019 x Number of users by each province age above 6 years old)}}{\text{Number of users age above 6 years old nationwide}} \quad (1)$$

For TVs and air conditioners:

Due to data limitations, there are two steps to calculate the distribution of discarded e-waste by province.

1) Use the data on the number of households with air conditioning in 2015 in each region. In 2015, there were 5.1 million households nationwide with air conditioning. It is distributed in different regions as follows: Bangkok, 1.4 million households; Central region, 1.9 million households; Northern region, 0.7 million households; Northeastern region, 0.6 million households; and Southern region, 0.5 million households. The equation below was used to calculate the number of households by province that have an air conditioner.

$$\frac{\text{(Number of households by province in 2019 x Number of households that have air conditioners)}}{\text{Number of households by region}} \quad (2)$$

2) Take the number of households that have air conditioners by province (from step 1) and multiply it by the number of discarded air conditioner in 2019, resulting in the total distribution of discarded air conditioners in 2019 by province.

$$\frac{\text{(Number of households that have an air conditioner by province x Total discard air conditioner in 2019)}}{\text{Total number of households that have an air conditioner nationwide}} \quad (3)$$

E-waste component

The components of e-waste that can be reused, recycled, or wasted were also estimated. This study reported both primary and secondary data. The researcher dismantled e-waste and weighted each part following the guideline from workers in the e-waste sorting and dismantling communities.

Understand consumer behaviors by questionnaires

The questionnaires were developed to understand consumers' behaviors when their electric and electronic devices reach their end-of-life. The target groups are general people who own electric and electronic devices. Questionnaires were distributed around 400 through an online platform. The snowball sampling method was employed in this study. The questionnaire consisted of three parts: general information, consumer behavior, handling behavior after use (see supplement data).

Understand e-waste flow by site visit and interviews with related stakeholders

To understand the e-waste flow and end-of-life management throughout the supply chain, a field survey and interviews of stakeholders related to e-waste management were conducted. The stakeholders were (1) e-waste collection and transportation, (2) recycling industries (industrial code 106), (3) sorting and dismantling community and industries (Industrial code 105), and (4) waste management (industrial code 101). In addition, government agencies involved in e-waste management were selected for interviews; for example, the Department of Primary Industries and Mines, Pollution Control Department, the Department of Industrial Works, and local governments (Table 2).

Table 2: Summary of Stakeholders (e.g., business groups and government agencies) Related to Waste Management.

Stakeholders	Sample Size	Methods
1) Businesses where products or parts are repaired and reused or sold (refurbishing)	4 shops	Search for data from the Internet and contact for interview
2) Dismantling and recycling industries (industrial codes 105 and 106) - Dismantling community - Re-call discard cell phone project - Second hand shop - Private companies	- 3 locations (10 shops) - 3 projects - 3 shops - 4 shops	- Site visit and interview 3 locations in Buriram, Kalasin, Bangkok - Secondary data - Randomly selected stores for interview - Randomly selected stores for interview and secondary data
3) Business related to both reuse and recycling (refurbishing and re-cycle) - Non-profits organization and associations (donations)	- 3 organizations - 1 shop	- Site visit and interview - Site visit and interview - Contact local government for data
- Private companies - Dismantling community (cell phones)	- 1 location (Mahasarakarm Province)	
4) Business related to disposal (disposal) from e-waste (industrial code 101) - Hazardous waste collection by government agencies - Waste disposal companies (101)	- 3 companies - 2 companies	- Site visit and interview - Site visit and interview/ secondary data
5) Government agencies - Department of Primary Industries and Mines - Pollution Control Department - The Department of Industrial Works - Local governments (Bangkok, Kalasin, Burirum provinces)		- Site visit and interview/ secondary data

Developing GIS database for the collection, dismantling, and recycling of e-waste

The researcher collected the location data of secondhand shops, repair shops, dismantling facilities, and recycling industries nationwide and displayed them on a map. The location data of donation organization, secondhand shops and repair shops were obtained by contacting local governments for the shops listed and compiling data from Internet (Tables A3-A4). The data of dismantling facilities (industrial code 105), recycling industries (industrial code 106), and waste disposal (industrial code 101) were collected from Department of Industrial Works (see Tables A5-A7). The locations were then displayed using GIS. The transportation distance between shops/ facilities/industries can be calculated.

Results

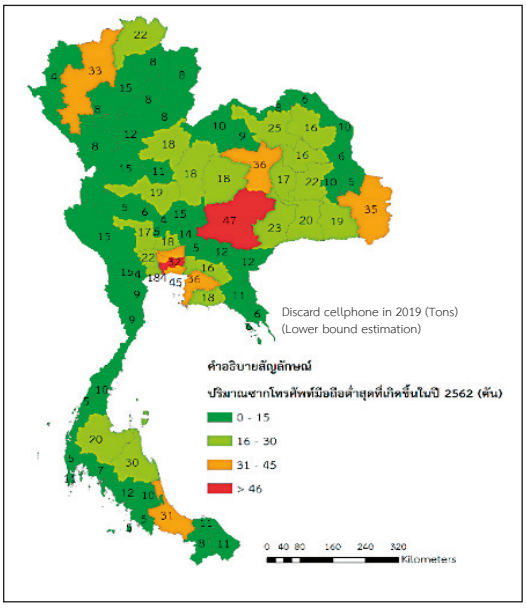
Estimated household e-waste generated in 2019 and distribution in each province

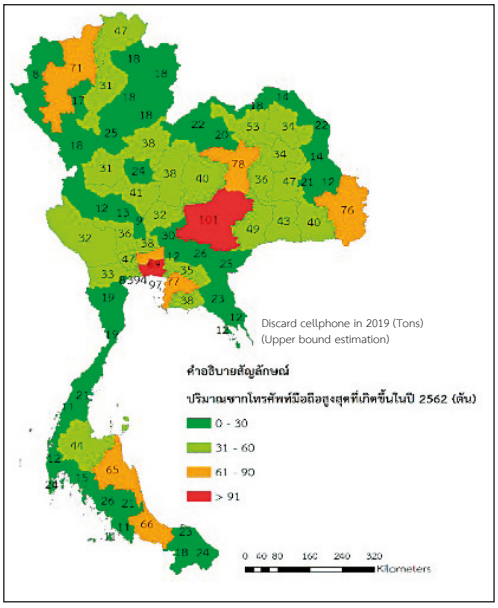
This section shows the e-waste estimates of the quantities of the four types of products (TVs, air conditioners, desktop computers, and cell phones) in 2019. There were approximately 89,499-257,567 total tons, with the highest distribution of all products being in Bangkok, followed by Samut Prakan, Nakhon Ratchasima, and Chonburi. This e-waste can be divided into 1) cell phones, 1,343–2,875 tons, or 10.74–23.00 million units, distributed in three provinces with more than 90 tons per province: Bangkok, Nakhon Ratchasima, and Samut Prakan; 2) desktop computers, 16,250–58,178 tons, or 1.25–4.47 million units distributed in seven provinces with a volume of more than 1,500 tons per province: Bangkok, Samut Prakan, Nonthaburi, Pathum Thani, Chonburi, Chiang Mai, and Nakhon Ratchasima; 3) air conditioners, 34,884-97,066 tons, or 0.91–2.54 million units distributed in three provinces with a volume of more than 3,000 tons per province: Bangkok, Samut Prakan, and Chonburi; and 4) televisions, 37,022-99,448 tons, or 2.46–6.80 million units distributed in three provinces with more than 3,000 tons per province: Bangkok, Nakhon Ratchasima, and Samut Prakan (Table 3). As shown in Figure 1, the e-wastes were clustered in the central part of the country.

Table 3: Summary of the Quantity of E-waste in 2019

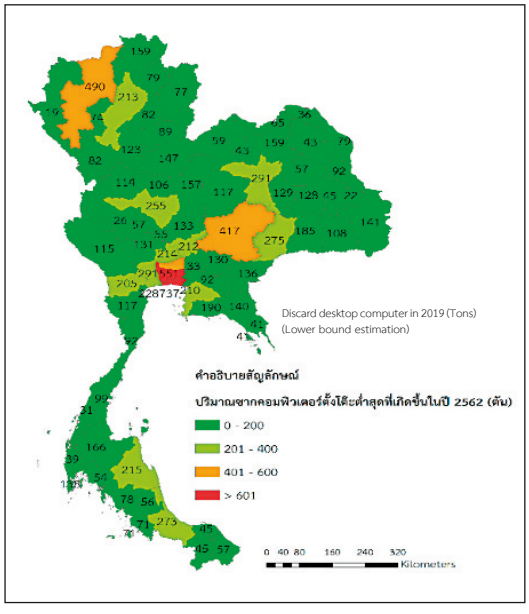
Method	Data Source	Quantity of E-waste in 2019 (tons)				Total (tons)
		Cell phones	Desktop Computers	Air Conditioners	Televisions	
1	Forecast of e-waste: the Ministry of Industrial Works (2018)	1,343	21,353	60,971	37,022	120,689
2	Forecasted e-waste: Pollution Control Department (2019)	-	23,168	77,653	99,448	200,269
3	Forecast of product sales: Pollution Control Department (2012)	1,647–1,710	16,413–17,523	36,066	50,598	104,724–105,897
4	Forecasted e-waste: Pollution Control Department (2012)	1,561	16,250	34,884	46,50 6	99,201
	Smartphone sales: Consultant and Marketing Information Research Co., Ltd.	2,875	-	-	-	2,875
	Number of desktop computers used in household: National Statistical Office	-	58,178	-	-	58,178
	Air conditioner sales: Office of Industrial Economy	-	-	97,066	-	97,066
Summary of carcass quantity (Minimum-Maximum)		1,343–2,875	16,250–58,178	34,884–97,066.	37,022–99,448	89,499–257,567

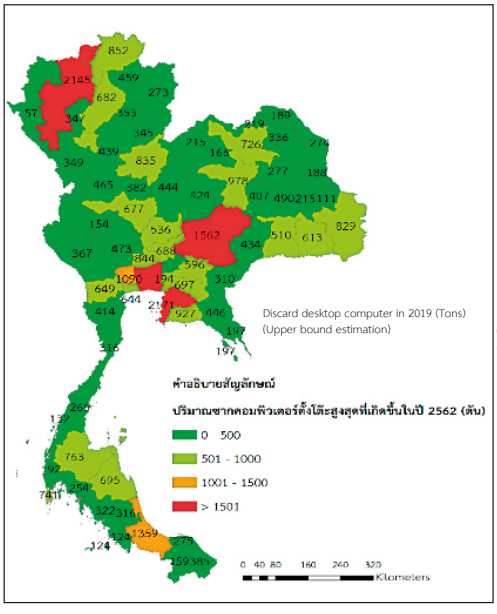
Note: Dash (—) means no data were collected





(a) Cell phones





(b) Desktop computers

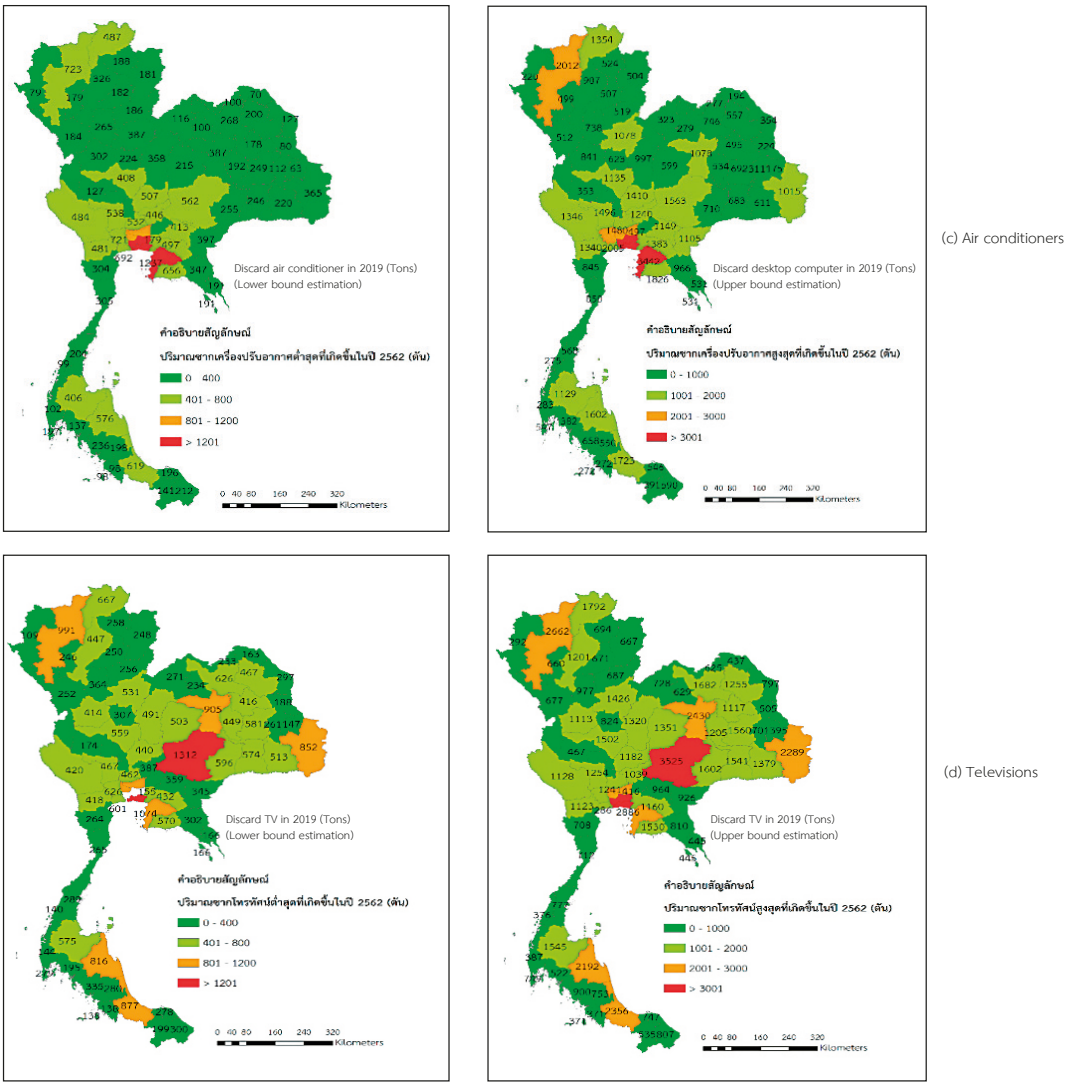


Figure 1: Distribution of Discarded E-waste: (a) Cell Phones; (b) Desktop Computers; (c) Air Conditioners; (d) Televisions

E-waste components

If these wastes were sorted and dismantled, the scrap can be divided into three categories: which are 1) waste (non-recyclable parts e.g. glass, plastic and back light), accounted for 24 percent or 24,770-80,062 tons 2) recyclable parts that are recycled domestically (e.g. plastic, iron, copper and aluminium), accounted for 70 percent or 68,859-231,032 tons and 3) recyclable parts that are exports (e.g. boards and phone batteries), accounted for 6 percent or 5,998-19,965 tons (Table 4).

Table 4: Types and Amounts of Waste from Dismantling Facilities in 2019

Carcass	Garbage Type	Volume (tons/2019)
Cell phones	Front cover/back cover (plastic) Screen (glass) Other	215-460 430-920 67-144
Total		712-1,524
Desktop computers (CRT monitors and CPUs)	Computer screen glass fragments Plastic Others (carbon plate and power cord)	3,963-26,762 142-172 4,887-5,992
Total		8,992-32,926
Air conditioners	Others (power cable and cable)	348-1,358
CRT screen televisions	Broken glass tv screen Plastic Back light Others (carbon plate power cord)	12,095-37,322 24-76 2,162-5,652 437-1,204
Total		14,718-44,254
Include all the waste generated		24,770-80,062

E-waste management flow and consumer behaviour

Electronic waste in Thailand found that although the origin of electronic waste in the country is different (industrial and community sources), but the destination of those electronic waste components is the same depending on the type and value of a piece. The parts that have high value (electronic circuit boards and batteries) are exported for recycling abroad in Singapore and South Korea, while low-value parts (plastic, copper, steel and aluminium) are recycled by domestic recyclers. Moreover, all the waste generated from the sorting process remains in the country which has both properly eliminated and illegal dumping.

According to survey, consumers reported 4 main choices of discarding e-waste such as 1) selling e-wastes to collectors or peddlers 2) donating to non-profit organizations for repairing and reselling e.g. temples, handicap association, orphanage center 3) donate to e-waste collection projects conducted by various organization, e.g., Electricity Generating Authority of Thailand, universities, a mobile signal provider, department stores etc. Usually, these projects prepare collecting points in designated locations and they are just temporary 4) discard e-waste along with household solid waste.

As for the general information, the response rate was 80 percent, and the respondents were from 26 provinces across the country. The average use age of devices was reported as summarized in Table 5. The results of this study fall in the same range of estimated with the previous studies. The average usage of cell phones was 3.09-4.51 years, desktop computers 3.65-7.54 years air conditioners 5.20-10.00 years, televisions 5.35-9.76 years.

Table 5: The Average Use Age (years)

E-waste	Average use age (years)		
	This study	Pollution Control Department (Pollution Control Department, 2012a)	Industrial works (Department of Industrial Works, 2018)
Cell phone	3.86	3.09	4.51
Desktop computer	5.54	3.65	7.54
TV	9.76	5.35	8.34
Air conditioner	9.10	5.20	10.00

According to the survey, Figure 2 showed various channels of each type of e-waste are discarded differently. For cell phone, approximately 79 percent of respondents chose to keep at home because mostly they are afraid of data leaking, do not know collecting point, or etc.; 8 percent sell to informal collectors; since the cell phone is small device, 2 percent discarded with household waste. For desktop computer, keeping at home and sell to informal collector are approximately 29 and 30 percent, respectively; 28 percent is donated to non-profit organizations. For air conditioner, 63 percent is sold to air repair shops. For TV, consumers chose to sell to informal collectors as the largest percentage, 57 percent. When compare with previous studies, this study falls in the same range with the previous studies (Table 6).

Table 6: Percentage of E-waste Management from Various Channels

Channels of discard e-waste	This study*	Department of Industrial Works*(Department of Industrial Works, 2018)	Pollution Control Department** (Pollution Control Department, 2012a)
Keep at home	32	-	52
Sell to informal collectors	44	43	8
Sell to repair shop		19	-
Donate	14	33	23
Exchange for new	-	-	5
Discard with household waste	2	6	11
Other	8	-	-

Note:
* This is the average percentage of 4 products (mobile phones, computers, air conditioners and televisions).
** This is the average percentage of all products studied (10 products) surveyed from the group.
- no survey/no data

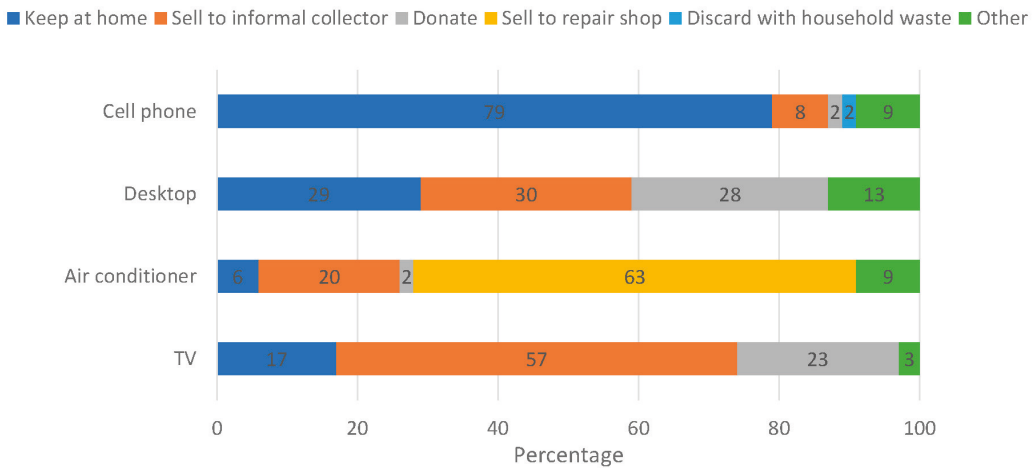
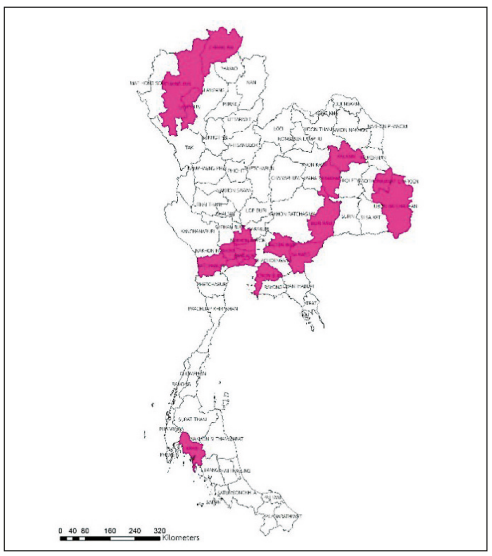


Figure 2: Consumers' Behavior of Handling Household E-waste

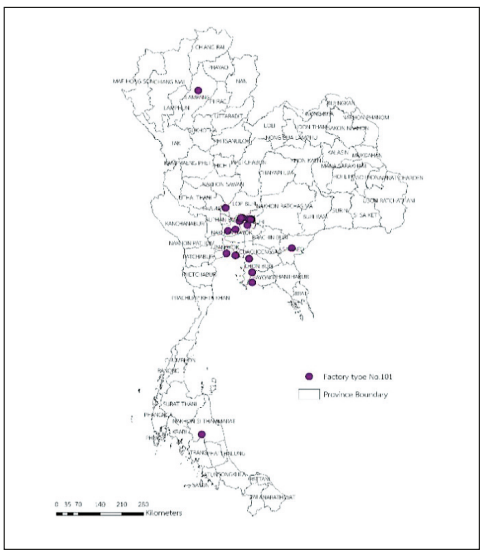
The consumer behaviour is quite similar to Indian. Borthakur and Govind (2019) reported that 59.3% of computer and cell phone waste in urban Indian are retained their obsolete electronics due to lack of knowledge about proper e-waste management (Borthakur and Govind, 2019).

GIS database on the locations of communities sorting and dismantling and recycling facilities

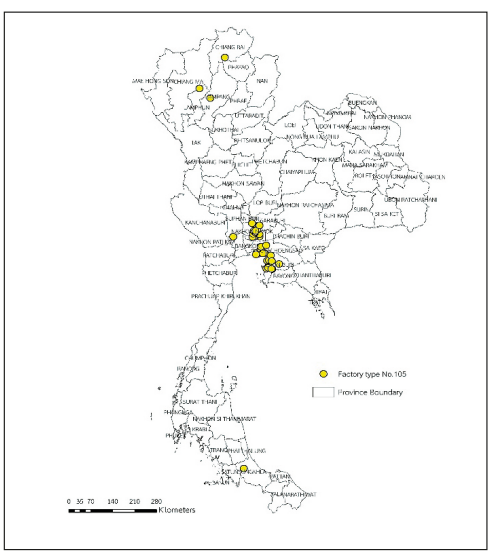
According to the Thailand Development Research Institute (TDRI; 2016), there were e-waste sorting communities nationwide in 17 provinces as shown in Figure 3a)



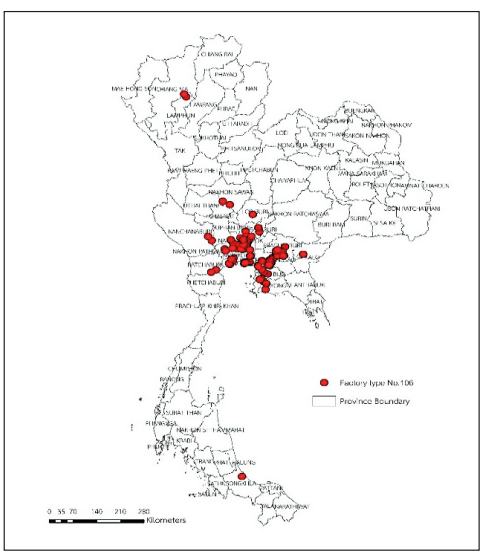
(a) Sorting/Dismantling Communites



(b) Industry Code 101 Waste Treatment



(c) Industry Code 105



(d) Industry Code 106

Figure 3: The Locations of Industries 101, 105, and 106 and Sorting/Dismantling Communities: (a) Sorting/ Dismantling Communites; (b) Industry Code 101 Waste Treatment; (c) Industry Code 105; (d) Industry Code 106

(Thailand Development Research Institute (TDRI), 2016, Wasanadamrongdee, 2015). The main locations of sorting communities which have been active for more than 10 years are Kalasin and Buriram provinces (the region that has the lowest GDPs in the country). Those e-waste sorting communities operate similarly to the practice of a code 105 industry which are sorting and dismantling wastes. For the most part, the sorting and disassembling activities of these communities is just a supplementary occupation during the agricultural off seasons. Most people involved are domestic workers or farmers. They simply just use basic tools such as hammers, drills, saw to separate e-waste parts. An e-waste sorting community therefore does not fall within the definition of a factory as well as standard of practice.

Code 105 industries are licensed to sort and dismantle unused materials. The Department of Industrial Works and Industrial Estates reported that there are 43 industries in 11 provinces but mostly clustered in the central region.

Code 106 industries refer to recycling industry in which the industry collects unused industrial products or used factory wastes, including hazardous materials, and produce raw materials or new products through industrial production methods under their type 106 factory license. There are 116 type 106 factories scattered in 21 provinces. Most of them are densely distributed in the central and western areas. There are few in parts of the North and the South.

Code 101 industries or central waste treatment refer to the companies that treat or eliminate waste in either liquid or solid forms. They are two types of code 101 industries 1) wastewater treatment plant for the reduction, removal, and treatment of pollution contained in wastewater and sludge or 2) waste incineration for complete combustion. There are 22 waste disposal facilities involved in the management of e-waste scattered in 10 provinces, mostly distributed in the central and eastern regions.

According to the field data collections and interviews, most of the discarded cell phones from all over the country were sent to sorting and dismantling facilities in the Maha Sarakham Province area. For computers and televisions, there are two paths for distribution: 1) waste is transported to the Suea Yai Uthit community in Bangkok where

the waste is sorted and dismantled in and around Bangkok or 2) waste is transported to Kalasin and Buriram provinces in the northeastern region. For air conditioners, most of the waste is sorted and dismantled in Bangkok, and not much waste is sent for sorting and dismantling in the Kalasin and Buriram provinces. From these practices, air conditioners are transported the shortest distance from the sorting and dismantling facilities and communities to the recycling industries (less than 130 kilometers). In contrast, cell phones are transported the longest distance (average 614.2 kilometers).

Conclusions

The status quo of e-waste management is not effective and is driven by the marketing mechanism with a focus on reducing costs. The workers in the informal sector are the main active group doing waste sorting and dismantling. For this reason, the practices are lack of waste management standard since they do not have knowledge and tools. This research aimed to understand the trade-offs among the economic value and environmental impacts of the current e-waste management system.

This study focused on four types of e-waste: cell phones, desktop computers, air conditioners, and televisions in 2019. According to our estimation model, there were approximately 89,499-257,567 tons that can be allocated as: 1) cell phones, 1,343-2,875 tons or 10.74-23.00 million units; 2) desktop computers, 16,250-58,178 tons or 1.25-4.47 million units; 3) air conditioners, 34,884-97,066 tons or 0.91-2.54 million units; and 4) televisions, 37,022-99,448 tons or 2.46-6.80 million units.

The value of e-waste parts can be divided into three main categories which are 1) waste or non-recyclable materials, e.g., glass with lead content (TV screens), plastic, and etc., accounted for 24% of the total e-waste generated, or 24,770-80,062 tons; 2) recyclable parts within the country, e.g., plastic, iron, copper and aluminum, accounted for 70%, or 68,859-231,032 tons; and 3) recyclable parts outside the country, e.g. circuit board and battery, accounted for 6%, or 5,998-19,965 tons. Table 7 showed the summary of these waste.

Table 7: Volumes and Parts of the Garbage and Valuable Parts Recycled Domestically and Exported Abroad.

Waste			**Domestic Recycling**			**Export for Recycling Abroad**	
Parts	Quantity (ton/year)		Parts	Quantity (ton/year)		Parts	Quantity
Plastic	381-708		Plastic	19,424-64,102		Battery	349-747
Screen/glass	16,488-65,004		Steel	40,322-126,329		Circuit board	5,649-19,218
Back light	2,162-5,652		Copper	5,216-16,483			
Other**	5,739-8,698		Aluminium	3,897-24,118			
Total	24,770-80,062		Total	68,859-231,032		Total	5,998-19,965
%	24			70			6

Because of illegal dumping of contaminated waste in landfill and no serious monitoring, the workers dismantling communities do not pay a landfill fee or a waste disposal fee. For this reason, they can gain profits from this practice. In fact, if they are responsible for these environmental externalities, dismantling TVs costs more than its profit. Existing waste management systems should be revised to internalize disposal costs in the related stakeholders e.g. producers or consumers (Kiddee et al., 2013). A new waste management system is needed to handle parts of the recycling process to create sustainable circular economy.

The government should communicate to consumers to discard e-waste instead of keeping at home. The government or private sectors can join at this step by offering inventive or promotion campaign e.g. old exchange for new models, discount, tax deduction etc.

Changes in the attitudes of governments, appropriate legislation dealing specifically with e-waste, control of electronic waste dumping, implementation of EPR, and transfer of technology for the sound recycling of e-waste are the keys for the effective management of e-waste (Nnorom and Osibanjob, 2008). “The Electrical and Electronic Equipment Waste Management Act” is in the drafting process for more than 10 years and should not be put on hold. Certain e-waste types might need to be charged a waste management fee because the collection and recycling have more embedded costs.

Collection guidelines and collection points will affect profitability and GHGs. To promote circular economy, therefore, a collection and sorting and dismantling center by region (North, Central, West, Northeast, East and South) needs to be established between dismantling facilities and recycling plants with transportation distance less than 400 km. Logistic management plays an important role for e-waste circular economy because e-waste could be considered as an opportunity for recycling or recovery of valuable metals (Awasthi et al., 2018). A full recycling plant in the country should be promoted for circuit boards and batteries for the complete extraction of precious minerals.

Ending informal recycling has been a policy objective for governments in many developing countries, including Thailand (Kahhat and Williams, 2012, Herat and Agamuthu, 2012). The informal sector should apply the best affordable technologies (BAT) and upgrade and qualify low- and medium-skilled laborers (Widmer et al., 2005). Practical feasibility of circular economy approaches and develop community commitment through active engagement of stakeholders should be promoted (Chakrabarty and Nandi, 2021, Fiksel et al., 2021).

Finally, considering public awareness and human risk attitude during the e-waste recycling activities would be beneficial for organizations in terms of reducing potential effects on society (Osibanjo and Nnorom, 2007) (Pariatamby and Victor, 2013).

Economic incentives play a pivotal role in developing countries usually have concerns regarding socio-economic and socio-political issues, while in developed nations higher levels of influential factors exist, including proximity, suitability and ease of access, and so forth (Shokouhyar and Shahrasbi, 2021). For Thailand, incentives might be needed to encourage people to discard e-waste at the collecting point and not together with the solid household waste (Kazancoglu et al., 2020). Future studies on experiences on consumers' e-waste disposal behavior and awareness could be helpful to devise inclusive e-waste management strategies to address the current challenges (Borthakur and Govind, 2017).

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The Importance of Food Hygiene in Building Customer Trust and Repurchase Intentions in Bangkok Street Food for Sustainable Development

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Abstract

This empirical study investigated the impact of perceived food hygiene on customer repurchase intentions in the street food business in Bangkok and the mediation of customer trust as its mechanism. This quantitative research employed stratified random sampling, ensuring that the sample is a good representation of the population of interest. Survey data were collected from 477 street food customers in Bangkok and were computed using the partial least squares structural equation modeling (PLS-SEM). The results indicated that perceived food hygiene directly impacts customer repurchase intentions and trust, and customer trust positively influences repurchase intentions. As a result, Sobel's test results showed partial positive moderation of customer trust between perceived food hygiene and repurchase intentions. The findings confirmed the necessity of food hygiene in promoting customer trust and repurchase intentions and the role of customer trust as the mechanism of how food hygiene promotes customer repurchase intentions. The research also provided helpful guidelines for street food operators and relevant government units and authorities assigned to develop and raise standards to improve the street food industry, following sustainable development goals to provide a higher standard of living for people.

Keywords: Perceived Hygiene, Customer Repurchase Intentions, Customer Trust, Street Food

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ความสำคัญของสุขอนามัยอาหารในการสร้างความไว้วางใจของลูกค้าและความตั้งใจซื้อคืนอาหารริมถนนในกรุงเทพฯ

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บทคัดย่อ

งานวิจัยนี้ศึกษาผลกระทบของการรับรู้สุขอนามัยอาหารต่อความตั้งใจซื้อซ้ำและบทบาทสื่อกลางของความไว้วางใจของลูกค้าในธุรกิจอาหารข้างทางในกรุงเทพมหานคร การวิจัยเชิงปริมาณนี้ใช้การสุ่มตัวอย่างแบบแบ่งชั้นเพื่อให้มั่นใจว่าตัวอย่างเป็นตัวแทนที่ดีของประชากรที่สนใจ ข้อมูลการสำรวจรวบรวมจากลูกค้าร้านอาหารข้างทาง 477 รายในกรุงเทพฯ และคำนวณโดยใช้แบบจำลองสมการโครงสร้างกำลังสองน้อยที่สุดบางส่วน (PLS-SEM) ผลการวิจัยพบว่า การรับรู้ถึงสุขอนามัยอาหารมีผลกระทบเชิงบวกเชิงประจักษ์ต่อความตั้งใจซื้อคืนของลูกค้าและลูกค้า ความไว้วางใจของลูกค้ายังช่วยส่งเสริมความตั้งใจในการซื้อคืนในเชิงบวกอีกด้วย ผลการทดสอบของ Sobel แสดงให้เห็นถึงการกลั่นกรองเชิงบวกบางส่วนต่อความไว้วางใจของลูกค้าระหว่างการรับรู้ด้านสุขอนามัยอาหารและความตั้งใจในการซื้อคืน ผลการวิจัยยืนยันความจำเป็นของสุขอนามัยอาหารในการส่งเสริมความไว้วางใจของลูกค้าและความตั้งใจในการซื้อคืน และบทบาทของความไว้วางใจของลูกค้าในฐานะกลไกในการที่สุขอนามัยอาหารส่งเสริมความตั้งใจของลูกค้าในการซื้อคืน การวิจัยยังให้แนวทางที่เป็นประโยชน์สำหรับผู้ประกอบการอาหารริมทางและหน่วยงานภาครัฐและหน่วยงานที่เกี่ยวข้องที่ได้รับมอบหมายให้พัฒนาและยกระดับมาตรฐานเพื่อปรับปรุงอุตสาหกรรมอาหารริมทางโดยปฏิบัติตามเป้าหมายการพัฒนาที่ยั่งยืนเพื่อมอบมาตรฐานการครองชีพที่สูงขึ้นสำหรับประชาชน

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Introduction

With the issues happening around the world, such as the COVID-19 pandemic that has killed millions of people worldwide (Yamin, 2020), global warming causing sudden and massive unexpected climate changes that have also caused people to lose their homes and loved ones, and many others (Zandalinas, Fritschi, & Mittler, 2021) that lead to economic instability that affects people's quality of life, the global trend of sustainability has become popular and broadly discussed in various aspects (Ruggerio, 2021). These issues and concerns have been categorized and titled by the United Nations (UN) into 17 sustainable development goals (FUND, 2015; Hák, Janoušková, & Moldan, 2016; Ruggerio, 2021). In light of the widespread adoption of the Sustainable Development Goals (SDGs) worldwide, governments and individuals are encouraged to embrace sustainable initiatives. These efforts aim to achieve the 17 goals set forth, which include ending poverty, improving health and education, reducing inequality, fostering economic growth, addressing climate change, and conserving our oceans and forests. (Alamoush, Ballini, & Ölçer, 2021; Biermann, Kanie, & Kim, 2017). Several industries and businesses have widely adopted the SDGs concept to compensate for its megatrend (Mio, Panfilo, & Blundo, 2020; Pedersen, 2018; Van Tulder, 2018). Among industries, businesses in the foodservice industry have adopted and applied SDGs concept in their actions, such as providing environmentally friendly food containers and utensils and banding foam and plastics, treating water before releasing it to the public, exploiting clean alternative energies, and many more (de Visser-Amundson, 2022; Nicholls, Ely, Birkin, Basu, & Goulson, 2020; Teixeira et al., 2020).

After the struggling years of the restaurant business worldwide due to the COVID-19 pandemic, restaurants have started to recover (Occhiogrosso, 2022; Ratasuk & Gajesanand, 2023; The Foreign Agricultural Service, 2020). In Thailand, one segment of the foodservice industry that has demonstrated a quicker recovery compared to others is the street food sector. It provides affordable local cuisine, catering to the majority who continue to face challenges stemming from the impact of the COVID-19 pandemic (KasikornResearchCenter, 2021, 2022). Street food yields millions of lives, both consumers and street food operators (MAGLUMTONG & FUKUSHIMA, 2022; Statista, 2023). It was anticipated that the street food industry would experience growth and yield increased revenue compared to the period before the pandemic (Kasikorn Research Center, 2022). According to Statista (2022), in 2019, Thailand had

111,370 registered street food operators. In 2021. its market value was 180 million Baht and is anticipated to reach 186 million Baht in 2022 (Statista, 2022). These numbers, even though unregistered street vendors are not included, reflect the attractiveness and competition in this business. With low entry barriers, street food is always on the top of mind for people who want to start a business (Ratasuk & Charoensukmongkol, 2019, 2020; Ratasuk & Gajesanand, 2023). Moreover, the street food industry, upon which millions rely, is a testament to the local economy's resilience in alignment with key Sustainable Development Goals (SDGs). These include eradicating poverty, eliminating hunger, promoting good health and well-being, fostering decent work and economic growth, and cultivating sustainable cities and communities (Winarno & Allain, 1991).

Consequently, competitive edges allowing street food operators to compete with rivals, survive in such competition, and grow sustainably are required. Besides attracting new customers to their businesses, street food operators need to ensure they will come back and support their businesses to achieve sustainable success in operating a business. Therefore, it is essential for street vendors and relevant stakeholders, including governmental bodies responsible for nurturing the street food industry and local economic development, to understand the factors that influence customers' inclination to repurchase street food while promoting better living quality of people aligning with the sustainability concepts of SDGs mentioned.

Given the heightened awareness of health prompted by the COVID-19 pandemic, concerns surrounding food hygiene in street food have gained considerable attention, particularly in underdeveloped and developing countries (Esposito et al., 2021; Letuka, Nkhebenyane, & Thekisoe, 2021; Soon, 2019). Although government agencies encourage street food operators to learn and adopt food hygiene practices in Thailand, evidence of unhygienic practices remains. Thus, it is proposed to be investigated as a potential factor that can drive street food customers' repurchase intentions.

Even though the concept of food hygiene has been studied in several contexts, including the street food industry (Frempong, Charles-Unadike, Anaman-Torgbor, & Tarkang, 2022; Okojie & Isah, 2019; Soon, 2019), Quantitative research examining the influence of food hygiene on repurchase intentions remains a few, with the majority of existing studies being

qualitative, and need further investigations (Kamboj, Gupta, Bandral, Gandotra, & Anjum, 2020; Lema, Abuhay, Kindie, Dagne, & Guadu, 2020; Ratasuk, 2023). For example, the research by Wardana, Sulhaini, and Rinuastuti (2022) quantitively examined the mediating role of food hygiene on the influence of content marketing on customers' fast food purchase intentions moderated by health risks. Another quantitative research on the contribution of hygiene was conducted by Yu, Seo, and Hyun (2021), who investigated perceived hygiene's impact on image, WOM, and customer revisit intentions in the hotel business. This gap is particularly evident in Bangkok's street food scene, where skepticism regarding food hygiene persists, highlighting the need for further investigation.

This research investigated the roles of Bangkok street food customers' perceived food hygiene on their repurchase intentions, direct and via trust, based on social exchange theory. Its findings are expected to provide novel knowledge and additional evidence on food hygiene, customer trust, perceived risk, social exchange theory, and street food literature. These insights are anticipated to serve as valuable guidelines for street food operators, enhancing their competitiveness and contributing to the sustainable growth of the local economy.

Literature Review

This study investigates how perceived food hygiene influences customer repurchase intentions and explores the mediating effect of customer trust, as proposed by the social exchange theory. The research model comprises three latent variables: customer repurchase intentions, perceived food hygiene, and customer trust, aiming to elucidate their connections based on hypotheses derived from the principles of social exchange theory responding to the Sustainable Development Goals (SDGs), set forth by the United Nations, providing a comprehensive framework for addressing global challenges, including those related to food safety, health, and sustainable consumption (Grace, 2017). In the bustling metropolis of Bangkok, street food vendors play a vital role in the local food ecosystem, offering diverse culinary delights to residents and tourists alike. However, food hygiene and safety concerns can significantly impact customer trust and repurchase intentions. This literature review explores the nexus between food hygiene, customer trust, and repurchase intentions in Bangkok street food, with a focus on achieving SDG 3 (Good Health and Well-being) and SDG 12 (Responsible Consumption and Production) (MAGLUMTONG & FUKUSHIMA, 2022; Nizame et al., 2019).

Social Exchange Theory

In his influential article "Social Behavior as Exchange," American sociologist George Homans introduced the pioneering social exchange theory (Cook, Cheshire, Rice, & Nakagawa, 2013; Cropanzano & Mitchell, 2005). According to the theory, individuals continually evaluate costs and benefits when initiating or ending a relationship. As long as the benefits exceed the costs, the relationship persists, driven by the pursuit of rewards and avoidance of punishment rather than being solely influenced by emotions (Cook et al., 2013; Cropanzano & Mitchell, 2005). Social exchange theory has been applied in diverse fields and contexts, particularly in business studies that it can explain relationships between businesses and their customers that their relationships are developed as a result of their cost and benefit analysis to determine potential risks and benefits (Ratasuk & Gajesanand, 2022; Romani-Dias & Carneiro, 2020; Shiau & Luo, 2012; Xu, Wang, & Ma, 2022). The theory suggests that consumers establish relationships with businesses not solely based on emotions but through a cost-benefit analysis determining whether they choose to engage with a business as customers, remain in current relationships, or opt to switch to others (Cortez & Johnston, 2020; Ratasuk & Gajesanand, 2023; Wang, Xiang, Yang, & Ma, 2019). For example, research by Ratasuk (2022a) employed social exchange theory to establish a framework for how marketing factors contribute to customer loyalty via brand image in convenience store coffee chains. Verma (2021) also used the theory to explain the contributions of brand engagement and brand love on brand equity and purchase intention. This study utilized the social exchange theory to predict the connection between perceived food hygiene and customer repurchase intentions while also exploring the mediating influence of customer trust within the street food context for hypothesis formulation.

Repurchase Intentions

Repurchase intention encompasses individuals' inclination and subjective likelihood to persist in purchasing products or services from the same businesses (Kotler, 2012; Morrison, 1979). It is a critical phase in the consumer decision-making journey after customers experience products or services in the purchase decision stage, as shown in Figure 1 (Ratasuk, 2019; Ratasuk & Gajesanand, 2020). In the post-purchase behavior stage, the last stage, customers assess their experiences with products and services to decide

whether to continue their purchases or switch to other businesses. (Ratasuk, 2022b). Repurchase intention has been verified in business studies as a key to favorable business consequences, such as brand loyalty and word-of-mouth intentions, indicating business sustainability (Dandis & Al Haj Eid, 2022; Hussain et al., 2023; Ratasuk & Gajesanand, 2022). On the other hand, marketing factors, such as perceived product quality, perceived service quality, customer trust, and many others, have been proposed and tested as antecedents of customer repurchase intentions in various business contexts (Ratasuk, 2022b; Ratasuk & Gajesanand, 2020, 2022). For example, the research by Mio et al. (2020) examined the impacts of customers' perceived value, satisfaction, and trust on their repurchase intentions in the B to C online segment and found positive significant effects. Trivedi and Yadav (2020) also found the empirical mediation roles of customer trust and customer satisfaction on the impacts of certain characteristics of vendors, including security, ease of use, and privacy concerns, on the repurchase intentions of Y-generation e-commerce customers.

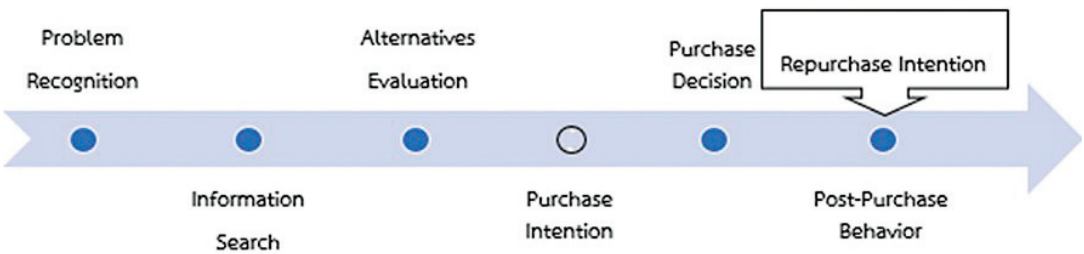

Figure 1: The Consumer Decision-Making Process, Retrieved from Ratasuk and Gajesanand (2022)

Perceived Food Hygiene

Food hygiene is defined as practices, methods, and disciplines reflecting physical conditions and evidence presented in the food production process, including handling, preparing, and storing food, controlling pathogen transferring risk to prevent possible foodborne illnesses and infectious diseases caused by microbial contamination (Baral, Moon, Shin, Pahari, & Acharya, 2020; Kamboj et al., 2020; Tomaszewska, Trafialek, Suebpongsang, & Kolanowski, 2018). Food hygiene is part of food safety, and it is not easy to consider them separately that food safety includes the entire system of risk management while food hygiene covers only a set of practices controlling only an aspect of food safety (Ababio &

Lovatt, 2015; Egan et al., 2007; Kamboj et al., 2020). It can determine the degree of food safety and risk (Bloomfield & Ackerley, 2023). In contrast with food safety, food hygiene is very limited in the literature, particularly in social studies (Ababio & Lovatt, 2015; Djekic et al., 2014; Kamboj et al., 2020). For example, the study by Choi, MacLaurin, Cho, and Hahm (2010) and (2021) revealed that perceived food hygiene positively influences various outcomes, including cognitive and affective perceptions and customer satisfaction.

Customer Trust

Customer Trust refers to customers' positive belief and expectation developed over time that businesses and their products and services are reliable and always fulfill their obligations to satisfy their needs and expectations (Jalilvand, Vosta, Mahyari, & Pool, 2017; Ratasuk & Gajesanand, 2022, 2023; Shao & Yin, 2019). It depends on businesses' ability to develop customers' decent experiences and emotional connections with them, allowing them to be confident in themselves and what they offer (Guo, Hu, Lu, & Ma, 2021; Li, Teng, & Chen, 2020). It can determine various desired business solutions, such as brand engagement, purchase intentions, repurchase intentions, customer loyalty, and many more (Firman, Ilyas, Reza, Lestari, & Putra, 2021; Islam et al., 2021; Kartika, Firdaus, & Najib, 2020; Li et al., 2020). For example, Dehghanpouri, Soltani, and Rostamzadeh (2020) study revealed that customer trust impacts taxpayer satisfaction and e-CRM success in East Azerbaijan, Iran. Iglesias, Markovic, Bagherzadeh, and Singh (2020) explored the role of customer trust on customer loyalty and found its significant contribution to Spain's e-business. On the other hand, given in prior research, customer trust is a consequence of various marketing and business factors, such as marketing mix, customer satisfaction, and food safety (Halizah, Retnowati, Darmawan, Khayru, & Issalillah, 2022; Islam et al., 2021; Ratasuk & Gajesanand, 2023; Shao & Yin, 2019). Ye, Ying, Zhou, and Wang (2019) identified noteworthy positive effects of social connection, usefulness, and ease of use on the establishment of customer trust among P2P accommodation users in China. According to Ratasuk and Gajesanand (2022), food safety assurance cultivates customer trust, whereas trust may manifest through perceived risk within Bangkok's food delivery sector. The study by Islam et al. (2021) also highlighted that Corporate Social Responsibility (CSR) practices and customer satisfaction play instrumental

roles in cultivating trust among post-paid users in the telecommunications sector. Within the scope of this research, customer trust is delineated as the assurance perceived by consumers in street food vendors, reflecting their confidence that the offerings and services provided will meet expectations and circumvent dissatisfaction.

Perceived Food Hygiene and Repurchase Intentions and the Mediating Role of Customer Trust

Based on the social exchange theory, customers always compare the costs and benefits of their experience with the products and services they have purchased, reflecting risk and benefits or repeating their purchase with a business (Ratasuk & Gajesanand, 2022). Thus, customers perceived food hygiene from their previous purchase, which is expected to keep their foods clean and prevent them from foodborne illnesses and infectious diseases (Baral et al., 2020; Kamboj et al., 2020; Tomaszewska et al., 2018), establishing their trust on the food and the business that they will be safe and drive them to repurchase foods from the same street vendors (Ratasuk & Gajesanand, 2022, 2023). Ratasuk and Gajesanand (2022) found a significant positive impact of food safety, which is the bigger picture of food hygiene, on food delivery customers' repurchase intentions in Bangkok. Moreover, perceived food hygiene makes customers feel more confident in foods and services, particularly in the current situation that people are still conscious of the risk of COVID-19, which is an airborne disease, that the food is safe to consume (Morawska et al., 2020; Ratasuk & Gajesanand, 2023). Consequently, customers' trust in the foods and services of street food vendors drives them to continue to support the businesses (Ratasuk & Gajesanand, 2022). For example, the study by Ratasuk and Gajesanand (2022) also found that trust promotes food delivery customers' repurchase intentions. Wandoko and Panggati (2022) uncovered a beneficial impact of customer trust on online repurchase intentions amidst the COVID-19 pandemic. According to Miao et al. (2022), customer trust significantly influences tourist repurchase intentions in Thailand. Thereby, the following hypotheses were proposed.

H1: Perceived food hygiene has a positive impact on customer repurchase intentions.

H2: Perceived food hygiene has a positive association with customer trust.

H3: The association between perceived food hygiene and repurchase intentions is positively mediated by customer trust.

Methodology

This study investigates perceived food hygiene's influence on street food customers' repurchase intentions in Bangkok while delving into the mediating role of trust in street food vendors. With a cross-sectional quantitative research design, the study utilized self-administered questionnaires to collect data from a targeted population of street food customers in Bangkok. Sampling was conducted using a stratified random sampling method to ensure adequate representation, with a sample size exceeding 400 participants, as Lilliefors (1967) and Chaokromthong and Sintao (2021) recommended. The study strategically divided Bangkok into five districts and approached 120 qualified street food customers from each district, totaling 600 individuals (Iliyasu & Etikan, 2021; Kadilar & Cingi, 2003). Data collection spanned a month from early May to early June 2023. The survey instruments comprised two parts: the first captured participant demographics, while the second encompassed question sets assessing attitudes towards latent variables. Cover letters accompanied the questionnaires, outlining the study's objectives and providing instructions for completion. Respondents were approached right after their purchase by a street food vendor and were informed of all rights and conditions in detail before being invited to respond to the questionnaires voluntarily. Each respondent took roughly 5 to 10 minutes.

The data collection took about two months, which was longer than expected due to the COVID-19 pandemic, resulting in targeted prospects' hesitation to participate in the study.

Measures

The latent variables were assessed using scales derived from prior research, which have been established as valid and reliable (Guo et al., 2021; Li et al., 2020; Nazir, Khadim, Asadullah, & Syed, 2023; Trivedi & Yadav, 2020; Yu et al., 2021). Responses were recorded on a five-point Likert scale from 'strongly disagree' to 'strongly agree.' All questionnaire items were translated into Thai to ensure cultural appropriateness and facilitate comprehension among the sample group.

Repurchase intention was assessed employing a four-item scale adapted from Trivedi and Yadav (2020) and Nazir et al. (2023). Sample items include "If I had to buy street food again, I would support the shop I bought from." and "I will be buying food from the same restaurant again soon."

Perceived food hygiene was assessed employing the five-item perceived food hygiene scale adapted from Wardana et al. (2022) and Yu et al. (2021). Sample question items are "The street food vendor providers wear masks. or mouth covering to prevent saliva at all times" and "The food here is clean and hygienic with no unwanted impurities."

Customer trust was measured using the four-item scale adapted from Guo et al. (2021); Li et al. (2020), for example, "I trust the food of this street food vendor." and "I feel that I can rely on this street food vendor."

Control Variable

This study incorporated four control variables, gender, age, income, and education, to augment the model, offering supplementary factors alongside the latent variables.

Data Analysis

This study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess the proposed hypotheses. According to Hair Jr, Howard, and Nitzl (2020), PLS-SEM offers advantages over CB-SEM as it does not necessitate normally distributed data for accurate results, thus minimizing bias when dealing with non-normally distributed data. Furthermore, Hair Jr, Matthews, Matthews, and Sarstedt (2017) asserted that PLS-SEM is adept at handling complex research models characterized by numerous variables and intricate relationships necessitating simultaneous analysis. WarpPLS 8.0 software, the latest version available, was selected to execute the analysis for its ability to generate precise results. However, preceding the PLS-SEM analysis, various statistical tests, including descriptive statistics, convergent and discriminant validity assessments, reliability checks, multicollinearity examination, common method bias detection, normality assessment, and model-fit indices evaluation, were conducted to ensure the robustness of the research model and the validity of its findings. Finally, the Sobel test, advocated by Hayes and Preacher (2014), was utilized to explore moderation effects.

The data collection methodology and instrument underwent a rigorous review process to ensure alignment with the ethical standards outlined by the Research Ethics Committee (REC), resulting in the assignment of reference number PIM-REC 036/2563.

Results

Of all six hundred respondents, 477 valid questionnaires were collected and included in the data processing, presenting a response rate of 79.5%. Most respondents were female, 334 (70.02%), while most respondents, 412 (86.37%), were 20 to 25 years old. Almost half of the respondents, 228 (47.80%), earned less than 15,000 Baht monthly, and 280 (58.70%) had undergraduate degrees, as shown in Table 1.

Table 1: Demographic Data of Respondents

	Characteristics	Descriptive Statistics
Gender	Male	143 (29.98%)
	Female	334 (70.02%)
Age	20-25 years old	412 (86.37%)
	26-30 years old	41 (8.60%)
	31-35 years old	11 (2.30%)
	36-40 years old	10 (2.10%)
	41-49 years old	2 (0.42 %)
	Older than 50 years old	1 (0.21%)
Income (per month)	Less than 15,000 Baht	228 (47.80%)
	15,001 to 20,000 Baht	199 (41.72%)
	20,001 to 30,000 Baht	34 (7.13%)
	30,001 to 40,000 Baht	8 (1.68%)
	40,001 to 50,000 Baht	2 (0.42%)
	More than 50,000 Baht	6 (1.25%)
Education	High school	14 (2.93%)
	Associate degree	118 (24.74%)
	Undergraduate degree	280 (58.70%)
	Master degree	54 (11.33%)
	Doctoral degree	11 (2.30%)

Prior to the SEM analysis, criteria should be met. Convergent and discriminant validity, reliability, and model fit indices were tested. Firstly, the convergent validity was tested by considering the factor loadings, average variance extracted (AVE), and composite reliability (CR) presented in Table 2. All factor loadings range from 0.835 to 0.931. According to Hair Jr et al. (2020), convergent validity is ideal if all factor loadings are at least 0.7. Table 2 also shows that the AVE of the result range from 0.757 to 0.833, more significant than 0.5, indicating less error remains, while the lowest CR value is 0.940, higher than 0.7 to be satisfactory (Hair et al., 2011; Hair Jr et al., 2020). Therefore, the convergent validity of the data is satisfactory.

Table 2: Convergent Validity (Factor Loadings, AVE, and CR)

Constructs	Items	Factor Loadings	CR	AVE
Repur	If I had to buy street food again, I would support the shop I bought from.	0.901	0.940	0.797
	If I could, I would buy food from the same store on my next purchase.	0.910		
	I intend to buy food from the same restaurant in the future.	0.876		
	I will be buying food from the same restaurant again soon.	0.884		
Hygiene	The street food vendor providers wear masks. or mouth covering to prevent saliva at all times	0.885	0.940	0.757
	The food here is clean and hygienic, with no unwanted impurities.	0.894		
	The street food vendor wears aprons and/or gloves, and/or hair caps at all times.	0.894		
	The street food vendor does not constantly take risks with their food, such as picking their nose or wiping their hands and pants while cooking.	0.839		
	The street food stall is clean and hygienic.	0.835		
Trust	Overall, I have complete trust in this street food vendor.	0.889	0.952	0.833
	I feel that this street food vendor is trustworthy (honest, not deceptive).	0.909		
	I feel that I can rely on this street food vendor.	0.931		
	I trust the food of this street food vendor.	0.922		

Note: CR=composite reliability, AVE=average variance extracted, Repur=repurchase intentions, Hygiene=perceived food hygiene, Trust=customer trust

Secondly, discriminant validity was evaluated through the heterotrait–monotrait ratio of correlations (HTMT). As depicted in Table 3, the results demonstrate conformity to the HTMT criterion, with all values falling below the recommended threshold of 0.90, as Henseler, Ringle, and Sarstedt (2015) advocated.

Table 3: HTMT Ratio

HTMT	Repur	Hygiene	Trust
Repur			
Hygiene	0.614**		
Trust	0.871**	0.656**	

Note: * p-value of ≤0.05, ** p-value of <0.01; Repur=repurchase intentions, Hygiene=perceived food hygiene, Trust =customer trust, GEN=gender, Age=age, Income=income, Edu=education

Furthermore, discriminant validity was assessed by ensuring that the square root values of each variable's average variance extracted (AVE) exceeded their corresponding correlations with other variables, as Hair, Risher, Sarstedt, and Ringle (2019) recommended. As depicted in Table 4, all AVEs surpassed their respective correlations, signifying satisfactory discriminant validity. Subsequently, the model's reliability was examined, with variables' Cronbach's alpha and composite reliability coefficients assessed to be no less than 0.7, as Manley, Hair, Williams, and McDowell (2021) suggested. As indicated in Table 4, all coefficients fell within the range of 0.915 to 1.000, underscoring the model's reliability. Finally, multicollinearity and common method bias (CMB) were evaluated using the complete variance inflation factor (VIF), with values ideally not exceeding 3.3 and acceptably not exceeding 5 (Hair Jr et al., 2020; Kock & Lynn, 2012; Senaviratna & Cooray, 2019). The highest full VIF value observed was 3.039, well below the threshold of 3.3, indicating the absence of critical multicollinearity and CMB concerns.

Table 4: Correlations, Reliability, and Full Collinearity VIF.

Variables	Repur	Hygiene	Trust	Gen	Age	Income	Edu
Repur	(0.893)						
Hygiene	0.563**	(0.870)					
Trust	0.805**	0.608**	(0.913)				
Gen	-0.200**	-0.102*	-0.113*	(1.000)			
Age	-0.025	-0.044	-0.052	0.126**	(1.000)		
Income	-0.041	-0.096*	-0.021	0.224**	0.225**	(1.000)	
Edu	0.123**	0.038	0.082	-0.113*	-0.066	0.080	(1.000)
Cronbach's alpha coefficient	0.940	0.940	0.952	1.000	1.000	1.000	1.000
Composite reliability Coefficient	0.915	0.919	0.933	1.000	1.000	1.000	1.000
Full Collin. VIF	3.039	1.644	3.192	1.122	1.071	1.126	1.044

Note: *p-value of ≤0.05, **p-value of <0.01; Repur=repurchase intentions, Hygiene=perceived food hygiene, Trust =customer trust, GEN=gender, Age=age, Income=income, Edu=education; the square root values of the AVE are presented in parentheses.

Moreover, normality testing was conducted to ascertain the suitability of employing PLS-SEM for this study. As delineated in Table 5, the results indicate non-normal distribution across all variables, thus affirming the appropriateness of PLS-SEM for this research.

Table 5: Normality Test Results

	Repur	Hygiene	Trust	Gen	Age	Income	Edu
Normal-JB	No	No	No	No	No	No	No
Normal-RJB	No	No	No	No	No	No	No

Note: Repur=repurchase intentions, Hygiene=perceived food hygiene, Trust=customer trust, GEN=gender, Age=age, Income=income, Edu=education

Furthermore, the model's overall quality was substantiated by assessing ten model-fit indices recommended by Kock (2015), as presented in Table 6. The findings reveal that all indices attained optimal and acceptable values, affirming the overall model's favorable quality.

Table 6: PLE-SEM Model Fit Indices

Model fit indices	Coefficient	Result
Average path coefficient (APC)	0.244***	Significant
Average R-square (ARS)	0.354***	Significant
Average adjusted R-square (AARS)	0.350***	Significant
Average variance inflation factor (AVIF)	1.282	Ideal
Average full variance inflation factor (AFVIF)	1.748	Ideal
Tenenhaus GoF index (GoF)	0.568	Large
Simpson's paradox ratio (SPR)	1.000	Ideal
R-square contribution ratio (RSCR)	1.000	Ideal
Statistical suppression ratio (SSR)	1.000	Acceptable
Nonlinear bivariate causality direction ratio (NLBCDR)	1.000	Acceptable

Note: ***, **, and * mean a p-value of <0.001, ≤0.01, and ≤0.05, respectively.

PLS-SEM Hypothesis Testing Results

The outcomes of the evaluation of the three proposed hypotheses are depicted in Figure 1 and the subsequent descriptive details.

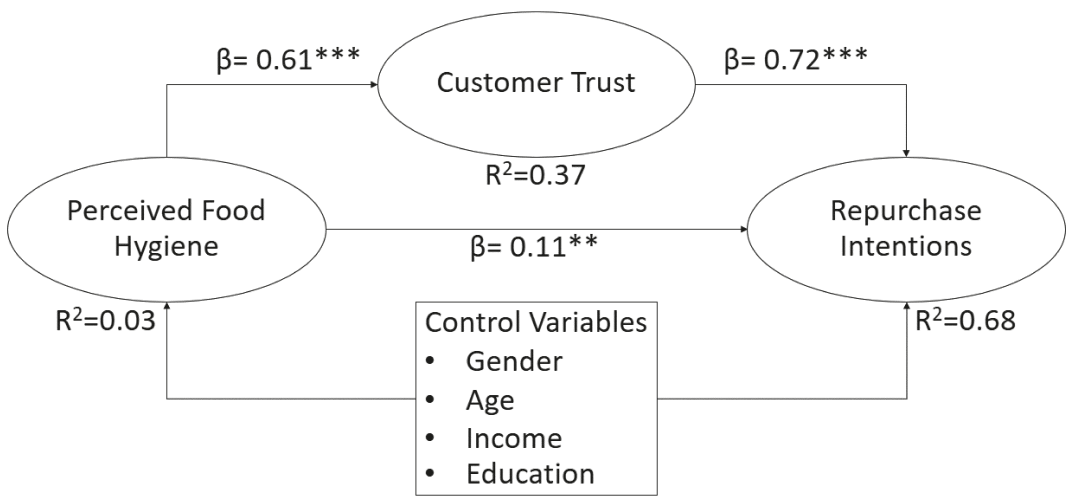

Figure 2: Structural Equation Model Results

Note: ***, **, and *mean a p-value of <0.001, ≤0.01, and ≤0.05, respectively.

Figure 2 presents the PLS-SEM analysis results as follows:

Hypothesis 1 Perceived food hygiene has a positive impact on customer repurchase intentions. The results revealed a statistically significant positive relationship between the two variables (β=0.111; p=0.007). Therefore, hypothesis 1 was confirmed.

Hypothesis 2 Perceived food hygiene has a positive association with customer trust. The statistical analysis unveiled a noteworthy and positive relationship between the two variables (β=0.611; p<0.001), confirming hypothesis 2.

Hypothesis 3 The association between perceived food hygiene and repurchase intentions is positively mediated by customer trust. The outcomes derived from conducting the Sobel test, as suggested by Hayes and Preacher (2014), in conjunction with the findings related to hypothesis 1, demonstrated a partially mediating impact on the association between perceived food hygiene and purchase intentions (t=11.193; p<0.001) aligning with the bootstrapping result (β=0.442; p<0.001) suggested by Preacher and Leonardelli (2001). As a result, hypothesis 3 was substantiated.

In addition, the results demonstrated that, among the four control variables, gender, age, income, and education, only gender (β=-0.075; p=0.050) and education (β=0.096; p=0.017) significantly impacted perceived food hygiene, and only gender (β=-0.098; p=0.016) significantly impacted repurchase intentions.

Discussion and Conclusion

This study looked at how consumer trust functions as a mediating factor in the relationship between food cleanliness and repurchase intentions in the street food industry in Bangkok. Results show that consumers who feel that street food vendors have high standards for food hygiene are more likely to repeat purchases from them than customers who feel that street food vendors have low standards. This is consistent with earlier research by Ratasuk and Gajesanand (2022), which found that customers' intentions to make repeat purchases from food delivery services in Bangkok were significantly impacted by their perception of food safety. However, no previous studies have examined the relationship between perceived food hygiene and purchase intentions. Additionally, it supports the findings of research by Cui, Jiang, Deng, and Zhang (2019) and Hsu, Chang, and Lin (2019)

that food safety influences consumers' inclinations to buy from online food marketplaces and organic food producers. The result may be due to the fast-growing health concerns influenced by the COVID-19 pandemic that perceived food hygiene, for example, street food operators' personal hygiene, food handling process, and physical evidence, may make customers feel safer with their street food consumption. The results also indicated that perceived food hygiene promotes customer trust, supporting prior research, such as the study of Wandoko and Panggati (2022), that customer trust is associated with repurchase intentions in online shopping e-marketplaces during COVID-19. In addition, Miao et al. (2022) discovered a strong correlation between customer trust and travelers' intentions to make additional purchases in Thailand. The Sobel test's mediation finding supported the role of customer trust as the mechanism enabling perceived hygiene to encourage repurchase intentions, consistent with earlier research and the social exchange theory. Positive feelings like trust mediate the link between perceived food hygiene and repurchase intentions. A vendor's capacity to deliver safe and sanitary food is trusted when there is a high perceived level of food hygiene, which increases customer satisfaction with the entire eating experience. This contentment subsequently strengthens customers' plans to make more purchases from the same provider. For instance, Shafieizadeh, Alotaibi, and Tao (2023) found that food hygiene, a component of food safety, increases patron trust in restaurants. Additionally, Ratasuk and Gajesanand (2023) discovered that food safety plays a major role in fostering the trust of meal delivery clients. In the street food context, street vendors with better hygiene tend to gain higher customers' trust than those with poorer food hygiene, fostering their confidence in consuming street food and eventually promoting their repurchase intentions.

Finally, the impact of control factors on food hygiene suggests that female consumers place a higher priority on and are more concerned about food hygiene than their male counterparts. Higher-educated consumers also prioritize and appreciate food hygiene more than lower-educated ones do.

Academic Contributions

Based on the findings, this study adds to the small body of knowledge about how food hygiene influences repurchase intentions. Specifically, few studies use the idea of food hygiene as a latent variable in a quantitative sociological study. Considered a novel

feature of the social exchange theory, this research also adds to the body of information and data about the connections between food hygiene, consumer trust, and repurchase intentions based on the theory's explanation in the literature. It also deepens our understanding of how customer trust is influenced by food hygiene, how trust affects repurchase intentions in the food sector and the limited roles that consumer trust plays as a mediator in the relationship between perceived food hygiene and buying intentions. Furthermore, this study offers more factual support for each of the correlations.

Suggested Implications

Additionally, street food vendors and other pertinent industry players, such as government agencies tasked with advancing the street food sector and boosting the regional economy, can benefit from the research's practical consequences. To develop consumers' faith and trust that their food is safe and free from infectious illnesses and foodborne sickness, street food vendors should have their booths tidy and appealing. For example, they should constantly have their areas neat and organized. They should cover their food to prevent it from being contaminated with dirt from the street and the foul air around them. Additionally, operators should dress smartly and professionally when cooking, wearing acceptable, appropriate clothing, including hats or hair nets, gloves, aprons, masks, and frequent hand washing to avoid contaminating the food. Because it's hard to get clean water at the location, use disposable food containers and utensils instead of ones that need to be washed. Customers should feel more confident, their repurchase intents and company competitiveness should grow.

Regarding any pertinent government agencies working to assist the sector in reaching long-term objectives that might lead to economic success, they should push street food vendors to learn more about industry standards and best practices, especially concerning food cleanliness. They can arrange for the operators to receive free training and certification. The course can be offered annually, and the certifications earned can be used to guarantee the store's standard cleanliness. They are good for a year or longer, after which they must recertify through another training course. It is anticipated that these steps would strengthen the allure of Thai street food and sustainably advance food safety in the street food industry, drawing tourists from across the globe and bringing in additional revenue to the country and the local businesses.

Study Limitations and Recommendations for Future Studies

There are still several limits even if this study makes significant contributions, such as offering fresh insights and proof for the body of literature already in existence, especially with foodservice and street food. The results were limited to identifying associations between factors rather than causality because this study only collected cross-sectional data, making it difficult to confirm causal linkages. Additionally, the self-administered survey used in this study from one data source—street food customers—may have introduced subjectivity into the findings. It is recommended that future related studies gather data from several sources, such as other relevant industry stakeholders, in order to diversify the data sources. Future research should consider additional variables, including consumer trust, loyalty, word-of-mouth, and repurchase intents, that could majorly impact the variables and broaden the body of knowledge and theory. It is also recommended that similar models be investigated in various food service business scenarios in future research.

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The Roles of Work-Related and Social-Related Social Media Usage in Facilitating Firm-Level Creative Capital and Innovative Job Performance

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Abstract

The use of social media in the workplace has become increasingly prevalent in recent years. While social media platforms can offer a range of benefits to organizations, including increased communication and collaboration, their impact on employee creativity remains unclear and organizational sustainable development. This study was grounded in social information processing theory to investigate the effects of both work-related and social-related social media usage on firm-level creative capital and employees' innovative job performance. By applying a hybrid sampling design of snowball sampling method and convenience sampling method, 381 Chinese employees in mainland China were collected. The findings of the PLS-SEM analysis revealed that the proposed model has moderate explaining power on innovative job performance (R^2 = .59) and firm-level creative capital (R^2 = .40). This study provides empirical evidence supporting the social information processing theory from the social media perspective. Besides, the results suggest that managers should encourage and support the appropriate use of social media platforms by facilitating employees' participation in professional networks, providing access to collaboration tools, and recognizing innovative use of social media.

Keywords: Social Media Usage, Firm-Level Creative Capital, Innovative Job Performance, Social Information Processing Theory

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บทบาทของการใช้โซเชียลมีเดียที่เกี่ยวข้องกับงานและสังคม เพื่อส่งเสริมการพัฒนาทุนสร้างสรรค์ในระดับองค์กรและการปฏิบัติงานเชิงนวัตกรรม

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บทคัดย่อ

การใช้โซเชียลมีเดียในที่ทำงานแพร่หลายมากขึ้นในช่วงไม่กี่ปีที่ผ่านมา แม้ว่าแพลตฟอร์มโซเชียลมีเดียส่งเสริมให้เกิดผลประโยชน์เชิงบวกต่อองค์กร ซึ่งรวมถึงการสื่อสารและการทำงานร่วมกันที่เพิ่มขึ้น แต่ผลกระทบเชิงบวกต่อความคิดสร้างสรรค์ของพนักงานยังไม่ชัดเจนซึ่งส่งผลต่อการพัฒนาที่ยั่งยืนขององค์กร การศึกษานี้มีพื้นฐานมาจากทฤษฎีการประมวลผลข้อมูลทางสังคม (Social information processing theory) เพื่อตรวจสอบผลกระทบของการใช้โซเชียลมีเดียทั้งที่เกี่ยวข้องกับงานและที่เกี่ยวข้องกับสังคมต่อทุนสร้างสรรค์ขององค์กรและประสิทธิภาพการทำงานเชิงนวัตกรรมของพนักงาน งานวิจัยนี้เก็บข้อมูลแบบสะดวก (convenient sampling) และ การสุ่มแบบสโนว์บอล (snowball sampling) ทำให้สามารถรวบรวมพนักงานชาวจีนจำนวน 381 คนในจีนแผ่นดินใหญ่ และวิเคราะห์โดยโปรแกรม PLS-SEM ผลการศึกษาพบว่าแบบจำลองที่นำเสนอมีอำนาจในการอธิบายปานกลางเกี่ยวกับการปฏิบัติงานด้านนวัตกรรม (R^2 = .59) และทุนสร้างสรรค์ระดับบริษัท (R^2 = .40) การศึกษานี้ให้หลักฐานเชิงประจักษ์ที่สนับสนุนทฤษฎีการประมวลผลข้อมูลทางสังคมจากมุมมองของโซเชียลมีเดีย นอกจากนี้ ผลการศึกษายังชี้ให้เห็นว่าหัวหน้า/ผู้บริหารองค์กรณ์ควรสนับสนุนและสนับสนุนการใช้แพลตฟอร์มโซเชียลมีเดียอย่างเหมาะสม โดยอำนวยความสะดวกในการมีส่วนร่วมของพนักงานในเครือข่ายมืออาชีพ (Professional network) จัดให้มีการเข้าถึงเครื่องมือที่ส่งเสริมการทำงานร่วมกัน (Collaboration tools) และตระหนักถึงการใช้โซเชียลมีเดียในเชิงสร้างสรรค์เพื่อก่อให้เกิดนวัตกรรมการทำงาน

คำสำคัญ: การใช้โซเชียลมีเดีย ต้นทุนเชิงสร้างสรรค์ระดับองค์กร นวัตกรรมการทำงาน ทฤษฎีการประมวลผลข้อมูลทางสังคม

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Introduction

The social media have become a major source of information and ideas for people all over the world. As of April 2023, there were 5.18 billion internet consumers globally, representing 64.6% of the world's population. There were 4.8 billion social media users, or 59.9 percent of the world's population (Petrosyan, 2023). Moreover, Chinese citizens had a significant online presence, with approximately 1.03 billion active social media users as of January 2023, followed by India and Indonesia, which had 467 million and 167 million active social media users, respectively (Statista Research Department, 2023). In the meanwhile, social media has altered the manner in which individuals interact and communicate within organizations (Tajudeen et al., 2018). According to Nduhuru and Prieler (2017), social media usage in organizations can promote internal knowledge management, social interaction, and firm performance. As an increasing number of scholars have paid attention to social media usage in the workplace, this phenomenon has undergone systematic categorization into distinct dimensions, such as social-related and work-related social media usage (Chen et al., 2022; Song et al., 2019; Zhang et al., 2019), social use, cognitive use and hedonic use (Ali-Hassan et al., 2015), or informational and socializing social media usage (Hu et al., 2017). Simultaneously, by concerning the particular types of social media usage, scholars have investigated its effects on various consequences, such as psychological outcome of commitment (Luo et al., 2018), exhaustion (Luqman et al., 2021), job satisfaction (Zhang et al., 2019), work engagement (Oksa et al., 2021), and working outcomes of job performance (Ali-Hassan et al., 2015; Chen et al., 2022), and employee creativity (Luqman et al., 2021).

In addition to its impact on organizations, social media use has a unique effect on human creativity. According to Hu et al. (2017), the prevalence of social media not only alters how people create new and maintain old social networks, but also offers opportunities and challenges in information acquisition, cultural intelligence development, and creativity growth. Social media establishes a free market for ideas accessible to anyone with Internet access. Individuals with novel ideas can publish them for little or no cost, and they are able to readily view, access, and/or build upon the ideas of others (Acar et al., 2021). Performance is significantly enhanced by creative thought. The impact of the generation of new ideas may be manifested in novel and successful innovations, which in turn can enhance performance (Ferreira et al., 2020). Individual creativity can be viewed as creative capital at the level

of the firm. Because firm-level creative capital, like urban-level creative capital, is ingrained in employees (Veenendaal & Kearney, 2014). Creative capital can produce new employment opportunities. To develop, manufacture, and market their goods or services, innovative businesses and industries frequently require a skilled and inventive workforce. By encouraging creativity, economies and organizations can generate new employment chances, which is in line with the Sustainable Development Goals (SDGs, United Nations, 2015) objective of respectable work and economic development.

In previous studies, the effects of social media usage in the workplace have produced a variety of outcomes. However, the specific effects of social media usage for various purposes on job performance, particularly innovative job performance and employees' creativity, remain limited. In addition, there is a limited number of studies have empirical studies on firm-level creative capital since most of the existence of studies on creative capital are in the regional economics and urban-level literature (Boschma & Fritsch, 2009; Qian, 2013).

To address these gaps, this study adopts social information processing theory (Salancik & Pfeffer, 1978) to explore the interplay between work-related and social-related social media usage and their respective associations with innovative job performance and individual creative capital within organizational contexts. The findings extend social information process theory by addressing the emergence of social media platforms, which involve a much broader spectrum of communication modalities (text, images, and videos). From a practical standpoint, this research provides recommendations for how management can improve employee creativity, innovative job performance, and talent management within organizations by promoting the proper usage of social media platforms.

Literature Review

Social Information Processing Theory

According to the theory of social information processing, employees do not exist in a vacuum; their activities are typically influenced by the complex and ambiguous social contexts of the workplace (Salancik and Pfeffer, 1978). This theory asserts that employees interpret their work environment and understand their own requirements based on the social information available in the workplace, and then modify their behavior accordingly (Zhang et al., 2022). An important tenet of this theory is that interpersonal interactions

can offer information that impacts the attitudes and behaviors of employees at work (Yang & Treadway, 2018). Given that team members' communication and interactions on social media generate a multitude of social information (Chen & Wei, 2019), social media is viewed as a tool for influencing employees' perceptions and abilities in the workplace. Because social media platforms can communicate information that reflects task interdependence and provides clues for social comparisons (Zhang et al., 2022). For instance, businesses use popular, public, and personal social media platforms such as Facebook, Twitter, and LinkedIn to improve talent recruitment knowledge sharing, customer service, marketing, innovation, and employee engagement (Song et al., 2019). Therefore, in the context of social media usage in the workplace, this study assumes that the social information processing theory can serve as a suitable research framework to guide the investigation into the relationship between social media usage, employees' creative capital and innovative job performance.

Social Media Usage

Social media usage can be divided into different aspects. Ali-Hassan et al. (2015) categorized three dimensions of social media uses, which are social use, hedonic use, and cognitive use. Specifically, Ali-Hassan et al. (2015) defined social use as applying social media to create new social relationships, recognize individuals with common interests, and keep in touch with current friends and acquaintances; hedonic use related to use social media for fun, passing the time, relaxing and escaping, and entertainment; and cognitive use focuses on creating and sharing content and accessing content produced by other individuals, in order to gain knowledge. Hu et al. (2017) adopted the two-dimensional social media usage of Hughes et al. (2012), who classified individual social media usage as informational usage and socializing usage. Informational social media usage emphasizes accessing relevant and timely information in solving particular problems, reflecting users' cognitive needs, whereas socializing social media usage emphasizes establishing and maintaining interpersonal relationships, reflecting users' emotional needs (Hu et al., 2017).

Nevertheless, many scholars divided social medias usage into work- and social-related aspects (Chen et al., 2022; Song et al., 2019; Zhang et al., 2019). Work-related social media usage includes accessing and sharing content created by others (Chen et al., 2022). This type of social media in the workplace related to the usage of emerging social software platforms by companies in pursuance of their goals and business activities, and it is viewed

as not only advantageous to employees but also promising for superior firm performance (Song et al., 2019). To apply social media to develop and maintain relationships with others is referred to as social-related social media usage (Chen & Wei, 2019). It is possible to use social media for a variety of social purposes, such as discovering colleagues with similar interests and values and establishing acquaintances within an organization (Chen et al., 2022).

In China, the way individual or business communicate and connect has been changed by the social media, such as WeChat, QQ and Micro-blog (Zhang et al., 2019). WeChat and QQ are widely applied social media with a strong capability for connection, allows personal association among individuals (Song et al., 2019). Micro-blog is widely used to share the instant information among individuals and publics (Luo et al., 2018). Thus, categorizing social media usage into work-related and social usage is necessary for the following reasons. First, Zhang et al. (2019) asserted that the professional and social aspects of social media use are distinct. Second, previous research suggests that these two distinct purposes of social media usage can result in various antecedents and outcomes (Chen & Wei, 2019; Chen et al., 2019). Thirdly, failure to distinguish between these two forms of social media usage may result in contradictory research results (Odoom et al., 2017). Thus, this study considers social media uses for both work and social purposes and investigates the results derived from these two different purposes of social media use in the workplace.

Hypotheses Development

Social Media Usage and Firm-Level Creative Capital

Employees incorporate the firm's creative capital. In other words, firm-level creative capital emphasizes creative aptitude (Straatman et al., 2012). Individual creative ability can be defined as an individual’s relevant skills or competencies for creative performance, including the ability to generate new ideas and adopt a unique perspective on problems (Veenendaal & Kearney, 2014). Creative ability refers to an individual's innate capacity to demonstrate creativity via the collection of original problem-solving approaches and innovative ideas (Carmeli et al., 2013). Specifically, employee creativity refers to the capacity of employees to discover and implement inventive solutions to increase the organization's profitability (Ding et al., 2019; Pee, 2018). Prior research has determined that knowledge exchange is the most important factor influencing employee creativity (Dong et al., 2017; Rhee & Choi, 2017).

According to the social information processing theory, social media provides a platform for employees to debate their challenging tasks and propose potential innovative solutions, which improves their creativity (Luqman et al., 2021); thereby producing a plethora of social information (Chen & Wei, 2019). In addition, social media enable individuals to aggregate, share, store, and synthesize knowledge from various sources for the purpose of creating new meta-knowledge; to identify and join social networks in order to remain professionally informed and participate in collective knowledge generation processes by sharing experiences, criticizing theories, and presenting findings within various communities of practice; and to manage their own meaning making and knowledge management processes (Sigala & Chalkiti, 2015).

Wagner and Majchrzak (2007) mentioned that social media allows for previously developed and released content visible and perpetually accessible in the workplace, ensuring message transparency within the team. Simply put, work-related social media usage allows employees to acquire sufficient work-related information to make creative decisions about how to complete tasks (Wang et al., 2021). Social media is also used for social purposes, such as arranging social events with colleagues, creating acquaintances within the organization, and identifying individuals with common interests (Zhang et al., 2019). Engaging in heterogeneous communities additionally presents opportunities, prompting individuals to proactively utilize their social networks and investigate novel pathways creatively (Kim et al., 2016). Therefore, this study proposed:

H1 : Work-related social media usage positively enhances firm-level creative capital.

H2 : Social-related social media usage positively enhances firm-level creative capital.

Social Media Usage and Innovative Job Performance

Katz (1964) provided a conceptualization of individual job performance, defining it as consisting of two elements: daily tasks that need to be carried out consistently and dependably, and innovative tasks that expand beyond routine specifications to produce novel and useful results. The first element, sometimes referred to as routine job performance, refers to the execution of mandatory job-related duties, tasks, and obligations that are scheduled and compensated by the organization (Janssen & Van Yperen, 2004). Innovative job performance is referred to the creation or execution of creative and beneficial ideas that are implemented

in the workplace (Amabile et al., 1996; Scott & Bruce, 1994). It includes, among other things, the genesis and adoption of ideas, the formation of coalitions, and the acquisition of the authority required to successfully implement new innovations (Kanter, 1988). These duties, which are executed concurrently or sequentially by individuals, constitute the center of organizational innovation.

Through the technological advancements of the present day, social media are viewed as the instruments that facilitate the transmission of information and the generation of knowledge between individuals and organizations, particularly when knowledge spreads among various stakeholders (Scuotto et al., 2017). Bhimani et al. (2019) found that the utilization of social media to communicate and interact within and outside the firm has been the main determinant of innovation performance, helping firms to interact with multiple stakeholders readily and at reduced costs. As stated by Ali-Hassan et al. (2015), the use of social media enhances employees' abilities to acquire, create, and exchange knowledge, thereby boosting their performance. On one hand, Cui et al. (2020) assert that social media use enhances routine or in-role performance. Work-related social media usage has the possibility to enhance employees' abilities, which is crucial for improving job performance (Chen et al., 2021). In addition, Bodhi et al. (2022) revealed that work-related social media usage has a positive and direct effect on innovative job performance.

On the other hand, Ma et al. (2021) discovered that social media usage for social purposes has an advantageous effect on the information exchange among employees. When individuals are involved in interactive discussions, idea-sharing, and knowledge exchange among employees, can potentially enhance innovative job performance by fostering a collaborative and creative work environment. Besides, social information processing theory suggests that social media interactions provide opportunities for individuals to develop relationships, form impressions, and exchange valuable information, which may contribute to the generation and implementation of innovative ideas within organizational contexts (Olaniran et al., 2011). Therefore, below hypotheses are presented:

H3 : Work-related social media usage positively improves innovative job performance.

H4 : Social-related social media usage positively improves innovative job performance.

Firm-level Creative Capital and Innovative Job Performance

Veenendaal et al. (2014) clarify creative capital as the diverse expertise and abilities that are accessible and readily available to the organization for the purpose of creating value for its primary activities. Social information processing theory states that people use social signals as well as knowledge in computer-mediated communication (such as social media) to generate perceptions and develop connections (Olaniran et al., 2011). In the context of firm-level creative capital, employees are exposed to a social environment that promotes creativity and innovation. Through interactions with colleagues, mentors, and leaders who value and nurture creativity, employees develop favorable social norms and expectations that encourage them to engage in creative problem-solving and idea generation. The resulting positive social feedback and reinforcement further motivate employees to exhibit innovative job performance, as they perceive their creativity as valued and recognized within the organization. Therefore, this study proposed:

H5 : Firm-level creative capital increases individual's innovative job performance.

Research Methodology

A quantitative methodology was applied to examine the proposed framework in this study. Two distinct sections of a self-administered questionnaire were utilized for data collection. The first section consisted of demographic information, and the following part includes a 7-point Likert scale employed to evaluate respondents' degree of agreement and frequency regarding twenty-five items. The scale for measuring firm-level creative capital was adapted from the self-rating of creativity from Zhou and George (2001), Zampetakis et al. (2010) and Golden and Shriner (2019), which contains twelve items. The work-related social media usage was derived from Zhang et al. (2019) and Ali-Hassan et al. (2015), comprising eleven items. The social-related social media usage was derived from Hu et al.(2017), which involves three items. Innovative job performance was adapted from Ali-Hassan et al. (2015), which contains five items. Given that the participants in the present research were Chinese, the questionnaire was translated into Chinese using the back-translation method (Behr, 2017). In addition, a pilot study was carried out to evaluate the reliability and validity of the questionnaire. The findings present that Cronbach's α of the questionnaire is above the minimum requirement of 0.7 (Hair et al., 2019), that verifies that all constructs satisfied the threshold.

Participants and Data Collection

A self-administered survey written in Chinese was disseminated to capture the primary data for this quantitative cross-sectional study. Participants in this research were Chinese nationals with full- or part-time employment in the Chinese mainland. This study was aimed to investigate the employees' innovative job performance within an organization; therefore, few exclusion criteria were outlined: 1) Chinese personnel under the age of 18; 2) retired Chinese employees; and 3) business owners.

Within the 18th and 30th of May 2023, a convenience sample was collected via WeChat (a multidimensional and widely used social networking application in China). The recruitment procedure utilized the snowball sampling technique, in which the researcher utilized professional and personal networks and disseminated invitations with the request that they be passed along. This hybrid sampling strategy was implemented for two purposes. Initially, as of March 2023, WeChat had beyond 1.3 billion monthly active users with a diverse age range (Lin, 2023a, 2023b). Secondly, by applying a convenient sampling method, the study can be promoted among the family members, associates, and acquaintances of senior individuals. WeChat users in China spend a minimum of two hours per day on the application, with 25 percent of users spending over four hours per day as of July 2021 (Lin, 2022a). For the purpose of determining the compatibility of prospective participants, one pre-screening question inquired about their current employment status. Only active employees who completed the survey were given access to the questionnaire.

The total number of questionnaires received was 495. By excluding respondents under the age of 18, those who completed the questionnaire in less than 120 seconds, and those who provided consistent answers throughout, 114 questionnaires containing potentially unreliable responses were eliminated. As a consequence, a total of 381 valid questionnaires were acceptable for data analysis, reaching the requirement of having at least 201 respondents in order to achieve a confidence level of 93% when the population size exceeds 15,000, based on the Taro Yamane formula (Taro, 1967). Besides, Hair et al. (2021) point out that the sample size for partial least squares structural equation modelling (PLS-SEM) should exceed ten times the greatest number of links connecting any latent variable in the inner or outer models. In this study, there are eleven indicators for the latent variable of social media utilization; therefore, the minimum sample size of 110 is met. Table 1 provides a summary of the demographic characteristics of the survey respondents.

Table 1: Demographic Profiles of the Survey Participants

Demographic Factors	Descriptive Statistics
Working Industry	
Education/Training/Research/Institutions	142 (37.3%)
IT / hardware and software services/e-commerce/Internet operations	23 (6%)
Clothing/Textile/Leather	22 (5.8%)
FMCG (food/beverage/cosmetics)	19 (5%)
Accounting/Auditing	18 (4.7%)
Communication/Telecommunication Operation/Network Equipment/ Value-Added Services	17 (4.5%)
Wholesale/Retail	15 (3.9%)
Manufacturing	13 (3.4%)
Furniture/Crafts/Toys	12 (3.1%)
Others	11 (2.9%)
Agency/Consulting/Headhunting/Certification	10 (2.6%)
Banking/insurance/securities/investment banking/venture funds	8 (2.1%)
Real estate development/construction/decoration/design	7 (1.8%)
Property Management/Commercial Center	7 (1.8%)
Automotive & Parts	7 (1.8%)
Dining/Entertainment/Travel/Hotels/Living Services	7 (1.8%)
Office supplies and equipment	6 (1.6%)
Trade/Import/Export	6 (1.6%)
Traffic/Transportation/Logistics	6 (1.6%)
Pharmaceutical/biological engineering/medical equipment/equipment	4 (1%)
Medical/Nursing/Health/Hygiene	4 (1%)
Home Appliances	4 (1%)
Aerospace/Aviation/Energy/Chemical	3 (0.8%)
Legal	2 (0.5%)
Electronic technology/semiconductor/integrated circuit	2 (0.5%)
Machinery/Equipment/Heavy Industry	2 (0.5%)
Publishing/printing/packaging	2 (0.5%)

Table 1: Demographic Profiles of the Survey Participants (cont.)

Demographic Factors	Descriptive Statistics
Advertising/PR/media/art	1 (0.3%)
Agriculture/Fishery/Forestry	1 (0.3%)
Working status	
Full-time	363(95.3%)
Part-time	18(4.7%)
Position	
Management	126(33.1%)
Employee	255(66.9%)
Gender	
Female	209(54.9%)
Male	172(45.1%)
Age	Mean: 30.93 (S.D.: 5.41)

Data Analysis

In this research, the proposed model was evaluated using PLS-SEM. The proposed model comprised fifteen hypotheses and was of a complex nature. PLS-SEM was selected because it permits the analysis of extremely complex models. Besides, PLS-SEM is well-suited for theory development and exploratory research, which is consistent with the novel character of the model proposed in this study. Consequently, SmartPLS (Ringle et al., 2022) was utilized to analyze the model.

Results

Measurement Model Analysis

Before evaluating the structural model, it is necessary to confirm that all specified criteria are met (Hair et al., 2019). Several indicators were utilized to evaluate the reliability and validity of the measurement model, including factor loadings, average variance extracted (AVE), discriminant validity composite reliability (CR), and Cronbach's alpha (CA).

The factor loadings were evaluated to guarantee the validity of the indicators as illustrated in Table 2. The loadings were analyzed to determine their level of significance, with values exceeding .708 and approaching significance at the .05 level (Hair et al., 2019). Concurrently, cross-loadings were analyzed, revealing that each indicator had a greater loading for its designated construct than for any other constructs (Urbach & Ahlemann, 2010). Thus, the results confirmed both the indicators' dependability and their discriminant validity.

Table 2: Factor Loadings and Cross Loadings for the Indicators

	CR	JP_I	SMU_social	SMU_work
CR1	**.76**	.57	.26	.44
CR2	**.74**	.59	.26	.47
CR3	**.77**	.52	.23	.43
CR4	**.74**	.50	.26	.43
CR5	**.79**	.60	.43	.52
CR6	**.78**	.52	.37	.51
CR7	**.80**	.51	.34	.47
CR8	**.76**	.55	.31	.51
CR9	**.81**	.58	.37	.49
CR10	**.81**	.60	.38	.48
CR11	**.77**	.57	.28	.46
CR12	**.80**	.61	.31	.49
JP_I1	.63	**.86**	.36	.55
JP_I2	.59	**.83**	.35	.54
JP_I3	.61	**.84**	.31	.56
JP_I4	.61	**.85**	.29	.51
JP_I5	.63	**.87**	.34	.56
SMU_social 1	.30	.21	.73	.37
SMU_social 2	.35	.35	**.85**	.44
SMU_social 3	.37	.38	**.89**	.46
SMU_work 1	.49	.47	.45	**.76**
SMU_work 2	.47	.50	.41	**.81**
SMU_work 3	.52	.48	.34	**.82**

Table 2: Factor Loadings and Cross Loadings for the Indicators (cont.)

	CR	JP_I	SMU_social	SMU_work
SMU_work 4	.50	.53	.35	**.80**
SMU_work 5	.44	.49	.48	**.78**
SMU_work 6	.42	.55	.47	**.79**
SMU_work 7	.39	.45	.41	**.71**
SMU_work 8	.40	.45	.45	**.73**
SMU_work 9	.54	.53	.40	**.78**
SMU_work 10	.54	.52	.32	**.77**
SMU_work 11	.48	.46	.32	**.76**

Note: CR = firm-level creative capital, JP_I = innovative job performance, SMU_social = social-related social media usage, SMU_work = work-related social media usage. Bold items are factor loadings.

Secondly, composite reliability (CR) and Cronbach's alpha (CA) were employed to assess the constructs' internal consistency reliability. Table 3 demonstrates that all metrics exceeded the minimum threshold of 0.70 (Hair et al., 2019), indicating internal consistency reliability that is satisfactory. The Average Variance Extracted (AVE) values were all above the prescribed threshold of .5 (Hair et al., 2019), indicating adequate convergent validity.

Due to the possibility of overestimation of indicator loadings and underestimation of structural model relationships by the Fornell-Larcker criterion in PLS (Henseler et al., 2014), a stronger criterion, the Heterotrait-Monotrait (HTMT) ratio of correlation, was used to assess discriminant validity. All HTMT ratio test results ranged between .41 and .79, which is below the threshold of .85 (Henseler et al., 2014), indicating that all constructs are independent of one another and confirming adequate discriminant validity.

Table 3: Reliabilities and Correlation of Constructs

Constructs	CA	CR	AVE	Correlation of Constructs and Heterotrait-Monotrait (HTMT) Ratio			
				CR	JP_I	SMU_Social	SMU_Work
CR	.94	.95	.60	**.78**			
JP_I	.90	.93	.72	.72	**.85**		
				(.78)			
SMU_Social	.77	.87	.68	.41	.39	.83	
				(.48)	(.45)	.	
SMU_Work	.93	.94	.60	.61	.64	51	.77
				(.65)	(.79)	(.61)	

Note: CR = firm-level creative capital, JP_I = innovative job performance, SMU_social = social-related social media usage, SMU_work = work-related social media usage. Square root of AVE is illustrated on the diagonal; value within () is the value of HTMT.

Common Method Bias (CMB) Assessment and Multicollinearity

Two approaches were employed to resolve the common method bias (CMB) concern. Initially, Harman's single factor was utilized, which consisted of extracting a single component from a set of variables (Podsakoff et al., 2003). The unrotated principal components factor analysis resulted in a total variance of 46.27 %, indicating the absence of CMB (Sun et al., 2019). In addition, a marker variable was used as a control variable, and its insignificant effect on the proposed model confirmed the absence of CMB (Venkatesh et al., 2012). In addition, to assess multicollinearity, the comprehensive variance inflation factor (VIF) was evaluated. The results indicated that there were no multicollinearity issues, as the VIFs for latent variables ranged from 1.00 to 1.86, all of which were less than the threshold of 3 (Hair et al., 2019).

Structural Model Analysis

To guarantee a stable consequence, the PLS algorithm was employed with 300 iterations and 5000 times bootstrapping to evaluate the path coefficients of the latent constructs and assess their significance accordingly (Hair et al., 2019). Figure 1 presents the measurement of the significance of the path coefficients, Q^2, and R^2. First, the results indicate that the model possesses a moderate level of explanatory power for innovative job performance (R^2 = .59), while demonstrating a nearly moderate level for firm-level creative capital (R^2 = .40). Then, the results demonstrate that the model has a moderate level of predictive accuracy with innovative job performance (Q^2 = .42), and firm-level creative capital (Q^2 = .24). Finally, the model reveals that innovative job performance is influenced by firm-level creative capital (β = .53, p < .00; f^2 = .40), and work-related social media usage (β = .31, p <.00; f^2 = .12). However, social-related social media usage has no significant relationship with innovative job performance (β = .01, p = .82; f^2 = .00). In additions, both work-related (β = .54, p < .00; f^2 = .36) and social-related social media usage (β = .05, p < .01; f^2 = .02) significantly affect firm-level creative capital, along with a control variable of age (β = .11, p < .00; f^2 = .12).

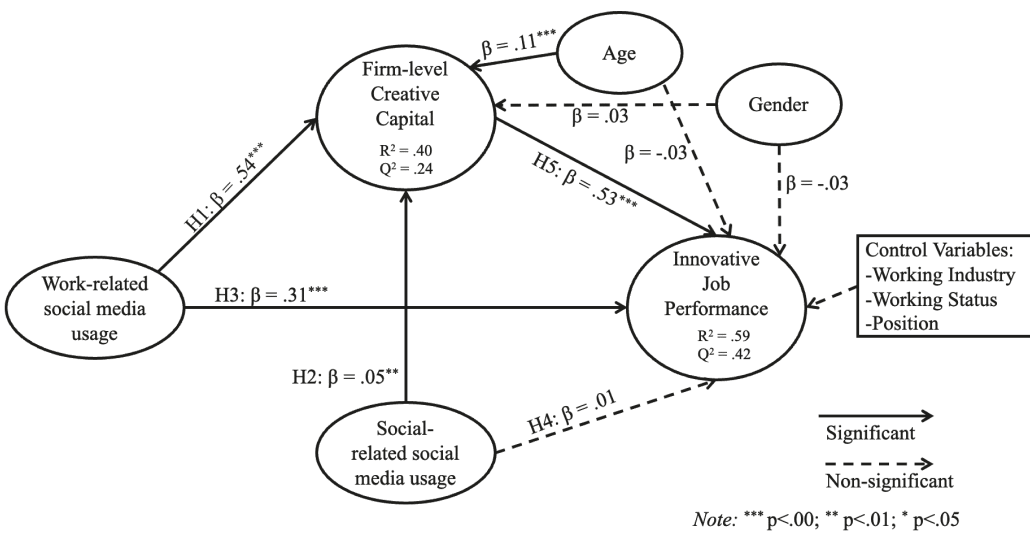

Figure 1: Structural Model Results

Mediating Effects

To further investigate the mediating effects among the theoretical framework's constructs, a comprehensive analysis of these effects was conducted. Following the guidelines and procedures outlined by Zhou et al. (2021), the mediating effects were evaluated using 5000 replicates of bootstrap analysis. The evaluation consisted of investigating the total effects, indirect effects, and direct effects in order to determine the mediating relationships between the constructs. The presence of meaningful mediating effects is contingent on the significance of both the total effects and the indirect effects. If the direct effects are insignificant, the mediator is deemed a "full mediator"; otherwise, it is classified as a "partial mediator". Additionally, when both indirect and direct effects are significant, the mediation is termed "complementary mediation" if they align in the same direction, or "competitive mediation" if they indicate opposing orientations (Hair et al., 2021). Table 4 presents that firm-level creative capital plays a complementary partial mediating effects among work-related social media usage and innovative job performance. However, there is no mediation among social-related social media usage and innovative job performance.

Table 4: Mediating Effects on the Structural Model

Path	Effects	Estimate	Bootstrap 5000 Times			Percentile 95%		Conclusion
			S.E	T-Statistics	P-Value	Low	Upper	
SMU_work→CR→JP_I	Direct Effects	.31	.06	5.51	.00	.20	.42	Complementary Partial Mediation
	Indirect Effects	.29	.05 .06	6.09	.00	.20	.39	
	Total Effects	.60	.05 .04	10.71	.00	.48	.71	
SMU_social→CR→JP_I	Direct Effects	.01	.06	0.23	.82	-.09	.11	
	Indirect Effects	.07		1.92	.06	.00	.14	No Mediation
	Total Effects	.08		1.24	.22	-.05	.22	

Note: CR = firm-level creative capital, JP_I = innovative job performance, SMU_social = social-related social media usage, SMU_work = work-related social media usage.

Discussion and Conclusion

Grounded in social information processing theory, this study aimed to investigate the influence of social media usage of both work and social purposes on firm-level creative capital and individual innovative job performance. By analyzing 381 valid responses from mainland China using PLS-SEM, the study revealed significant findings among social media usage, job firm-level creative capital and routine job performance, aligning with the theoretical assumptions of the study.

First and foremost, this study offers empirical evidence supporting the positive and significant effects of work-related social media usage on firm-level creative capital, or so-called individual creativity, which is in line with a study of Chen et al. (2022). It indicates that engaging in professional interactions and knowledge exchange through social media platforms can foster and enhance creative thinking among individuals. Besides, work-related social capital also significantly influences individual's innovative job performance, which is consistent with a study of Bodhi et al. (2022). It underscores the positive impact of professional networking and collaboration on enhancing creative problem-solving and job performance outcomes. On the other hand, this finding is in line with social information processing theory, which posits that individuals adapt their behaviors and cognitions based on the social information they receive. Participating in professional interactions on social media platforms enables individuals to acquire varied knowledge, obtain fresh perspectives, and receive input, so augmenting their cognitive resources and fostering their creative problem-solving skills. The ongoing interchange of information and ideas cultivates a setting that is favorable to creativity, ultimately resulting in enhanced work performance.

Secondly, the finding shows that the firm-level creative capital acts as a complementary mediator in the relationship between work-related social media usage and innovative job performance. This means that while work-related social media usage directly improves innovative job performance, it also indirectly affects this outcome by creating an environment that supports the development of firm-level creative capital. Therefore, the creative capital of a firm plays a vital role in enhancing the favorable influence of using work-related social media on individual-level creativity.

In addition, this study revealed that social-related social media usage has the significantly positive relationship with firm-level creative capital, which is in line with the study of Kim et al. (2016). However, this study found there is no significant relationship among social-related social media usage and innovative job performance, which is contrary with a study of Ma et al. (2021). This might be because the specific organizational culture and norms surrounding social media usage may differ between the studies, affecting the impact of social media on innovative job performance. For example, in some organizations, social media usage may be actively encouraged and integrated into work processes, while in others, it may be perceived as a distraction.

Lastly, firm-level creative capital was found to be the strongest determinant for innovative job performance in this study, which is in line with a study of Ferreira et al. (2020). In other words, creative individuals possess the ability to think outside the box and generate novel solutions to complex problems. Their innovative thinking allows them to overcome challenges more effectively and devise new approaches to tasks, leading to improved efficiency and effectiveness in their job performance. Besides, firm-level creative capital had a partial mediating role between work-related social media usage and innovative job performance. It means that engaging in work-related social media usage contributes to fostering a creative environment within the organization, which, in turn, enhances individual innovative job performance.

Theoretical Contribution

This study enhances the existing literature on social media usage by introducing a novel model that examines its impact on firm-level creative capital and innovative job performance specifically in the context of China. Particularly, the study offers several significant theoretical contributions. On one hand, this study expands the understanding of social information processing theory by investigating social media rather than computer-mediated communication. By focusing on social media usage, this study provides insights into how both work- and social-related social media usage enhance employees' creativity and job performance in organizations. On the other hand, this study fills a gap in the creative capital, which typically focuses on firm-level creative capital. The findings highlighted that firm-level creative capital is a vital determinant for employees' innovative job performance.

Managerial Implications

Based on the findings of this study, several managerial implications can be drawn. On one hand, organizations should recognize the importance of work-related social media usage as a tool to enhance employees' creativity and job performance. This can be achieved by providing training and resources on effective social media usage, establishing guidelines for responsible use, and creating opportunities for knowledge sharing. On the other hand, managers should encourage and support the appropriate use of social media platforms by facilitating employees' participation in professional networks, providing access to collaboration tools, and recognizing innovative use of social media. In additions, professional social media interactions have two main advantages for companies. Firstly, they could enhance individual job performance and foster the growth of a creative company culture. Secondly, the presence of this inventive culture, in turn, amplifies job performance in a creative manner. To maximize the benefits of professional social media interactions, organizations should encourage collaboration by facilitating cross-departmental cooperation and the exchange of ideas through social media and internal communication platforms.

Limitations and Recommendations

While this study has made valuable contributions, there are certain limitations that should be acknowledged. Firstly, the reliance on nonprobability sampling methods which limits the generalizability of the study's findings. Future research should consider using probability sampling techniques for a more representative sample. Additionally, this study focused solely on Chinese employees in mainland China, warranting the inclusion of participants from other countries to provide a cross-cultural comparison. In addition, by considering social media platforms in a general sense, this study overlooks potential variations in outcomes across different platforms. Future research could explore the specific functions and purposes of different social media platforms to gain a more nuanced understanding of their effects. Next, cultural differences among different countries or industrial type may have influences on the social media usage, in turns, results in various working outcome. Therefore, future research may consider a comparative study between different countries or industrial types. Finally, future research may consider the impact of individual differences on the link between social media use and creative outcomes.

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Determinants of intention and behavior of responsible consumption through reduce waste generation in Thailand

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Abstract

The purpose of this research was to investigate the determinants of intention and behavior of responsible consumption through reduce waste generation in Thailand. Reduce waste generation is one of the targets under Sustainable Development Goal 12 (SDG12), responsible consumption and production. The four components in reducing waste generation under this study are prevention, reduction, recycling, and reuse. An analysis was conducted by employing the theory of planned behavior (TPB) model that examined associations among attitude, subjective norms, perceived behavioral control, intention, and behavior. Additionally, knowledge about waste management was included in the TPB. The results were obtained based on the survey data from 174 participants in Thailand during May 2023. Partial least squares structural equation modeling (PLS-SEM) was employed to examine the path associations between each variable in the research framework. The evidence from this study was beneficial to understand how the intention and behavior of Thai people toward reduce waste generation are determined by attitude, subjective norms, perceived behavioral control, and households' knowledge on waste management. More importantly, it was beneficial for policy makers to form optimal strategies aimed to promote the intention and behavior to reduce waste generation and to further achieve responsible consumption under SDG12.

Keywords: Sustainable Development Goal, Responsible Consumption, Reduce Waste Generation, Theory of Planned Behavior, PLS-SEM.

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ปัจจัยที่มีผลต่อความตั้งใจและพฤติกรรมในการบริโภคที่มีความรับผิดชอบโดยการลดการสร้างขยะ การศึกษาในประเทศไทย

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บทคัดย่อ

วัตถุประสงค์ของงานวิจัยนี้ คือ การสำรวจปัจจัยที่มีผลต่อความตั้งใจและพฤติกรรมในการบริโภคที่มีความรับผิดชอบโดยการลดการสร้างขยะ การศึกษาในประเทศไทย การลดการสร้างขยะเป็นหนึ่งในเป้าหมายภายใต้เป้าหมายการพัฒนาที่ยั่งยืนที่ 12 ที่เน้นการบริโภคและการผลิตที่รับผิดชอบ การลดการสร้างขยะภายใต้งานวิจัยนี้ประกอบไปด้วยสี่ส่วนประกอบ คือ การป้องกัน, การลด, การรีไซเคิล, และการนำกลับมาใช้ใหม่ การวิเคราะห์ในงานวิจัยใช้ทฤษฎีพฤติกรรมตามแผน ซึ่งตรวจสอบความสัมพันธ์ระหว่างปัจจัยต่าง ๆ ต่อความตั้งใจและพฤติกรรม นอกจากปัจจัยในทฤษฎีพฤติกรรมตามแผนนี้ งานวิจัยนี้ได้เพิ่มปัจจัยอีกหนึ่งปัจจัยคือ ความรู้เกี่ยวกับการจัดการขยะ ผลการวิจัยได้วิเคราะห์จากข้อมูลการสำรวจจากผู้ตอบแบบสอบถามจำนวน 174 คนในประเทศไทย มีการวิเคราะห์โดยใช้วิธีทางสถิติ PLS-SEM (Partial least squares structural equation modeling) ในการตรวจสอบความสัมพันธ์ระหว่างตัวแปรแต่ละตัวแปรในกรอบงานวิจัย ข้อมูลจากการศึกษานี้ เป็นประโยชน์ในการเข้าใจว่าความตั้งใจและพฤติกรรมของคนไทยในการลดการสร้างขยะถูกกำหนดโดยทัศนคติ มาตรฐานทางสังคม การรับรู้ว่าพฤติกรรมมีผลในระดับใด และความรู้ของครัวเรือนเกี่ยวกับการจัดการขยะ ผลจากงานวิจัยนี้มีประโยชน์สำหรับผู้บริหารนโยบายภาครัฐในการจัดแผนกลยุทธ์ที่เหมาะสมเพื่อส่งเสริมความตั้งใจและพฤติกรรมในการลดการสร้างขยะและประสบการณ์การบริโภคที่มีความรับผิดชอบเพื่อให้ประเทศไทยบรรลุเป้าหมายใน SDG12 ได้ในอนาคต

คำสำคัญ: เป้าหมายการพัฒนาที่ยั่งยืน การบริโภคที่มีความรับผิดชอบ การลดการสร้างขยะ ทฤษฎีพฤติกรรมตามแผน โมเดลสมการโครงสร้าง

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Introduction

The waste production has become a major global environmental concern since it contributes to the depletion of natural resources, pollution, and climate change. Conscious consumption and production in the context of sustainable development are essential for achieving a more sustainable future. According to the United Nation's Sustainable Development Goals Report (2023), Sustainable Development Goal 12 (SDG 12), promotes responsible consumption and production patterns, including waste reduction. Waste reduction incorporates numerous strategies, including prevention, reduction, recycling, and reuse, which are crucial for mitigating the environmental impact of waste disposal and promoting a circular economy.

Like many other nations, Thailand confronts numerous waste management challenges. Due to rapid urbanization, industrialization, and shifting consumption patterns, the country is experiencing a substantial increase in refuse production (Muttamara et al., 2004). To address these challenges, a comprehensive comprehension of the factors that influence the intentions and behaviors of individuals in relation to responsible consumption and waste reduction is necessary.

The theory of planned behavior (TPB) has been extensively utilized in environmental behavior research, including waste reduction (Bamberg et al., 2007). Ajzen (1991) suggests that the TPB suggests that intentions are influenced by three primary constructs: attitude, subjective norms, and perceived behavioral control, which influence actual behaviors. Attitude is an individual's positive or negative evaluation of behavior; subjective norms include social influences and perceptions of what others believe; and perceived behavioral control is an individual's perception of the behavior's ease or difficulty. Additionally, knowledge about waste management was included in the TPB based on Gusti (2016), Wang et al. (2020) and Obuobi et al. (2022). Examining these factors in the context of responsible consumption and waste reduction in Thailand can shed light on the factors that influence the intentions and behaviors of individuals in this domain.

Therefore, this study aims to investigate the determinants of intention and behavior in Thailand regarding responsible consumption through waste reduction. The relationships between attitude, subjective norms, perceived behavioral control, knowledge, intention, and behavior will be investigated based on the planned behavior model theory. By examining the relationships between attitude, subjective norms, perceived behavioral control, knowledge about waste management, intention, and behavior, this study sheds light on the determinants of individuals' responsible consumption behaviors, particularly in waste generation reduction.

In May of 2023, a survey was conducted with 176 participants in Thailand to achieve the research objectives. Participants from diverse backgrounds and locations were selected to ensure a representative sample. The survey instrument included measures of waste reduction-related attitudes, subjective norms, perceived behavioral control, knowledge, intention, and behavior. The survey data were analyzed with Partial Least Squares Structural Equation Modeling (PLS-SEM), a statistical method appropriate for examining complex relationships between latent constructs (Hair et al., 2021). PLS-SEM permits the examination of both direct and indirect effects, providing a comprehensive comprehension of the relationships between variables within the research context.

The findings of this research will contribute to the existing body of knowledge by providing empirical evidence on the determinants of intention and behavior in Thailand regarding responsible consumption through waste reduction. It will increase our comprehension of how attitudes, subjective norms, perceived behavioral control, and knowledge about waste management influence the intentions and behaviors of Thai individuals toward waste reduction. Understanding the factors that influence the intentions and behaviors of individuals in this context is essential for policymakers, environmental organizations, and other stakeholders in formulating effective strategies to promote responsible consumption and waste reduction. Identifying the main determinants for promoting responsible consumption and waste reduction among Thai citizens enables the development of policy initiatives and interventions. In addition, this study will shed light on how Thailand can advance in its pursuit of SDG 12 and contribute to the attainment of SDG12 and a more sustainable future for Thailand.

Literature review

Attitude, subjective norms, perceived behavioral control, knowledge, intention, and behavior are the key constructs investigated in this literature review. This review seeks to provide a solid foundation for understanding the determinants of responsible consumption and waste reduction behavior in Thailand by examining the findings from previous studies.

Attitude:

Attitude influences the intentions and actions of individuals toward responsible consumption and waste reduction. (Tarkiainen & Sundqvist, 2005) Previous research has consistently demonstrated that positive attitudes toward waste reduction are associated with an increased likelihood of engaging in responsible consumption behaviors. Environmental awareness and concern are significant motivators for positive attitudes toward waste reduction (Chen, 2017). Individuals with a strong sense of environmental responsibility are likelier to adopt favorable attitudes and engage in waste reduction behaviors (Chen & Tung, 2014). Moreover, economic factors, such as the perceived cost-effectiveness of waste reduction behaiors, have been found to influence the attitudes of individuals toward waste reduction (Evans, 2011).

Subjective Norms:

Subjective norms, which refer to an individual's perception of social expectations and influences, have been identified as crucial predictors of responsible consumption and waste reduction behaviors. Social norms have a significant influence on the intentions and behaviors of individuals in a variety of contexts (Fritsche et al., 2018). Social norms can be influential in waste reduction through peer pressure, social approbation, and the influence of significant others (Tarkiainen & Sundqvist, 2005). Individuals are more likely to consume responsibly if they perceive that significant others, such as family and acquaintances, support and engage in waste reduction practices (Chen, 2017).

Perceived Behavioral Control:

Perceived behavioral control refers to individuals' confidence in their ability to engage in waste-reduction behaviors. According to numerous studies, individuals' intentions and actions are positively influenced by their perceptions of self-efficacy, competence, and ease of conducting waste reduction behaviors (Bamberg et al., 2007). Individuals' perceived behavioral control is influenced by access to recycling facilities, knowledge of waste management

practices, and personal skills and resources (Evans, 2011). Cultural factors and societal support for waste-reduction initiatives influence individuals' perceptions of control over their waste-reduction behaviors (Chen, 2014).

Knowledge:

The inclusion of knowledge on studying the intention of sustainable waste management behavior in elementary school student under the framework of the Theory of Planned Behavior was conducted by Gusti (2016). An analysis based on the data collected in Indonesia was done by Structural Equation Modeling (SEM) and the results of this study revealed that the knowledge about sustainable waste management had a significant impact on attitudes towards sustainable waste management. In addition, knowledge and attitudes towards sustainable waste management significantly affected the intention and behavior of sustainable waste management. These findings regarding the significance of waste management knowledge in the theory of planned behavior in different samples were also presented in Wang et al. (2020) and Obuobi et al. (2022) who conducted the studies in China and Ghana respectively.

Intention and Behavior:

A vital mediator between attitudes, subjective norms, perceived behavioral control, and actual waste reduction behaviors is intention. According to previous research (Bamberg et al., 2007), there is a positive association between intentions and actions. Individuals with deeper intentions to engage in behaviors that reduce waste are likelier to put those intentions into practice. Individuals' intentions are influenced by attitudes, subjective norms, and perceived behavioral control, shaping their responsible consumption behaviors (Ajzen, 1991).

Determinants of Responsible Consumption and Waste Reduction in Thailand:

A few studies have investigated the determinants of responsible consumption and waste reduction in Thailand. Environmental concern, awareness, and knowledge have positively impacted waste reduction attitudes and intentions (Sugathan, 2019) In addition, subjective norms, such as social support and the influence of significant others, have been identified as essential factors influencing waste reduction behaviors among Thai individuals (Vantamay, 2018). In Thailand, perceived behavioral control factors like personal skills and access to waste management infrastructure influenced people's waste reduction behaviors (Tsuzuki & Sinsupan, 2020).

The Role of Sustainable Development Goal 12:

Sustainable Development Goal 12 (SDG12), which focuses on responsible consumption and production, is essential for attaining sustainability goals and reducing waste. In Thailand, SDG12 is a framework for devising strategies and initiatives to reduce waste generation and promote responsible consumption practices (Mishra et al., 2022). The results of this study contribute to the larger goal of attaining SDG12 by shedding light on the determinants of responsible consumption in the Thai context.

The preceding literatures provides a detailed analysis of the determinants of intention and behavior regarding waste reduction and responsible consumption. According to this review, individuals' responsible consumption behaviors are determined by attitude, subjective norms, perceived behavioral control, intention, and knowledge. Previous research has shed light on the factors influencing global and Thai waste reduction practices. This information can assist policymakers, environmental organizations, and interested parties develop effective strategies to promote responsible consumption and waste reduction. By achieving SDG12 and fostering sustainable waste management practices, Thailand can contribute to a more sustainable future.

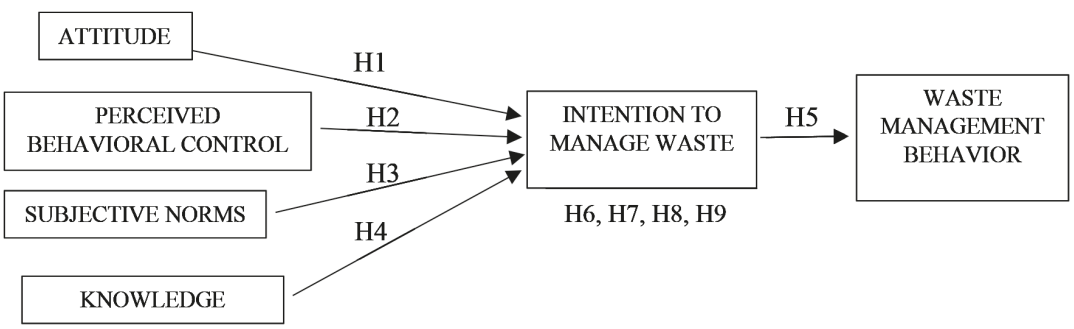

Figure 1: Illustrates the Research Framework that Summarize all the Hypotheses Under this Study.

Based on the research framework, there are nine hypotheses to be investigated in this study.

H1: Attitude has a positive significant effect on intention to manage waste

H2: Perceived behavioral control has a positive significant effect on intention to manage waste

H3: Subjective norms has a positive significant effect on intention to manage waste

H4: Knowledge on waste management has a positive significant effect on intention to manage waste

H5: Intention to manage waste has a positive significant effect on waste management behavior

H6: Intention to manage waste has a positive significant mediating association with the link between Attitude and waste management behavior.

H7: Intention to manage waste has a positive significant mediating association with the link between Perceived behavioral control and waste management behavior.

H8: Intention to manage waste has a positive significant mediating association with the link between Subjective norms and waste management behavior.

H9: Intention to manage waste has a positive significant mediating association with the link between Knowledge on waste management and waste management behavior.

Data and Methodology

In order to conduct the empirical investigation on the research framework, the primary data were obtained from a questionnaire survey distributed to household respondents who were in Thailand. The target population for this study comprised households residing in urban and suburban areas of Thailand, reflecting diverse socio-economic backgrounds. A convenient sampling method was employed and the sample size of 200 participants was determined using a power analysis to ensure the study had sufficient statistical power to detect meaningful effects, with a confidence level of 95% and an expected effect size based on previous studies in similar contexts. 200 surveys had been given out during the period of May 2023 and 174 completed and correctly filled surveys have been returned. Table 1 shows the respondent profile.

Table 1: Respondent Profile

Characteristic	Percentage
Gender	
Male	34.48
Female	65.51
Others	0.00
Age (Years)	
Less than 30 years	8.05
30 - less than 40 years	17.24
40 - less than 50 years	59.77
50 or higher	14.94
Educational level	
Lower than Bachelor degree	2.30
Bachelor degree or equivalent	35.63
Master degree	57.47
Higher than Master degree	4.60

To assess each variable under the scope of this study, scales for each variable that have been validated based on the previous literatures were applied to ensure the reliability and validity of the results. The five-point Likert scales range from 'strongly disagree' (1) to 'strongly agree' (5). The TPB measures were adopted according to the guidelines for TPB by Ajzen (2013). According to Pakpour et al. (2014), these items were employed by many previous literatures. The waste management measures included four aspects which were waste prevention, waste reduction, recycling, and reuse.

Waste management behavior was measured by 5 items; I bring my own shopping bag to buy from grocery stores or supermarkets, I bring my own water bottle when going out, I bring food box when going to buy takeaway food at the restaurant, I don't have any leftovers when having a meal, and I sort recycled wastes at home (paper, plastic, ...).

Waste management intention was measured by 3 items; I am willing to pay more to reduce the greenhouse effect (for example, paying more for clean energy), I intend to buy the products that has the environmental friendly banner, and I will recommend my friends and family members to sort recycled wastes.

Attitude towards waste management was measured by 4 items; Solving the environmental problem is the problem for government, not me (reverse item), Waste management is complicated and difficult to do (reverse item), Sorting recycled waste at home need more space so it is inconvenient to do (reverse item), and Waste problem is getting more severe and it will affect our environment and our health.

Perceived behavioral control was measured by 4 items; Although I sort recycled wastes, the waste collectors will mix it all up eventually (reverse item), Sorting recycled waste is useless (reverse item), If everyone of us reduce waste and sort recycled waste, it can solve the nation's waste problem, and Sorting recycled waste can reduce the problem of greenhouse effect.

Subjective norms was measured by 3 items; I feel that waste management is also my own responsibility, I feel that my surrounding people (family members, friends, and colleagues) expect me to sort recycled waste, and If I see that my surrounding people sort recycled waste, I will also do it.

Knowledge about waste management was measured by 3 questions that ask the respondents to select the correct answer; What is 3R waste management (A. Reduce, Reuse, Recycle or B. Rethink, Reduce, Reuse), What is the 'zero waste' concept (A. Manage waste to zero, or B. Prevent having waste from the beginning, or C. Reusing the waste), and How many years it takes for plastic natural decomposition (A. 20-50 years, or B. 50-100 years, or C. 100-450 years).

The Cronbach's alpha of each measure is provided in Table 2. The reliability of each measure is at satisfactory level since the alpha and rho C are greater than 0.7 (Hair et al., 2021).

Table 2: Cronbach's Alpha of Each Measure.

VARIABLE	Cronbach's alpha	rhoC	AVE
ATTITUDE	0.791	0.731	0.529
CONTROL	0.711	0.746	0.553
NORM	0.787	0.763	0.623
KNOWLEDGE	0.719	0.731	0.561
INTENTION	0.806	0.770	0.631
BEHAVIOR	0.839	0.750	0.585

Since the square root value of AVEs on the diagonal is higher than the Pearson correlation coefficient in the same lines, the discriminant validity is satisfied (Hair et al., 2021). In addition, the results of validity test through confirmatory factor analysis (CFA) indicate acceptable model fit. As illustrated in Table 2, the construct reliability (CR) is satisfied since each of the variables' average variance extracted (AVEs) is at satisfactory level. The value of factor loadings that belong to each measure within each variable are greater than 0.70.

Hypotheses testing

The hypotheses in this model were tested by employing the R version 4.3.1 (2023-06-16 ucrt) -- "Beagle Scouts" and seminr package. Table 3 shows the path coefficients in the model.

Table 3: Path Coefficients

	INTENTION	BEHAVIOR
R^2	0.374	0.171
Adj R^2	0.343	0.161
ATTITUDE	0.074	-
CONTROL	**0.201***	-
NORM	**0.441****	-
KNOWLEDGE	0.008	-
INTENTION	**-**	**0.413****

According to Table 3, the association between perceived behavioral control and intention is positive and significant (beta = 0.201, $p < 0.05$). Subjective norms has significant positive impact on intention (beta = 0.441, $p < 0.01$). Although attitude and knowledge are insignificant. Intention has a positive strong significant impact on behavior (beta = 0.413, $p < 0.01$). In general, hypothesis 2, 3, and 5 are supported but hypothesis 1 and 4 are not supported.

Table 4: Bootstrapped Structural Paths in the Model.

		Original Est.	Bootstrap Mean	Bootstrap SD	2.5% CI	97.5% CI
ATTITUDE INTENTION	->	0.074	0.119	0.124	-0.125	0.355
CONTROLINTENTION	->	**0.201***	0.226	0.102	0.022	0.418
NORM INTENTION	->	**0.441***	0.420	0.124	0.163	0.645
KNOWLEDGE INTENTION	->	0.008	0.042	0.116	-0.159	0.270
INTENTION BEHAVIOR	->	**0.413****	0.454	0.106	0.305	0.600

Table 4 shows the Bootstrapped Structural Paths in the model. To investigate hypothesis 6-9, further analysis on the mediating effects of intention on each path was conducted by bootstrapping method in R for n = 1000 (Tingley et al., 2014; Lee et al., 2021). and the results revealed four mediation effects. First, intention fully mediate the path from attitude to behavior since attitude significantly impact intention (beta = 0.509, $p < 0.05$) but attitude and behavior show insignificant association. An analysis of mediation effect based on Tingley et al. (2014) and Lee et al. (2021) estimated that the mediation effect of intention on the association between attitude and behavior is 0.509*0.413 = 0.210. Second, intention fully mediate the path from knowledge to behavior since knowledge significantly impact intention (beta = 0.364, $p < 0.05$) but knowledge and behavior show insignificant association. The mediation effect of intention on the association between knowledge and behavior is 0.364*0.413 = 0.150. Third, intention partially mediate the path from perceived behavioral control to behavior since perceived behavioral control significantly impact intention (beta = 0.743, $p < 0.05$) and perceived behavioral control significantly impact behavior but in a smaller size (beta = 0.083, $p < 0.05$). The mediation effect of intention on the association between perceived behavioral control and waste management behavior is 0.743*0.413 = 0.307. And finally, intention partially mediate the path from subjective norms to behavior since subjective norms significantly impact intention (beta = 0.788, $p < 0.005$) and subjective norms significantly impact behavior but in a smaller size (beta = 0.182, $p < 0.05$). The mediation effect of intention on the association between subjective norms and waste management behavior is 0.788*0.413 = 0.325.

Table 5: Bootstrapped Total Paths.

		Original Est.	Bootstrap Mean	Bootstrap SD	2.5% CI	97.5% CI
ATTITUDE BEHAVIOR	->	0.031	0. 054	0. 058	-0.058	0.165
CONTROL BEHAVIOR	->	**0.083***	0.103	0.055	0.005	0.213
NORM BEHAVIOR	->	**0.182***	0.190	0.072	0.067	0.316
KNOWLEDGE BEHAVIOR	->	0.003	0.018	0.053	-0.080	0.118

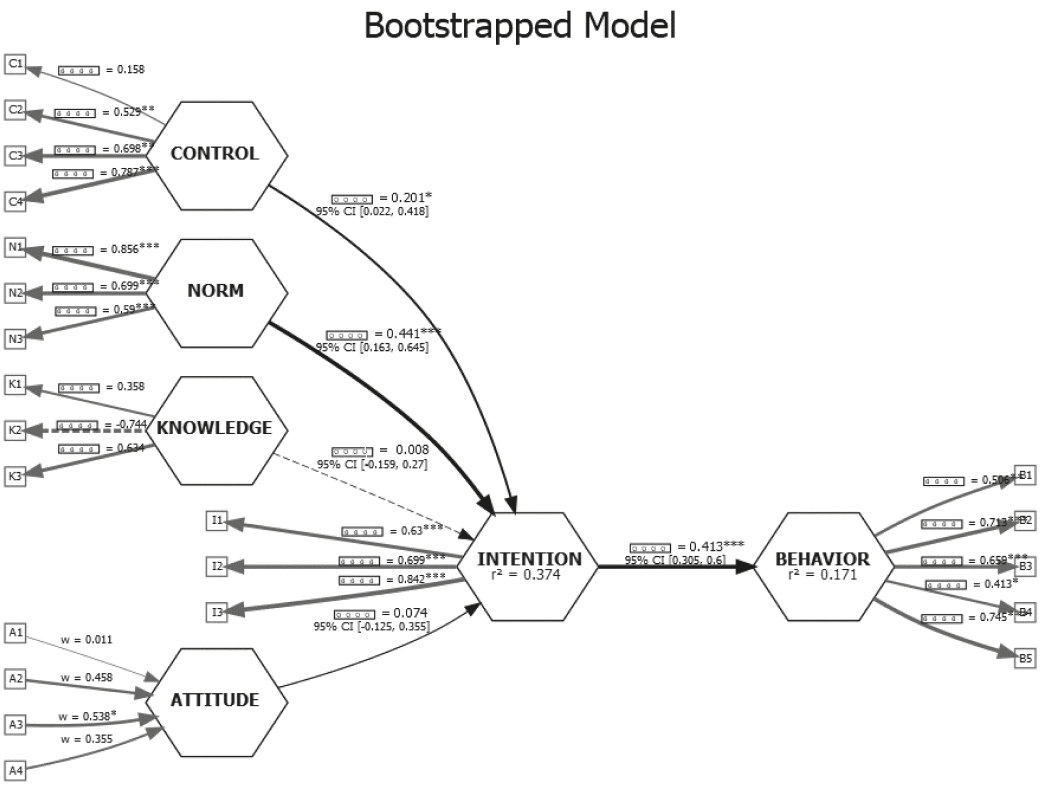

Figure 2: Bootstrapped Model

Figure 2 summarizes the results in the bootstrapped model. It shows that perceived behavioral control and subjective norms have positive significant impact on waste management intention. However, knowledge about waste management and attitude towards waste management have insignificant impact on waste management intention. And finally, waste management intention positively influenced waste management behavior.

In line with previous research by Wang et al. (2020) and Obuobi et al. (2022), which also employed the Theory of Planned Behavior (TPB) to study waste management behaviors, these findings reveal the pivotal role of subjective norms and perceived behavioral control in shaping waste management intentions and behaviors among Thai households. Similar to studies conducted in China and Ghana, our results suggest that social influences and self-efficacy are key drivers in engaging individuals in waste reduction activities.

However, unlike the findings of Chen and Tung (2014), who identified attitudes as a significant predictor of behavioral intentions toward environmentally responsible behaviors, this study did not find a strong direct impact of attitudes on waste management intentions. This discrepancy could be attributed to cultural differences in how environmental attitudes are formed and acted upon in Thailand. Additionally, whereas Gusti (2016) and Mishra et al. (2022) highlighted the importance of knowledge as a direct influencer on intention, our findings indicate that while knowledge is a critical factor, it primarily influences behavior indirectly through intention.

These alignments and disparities emphasize the need for tailored policy interventions that account for cultural nuances and specific socio-economic contexts within Thailand, reflecting the variable impact of these factors as opposed to a uniform model of behavior. Such insights are crucial for developing effective strategies that address not only behavioral intentions but also the socio-cultural frameworks that underpin these intentions.

Conclusion

In this study, the association among attitude towards waste management, perceived behavioral control on waste management, social norm on waste management, knowledge about waste management, intention to reduce waste generation, and behavior on reduce waste generation were investigated. The scope of this study was on households who were living in Thailand. The concept of reduce waste generation under this study was taken from one of the targets under Sustainable Development Goal 12 (SDG12), responsible consumption and production. It included four elements which were prevention, reduction, recycling, and reuse. The results revealed that the perceived behavioral control on waste management and social norm on waste management played an important role on intention

to reduce waste generation and this intention further improve behavior on reduce waste generation. However, attitude towards waste management and knowledge on reduce waste generation did not have a significant role on intention. In addition, intention acted as a significant mediator between influential factors and behavior on reduce waste generation. The study contributes theoretically by adding empirical evidence to support the theory of planned behavior especially in the context of reduce waste generation by households. In addition, it contributes practically by suggesting the policy makers how they can enhance behavior of household on reduce waste generation to achieve the responsible consumption and production target in the SDG12, in specific, to motivate household behavior on waste management by emphasizing on campaigns that will increase the perceived behavioral control and subjective norms in this context.

Limitations in this study are as follows. First, since the scope of the study is on the households located in Thailand, the surveys were collected only from the specific group of people therefore the results from analysis could only reflect the type of households under the scope of this study. Second, the study applies quantitative method but there was no study on qualitative aspect therefore, the results from analysis provide the evidence in term of which factors have significant impact on the behavior to reduce waste generation but not the knowledge about the explanation why the factors are significant, or why some factors are not significant, or whether there is any other possible factor that should be included in the model. And third, the partial least squared is a statistical method that assumes linear relationship so the results from this study do not capture the possibility that the factors in the model may have any non-linear relationship.

Although the scope of the study focused on the practice of households in Thailand, the results from this study could be applied to other countries with similar characteristics for example, the developing countries that are also affected by the waste problems.

In general, the results from this study were aligned with other previous literatures that investigated this topic in other geographical locations across different countries. In specific, the results showed that perceived behavioral control and subjective norms were positively significant to households' intention and behavior on reduce waste generation. Further, intention also played significant mediating role on the relationship from attitude,

perceived behavioral control, subjective norms, and knowledge to behavior. In another word, when households have higher belief that their actions matters (perceived behavioral control), they will tend to perform more reduce waste generation. In addition, their behavior on reduce waste generation can also be motivated by their friends, colleagues, and family members (social norm). However, the evidence from this study showed that the intention was not significantly enhanced by the attitude and knowledge on reduce waste generation. Although intention served as full mediator between these two factors and reduce waste generation behavior. As a result, it could be the area for further study on what policy makers could do to promote households' intention and behavior on waste management.

While the findings align with previous studies that have examined waste management behavior, this study makes a significant contribution by situating its research within the specific cultural and socio-economic context of Thailand. Unlike many studies conducted in Western or different Asian contexts, which often emphasize different environmental or economic motivators, this research investigated into how perceived behavioral control and subjective norms uniquely influence Thai households. The insights gained highlight the critical role of social influences in Thai culture, particularly the significance of community and familial expectations in driving responsible consumption behaviors. Furthermore, the study highlights the potential for culturally tailored policy interventions, which could lead to more effective strategies in enhancing responsible consumption practices in line with Sustainable Development Goal 12. This context-specific analysis provides actionable insights for policymakers and contributes to a growing body of international research by adding depth and regional specificity.

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Analysis of Gap Between Green Purchase Intention and Green Purchase Behavior a Case Study of Vietnamese Students

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Abstract

Why do people say they want green products, but they do not tend to buy them? This phenomenon is known as green gap. Image Research Theory and Motivation-Opportunity-Ability Theory were used to build up the conceptual framework reflecting sequencing relationships from green purchase intention, implementation intention, to green purchase behavior with two moderators (e.g., action self-efficacy, coping self-efficacy). Online questionnaires were distributed to respondents (i.e., Facebook users and university students) with their preferential purchase, experiences and involvement

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in green products. A total of 233 valid cases was collected for theoretical estimation by using partial least squares structural equation modelling. It reveals significant sequencing relationships among green purchase intention, implementation intention, and green purchase behavior with positive impacts. It may bring theoretical implication on green gap in Vietnam context, and practical implications to encourage sustainable consumption among younger generation.

Keywords: Green Gap, Green Purchase Intention, Green Purchase Behavior, Implementation Intention.

การวิเคราะห์ช่องว่างระหว่างความตั้งใจในการซื้อที่เป็นมิตรต่อสิ่งแวดล้อมกับพฤติกรรมการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม: กรณีศึกษานักศึกษาชาวเวียดนาม

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บทคัดย่อ

เมื่อคนกล่าวว่าตนต้องการผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อม แต่เหตุใดจึงไม่ตั้งใจซื้อผลิตภัณฑ์ดังกล่าว ปรากฏการนี้เรียกว่า ช่องว่างความเป็นมิตรต่อสิ่งแวดล้อม การวิเคราะห์นี้ใช้ทฤษฎีภาพลักษณ์และทฤษฎีความส่งเสริมแรงจูงใจ การให้โอกาสและความสามารถ เพื่อสร้างกรอบแนวคิดที่สะท้อนลำดับความสัมพันธ์ระหว่างความตั้งใจในการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม การตั้งใจจะที่ปฏิบัติและพฤติกรรมการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม โดยมีสองตัวแปรกำกับ (ปฏิบัติการรับรู้ความสามารถของตน และการจัดการการรับรู้ความสามารถของตน) โดยทำการแจกแบบสอบถามออนไลน์ให้ผู้ตอบ (เช่น ผู้ใช้เฟซบุ๊ก นักศึกษามหาวิทยาลัย) เรื่อง การซื้อประสบการณ์และความเกี่ยวข้องกับผลิตภัณฑ์ที่เป็นมิตรต่อสิ่งแวดล้อม

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ที่ตนชอบมากกว่า ทั้งนี้ได้รับคืนแบบสอบถามที่ใช้ได้ทั้งหมด 233 ชุด และนำไปใช้ประมาณค่าตามทฤษฎีด้วยวิธีสมการโครงสร้างกำลังสองน้อยที่สุดบางส่วน ผลลัพธ์แสดงให้เห็นว่ามีความสัมพันธ์ตามลำดับโดยมีนัยสำคัญระหว่างความตั้งใจในการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม การตั้งใจที่จะปฏิบัติ และพฤติกรรมการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม ที่มีผลกระทบในเชิงบวก กล่าวคือ สามารถแสดงนัยทางทฤษฎีว่าด้วยช่องว่างความเป็นมิตรต่อสิ่งแวดล้อมในบริบทของประเทศเวียดนาม และนัยเชิงปฏิบัติ ทั้งนี้เพื่อส่งเสริมการบริโภคอย่างยั่งยืนในกลุ่มคนอายุน้อยกว่า

คำสำคัญ: ช่องว่างความเป็นมิตรต่อสิ่งแวดล้อม ความตั้งใจในการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม พฤติกรรมการซื้อที่เป็นมิตรต่อสิ่งแวดล้อม การตั้งใจจะที่ปฏิบัติ

Introduction

In recent years, green consumption has been considered as one of the effective solutions to reduce pressure on the environment and promote sustainable development. According to a survey by (IBM Institute for Business Value, 2021), the COVID-19 pandemic has positively impacted 90% of 14,000 respondents in nine countries regarding environmental sustainability. It is revealed that 86% of Vietnamese customers are willing to pay more for products and services from companies with ESG-related claims, compared to 76% of Asia Pacific consumers (Nielsen, 2017). Environmental sustainability approaches are included in producing goods and services at every stage (Veleva and Ellenbecker, 2001). Furthermore, it is crucial to engage in ecologically responsible purchasing, as unconsciously buying things can have severe negative impacts on the environment (Joshi & Rahman, 2015) therefore understanding the consumers perspective towards intention to purchase green products is very essential (Chan and Lau, 2002). Presuming the intention-behavior inconsistency (Hanss et al., 2016; Lee, 2008; Peattie, 2010), this quantitative research aims to explore the transition of plans to go green and actions that plan to take into actual green purchase behavior among students in VNU-HCM and to verify the moderating of action self-efficacy and coping self-efficacy. Most studies on consumers' green purchase intention/behavior have focused on developed nations, examining their attitudes and perspectives towards buying environmentally friendly products (Khare, 2015; Paul et al., 2016). In Vietnam, prior studies have focused on determinants of sustainable consumption intention and behavior for specific industries or products (M. T. T. Nguyen et al., 2019; X. C. Nguyen et al., 2022), while the intention-behavior gap is under-examined (Hoang Mai & Poddar, 2021; H. V. Nguyen et al., 2019) and also a gap in Vietnamese literature on green customers' psychological traits.

Although the theory of planned behavior is popular, the intention-behavior gap is one of its shortcomings due to its neglect of contextual variables (H. V. Nguyen et al., 2019; Peattie, 2010). Following Tawde et al. (2023), this paper tests the combined model of IRT (Beach & Mitchell, 1987) and MOA (Blumberg & Pringle, 1982) theories under the framework of Stimulus-Organism-Response (Russell & Mehrabian, 1974) in the Vietnamese context, observing the variations in terms of nature of the response now that it focuses on the students

who are active and pro-environmental generation Z on Facebook, specifically the students of six member universities of VNU-HCM were chosen to be the target respondents. The reason behind this sample profile is that students represent the young and highly educated population, who have an awareness of pro-environmental issues and are likely to behave sustainably and purchase green products. They can provide relevant insights (Chan, 2001). This study not only extended the knowledge on the intention behavior in green consumerism in Vietnamese literature but also made recommendations to target customers with Implementation intention in eco-friendly purchasing promotion.

Literature Review

Stimulus-Organism-Response Framework

Russell & Mehrabian (1974) constructs the S-O-R model from the concept that stimulation from the outside environment (stimulus) shape an individual's cognitive and emotional state (organism), which then generates a specific response an approach/avoidance behavior (Response). Based on S-O-R framework, numerous research has been carried out in the field of consumer science and environmental sustainability. For instance, Huang (2012) empirically examined the virtual good purchase intention on social network websites by applying S-O-R model; Peng & Kim (2014) used the paradigm to investigate the effect of website stimuli on emotional regulation, online shopping behavior, and repurchase intention; Chai et al. (2019) extended prior research with the combined model of S-O-R, TPB, and theory of Expectancy Confirmation to study the smartphone customer behavior of Thai students; likewise, Asl & Khoddami (2023) developed a framework of S-O-R, TPB, and theory of consumption values to better understand Iranian green consumer.

Image Research Theory

To examine how people make value-laden decisions, Beach & Mitchell (1987) introduced Image Research Theory with three basic schematic knowledge structures: Value image-Trajectory image-Strategic image, corresponding to the values-goals-strategies of the decision-makers. Nelson (2004) recommended using IRT for future studies related to social responsibility issues as compared to other decision theories, it emphasizes more value to guide consumers' choices and behavior. In our proposed framework, Value image is

represented by green purchase intention, which involves the consumer's principles, morals, and beliefs; Strategic image is represented by Implementation intention, or in other words, the pre-thought plan with timelines and detailed execution steps to assure outcome; Trajectory image is represented by green purchase behavior, the achievable end goal after following plan and tactics.

Motivation-Opportunity-Ability Theory

Motivation-Opportunity-Ability Theory (Blumberg & Pringle, 1982) acknowledged three key factors to perform a behavior: Motivation, Opportunity, and Ability. The authors argue that under volitional control, the predictive power of a performance can be improved by incorporating Ability the habit and task knowledge, and Opportunity the facilitating conditions. According to Jackson (2005), MOA provides an integrated structure that is highly compatible with the theme of pro-environmental behavior. In the context of this study, Green purchase intention is considered as Motivation, an internal drive to commit to green purchasing; Implementation intention is considered as Opportunity, a precondition of behavior when carefully crafted plans provide customers with accessibility and resource availability; Action self-efficacy and Coping self-efficacy are considered as Ability, since these two components assure the readiness to take action and the resilience to handle stressful situations, guiding to enact the Green purchase behavior.

Therefore, this paper has adopted the S-O-R framework with the combined model of IRT and MOA theories (Tawde et al., 2023) to understand how consumers' self-driven psychic traits play a role in green purchase decisions as well as test the relevance of this integration model in the Vietnamese context. With a collaborative approach, this study aims to comprehend the intention-behavior gap in green consumption by the theoretical outline of Stimulus-Organism-Response (Russell & Mehrabian, 1974) for synergistic benefits. The linkages in the S-O-R framework is supported by Image Research Theory (IRT) (Beach & Mitchell, 1987) and Motivation-Opportunity-Ability Theory (MOA) (Blumberg & Pringle, 1982). Tawde et al. (2023) propose the combined theoretical lens as it can identify opportunities and challenges a consumer can encounter before and in actual shopping situations, thus addressing the green gap closure from different perspectives, and improving the model's robustness.

Gap of Green Purchase Intention - Green Purchase Behavior

Green purchasing includes the acquisition of environmentally sustainable products and avoiding the purchase of things that have negative impacts on the environment (Chan, 2001). Green purchasing is commonly assessed by evaluating both the intention and behavior to make environmentally friendly purchases. Green buying intention is the inclination of people to buy environmentally friendly products. Intentions capture the motivational aspects that impact the green purchasing behavior of customers (Ramayah, Lee, and Mohamad, 2010). Green purchasing behavior is a multiple presentation of ethical decision-making practice and is seen as a kind of socially responsible activity. In the context of social responsibility, the green consumer is an individual who considers the societal impacts of their personal consumption and endeavors to utilize their buying influence to effect social transformation (Moisander, 2007).

This research mainly revolves around the concept of green gap, which is the inconsistency between the intention and behaviour related to green purchasing, or the struggle to convert pro-environmental change the intention to gain into actual behavior (ElHaffar et al., 2020; Johnstone & Tan, 2015b; H. V. Nguyen et al., 2019). In simple words, it is about the customers who purchase conventional products despite having a positive attitude and intention towards green alternatives. Green purchase intention (GPI) is defined as the willingness to perform green buying behavior in order to promote environmental sustainability (Jaiswal & Kant, 2018; Wang et al., 2019), while green purchase behavior (GPB) refers to the choice to buy and use products that are eco-friendly or sustainable and do not cause harm to the environment and society (Chan, 2001; Jaiswal & Kant, 2018; Mostafa, 2008).

Several empirical studies applied theory of planned behavior (Ajzen, 1991) and theory of reasoned action (Fishbein & Ajzen, 1975) to measure the correlation between intention and behavior in the field of green consumption. However, the results varied considerably, from closely related (V. H. Nguyen et al., 2015; Wu & Chen, 2014) to either ambiguous or inconsistent (Hanss et al., 2016; Peattie, 2010; Young et al., 2010); hence, it implied a green intention-behavior gap. Extant literature has explored some variables that facilitate the intention translation into purchase decisions. For instance, Wyss et al. (2022) proposed costs, benefits, and self-control; H. V. Nguyen et al. (2019) suggested availability of

environmentally friendly products and the perceived effectiveness of these products among consumers; Hallsworth et al. (2017) highlighted the role of green nudges; (Carrington et al. (2014) emphasized the purchase situations. Among these contributions, customer's cognitive behavior and perception of green buying had a noticeable impact on green gap, thus, it called for further studies to focus more on consumers' intrapsychic traits to narrow green intention-behavior link (ElHaffar et al., 2020; Hanss et al., 2016; Tawde et al., 2023).

So far, in Vietnam, most existing literature mainly investigates the antecedents of the two constructs' intention to make environmentally friendly purchases (Lan et al., 2023; Thi et al., 2020; Tran et al., 2022) and green purchase behavior (Diep Le, 2021; Hung et al., 2018; Le, 2021), aiming at customers in general. This both led to the under-research of green gap (Duong, 2022; H. V. Nguyen et al., 2019) and the limitation of young generation's perspective of green consumption (Hoang Mai & Poddar, 2021; M. T. T. Nguyen et al., 2019). To fulfill the existing gap, this study adopted cognitive variables from the prior research of Tawde et al. (2023), including Implementation intention, action self-efficacy, and coping self-efficacy.

Implementation Intention

The principle of implementation intention (II), introduced by Gollwitzer (1999), has been used as a self-regulatory strategy to support the translation of intention into actual behavior (Conner et al., 2010). "Implementation intention", "Implementation plans", "Action planning" or "Plans", this term has different names but they all bear the same meaning, which specifies "when, where, and how an individual would perform the intended behavior" (Conner et al., 2010; Dholakia et al., 2007; Gollwitzer, 1999) (e.g., "Next time when I go shopping at the supermarket, I will choose and buy the green alternatives available.").

Gollwitzer & Sheeran (2006) elaborated on implementation intention as an if-then plan of situational cues linking to specific responses for goal pursuit. Furthermore, the authors conducted a meta-analysis of 94 independent tests and found an effect size of medium-to-large magnitude (d = .65), indicating that implementation intention has a positive impact on goal achievement. The role of Implementation intention is essential to overcome the intention-behavior gap since simple plans act as a mental simulation, an individual can seize the opportunity to realize the intention and prepare for situational and internal conflicting factors (Dholakia et al., 2007; Webb & Sheeran, 2006). Following

prior research, this study proposes Implementation intention into the causal relationship of Green intention-behavior, especially when "Participating in green purchasing requires conscientious effort, personal control, additional resources, heightened dedication, and unwavering self-confidence in executing actions." (Johnstone & Tan, 2015a; Tawde et al., 2023).

Self-Efficacy in Green Consumerism

Self-efficacy refers to an individual's belief in their own ability to carry out a specific behaviour (Bandura, 1997). It is noted that individuals with a high level of self-efficacy are likely to enact the intended behavior successfully (Rhodes et al., 2008). Likewise, in the context of green consumption, if customers deem green shopping as a complex and difficult task, they are less likely to engage in buying decisions. (Balderjahn, 1988; Johnstone & Tan, 2015b).

Although previous studies had demonstrated the effectiveness of implementation intention in bridging intention-behavior gap, both Di Maio et al. (2021) and Tawde et al. (2023) were concerned that the unfavorable conditions (e.g., physical discomfort, bad weather, exposure to competing brands) might hinder the plan execution. The authors recommended self-efficacy in such situations, as it can stimulate self-motivation, support individuals to overcome obstacles, and continue to translate their plans into behavior. Besides, existing literature related to self-efficacy in green consumerism is relatively limited, calling for further research (Rainisio et al., 2022).

Based on these arguments, this study adds self-efficacy as a moderator to boost the role of self-efficacy. Under the approach of phase-specific Self-efficacy of Schwarzer and Renner (2000), two variables action self-efficacy and coping self-efficacy match pre-actional phase and actional phase correspondingly, within the green purchase intention-behavior discord.

Moderating Role of Action Self-Efficacy

In the pre-actional phase, action self-efficacy (ASE) relates to the boldness to take initiative, optimistic belief in success, and strong self-esteem when creating plans (Marlatt et al., 2010; Schwarzer & Renner, 2000). Bagozzi & Edwards (2007) describes individuals with high Action self-efficacy as those who are not afraid to adopt a new behavior, confident to anticipate possible scenarios and strategies aligned with, and doing so without self-doubt or delay. In the process of simulating action plans, Action self-efficacy will interact with green purchase intention, creating a synergistic effect on Implementation intention (Tawde et al., 2023).

Moderating Role of Coping Self-Efficacy

In the actional phase, coping self-efficacy (CSE) refers to the confidence, commitment, and persistence to deal with the difficulties that are created during the implementation of programs (Schwarzer & Renner, 2000). The higher level of coping self-efficacy, the longer one can persist in stressful situations. In case of failed attempts, Coping self-efficacious individuals also recover more quickly and invest more effort to achieve the end goal (Bandura, 2001). Tawde et al. (2023) proposed that the effect between Coping self-efficacy and Implementation plan, the possibilities of successful enactment of Green purchase behavior.

Conceptual Framework

The purpose of this study is to explore eco-friendly buying among students of VNU-HCM, using the framework with the combined model of IRT and MOA theory. Specifically, this study investigates the sequencing relationships from Green purchase intention, Implementation intention to Green purchase behavior, Action self-efficacy, and Coping Self-efficacy intervening (See Figure 1).

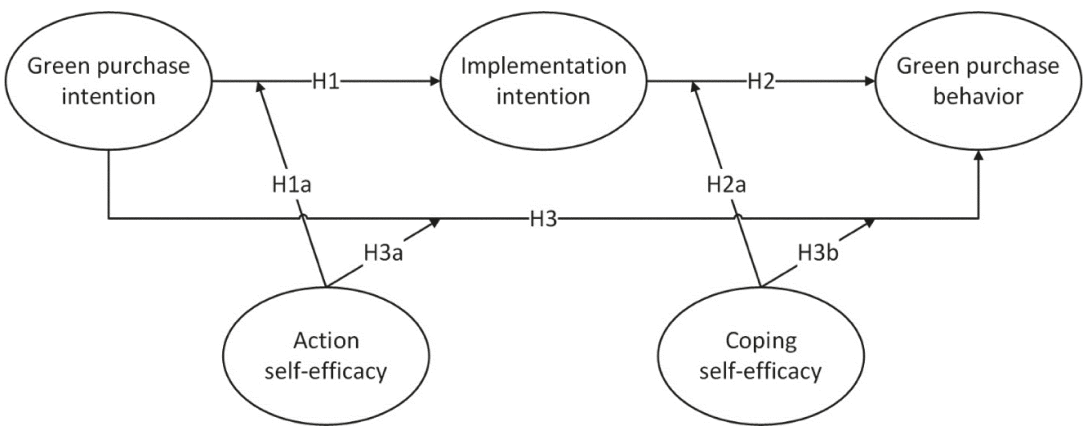

Figure 1: Proposed Conceptual Framework
Source: The Authors.

This study postulates the following hypotheses:

H1: Green purchase intention positively impacts implementation intention.

H1a: Action self-efficacy moderates the positive relationship between green purchase intention and Implementation intention.

H2: Implementation intention positively impacts green purchase behavior.

H2a: Coping self-efficacy moderates the positive relationship between Implementation intention and green purchase behavior.

H3: Green purchase intention positively impacts green purchase behavior.

H3a: Action self-efficacy moderates the positive relationship between green purchase intention and green purchase behavior.

H3b: Coping self-efficacy moderates the positive relationship between green purchase intention and green purchase behavior.

Methodology

Research Design and Sample

This study applied the quantitative research method with non-probability sampling (e.g., purposive sampling, snowball sampling and convenient sampling) to investigate the sequencing relationships from green purchase intention, implementation intention, to green purchase behavior (see Figure 1).

"Campbell, Gilliland et al. (2018) stated that non-probability sampling can be employed to capture the views and perceptions of respondents in social research, especially when compiling a sampling frame from a hidden population poses challenges. However, this sampling approach does not produce findings generalisable to the wider population because the sample has not been collected in random settings. Radević, Dimovski et al. (2023), cited in Ngoc Ton and al (2023), criticised probability sampling, as well as random samples, highlighting their impracticality and unfeasibility. Instead, they introduced the purposive strategy (i.e., one type of non-probability sampling) to effectively target specific populations" (Tran-Pham et. al, 2024).

"Non-sampling errors, such as unwillingness to complete the survey, time constraints in answering the survey and inability to respond to the survey, as well as sampling errors related to the sample selection process and difficulty collecting random samples, should be considered in social research. Non-sampling issues can be mitigated by conducting a pilot study to estimate dropout rates and gauge respondents' understanding of the survey while expanding the sample size can help address sampling errors (Campbell et al., 2018)." (Tran-Pham et. al, 2024).

Indeed, non-probability sampling (e.g., purposive sampling, snowball sampling and convenient sampling) was applied to approach the target population (i.e., university students) in this study. Data were collected during the spring semester of the school year 2022-2023 through an online anonymous questionnaire survey to assess the level of GPI, GPB, II, ASE, and CSE of the students at six member universities of VNU-HCM. Three main approaches were applied to seek support for student recruitment and survey distribution: through the official Facebook group of each university, through Facebook groups related to VNU-HCM (e.g., Dormitory Zone A, Dormitory Zone B), and through Messenger with direct messages. From 272 participants in data gathering, after excluding the invalid responses due to missing values and low variation, there were 233 valid copies in total. The overall response rate was approximately 85.66%.

Table 1 demonstrates the demographic statistics. The gender ratio is roughly equal (45.49% male and 54.51% female). As the target respondent is university students, most of them are from 18 to 23 years old and more than 50% are in the fourth year of bachelor's degree. Among six member universities, except International University (VNU-HCM) makes up nearly 34% of the total, each contributes within the range of 11% - 15%.

Measurement Scale and Assessment Method

The measurement scale was adapted from priori. Three items of green purchase intention construct were modified (Chan, 2001; Chekima et al., 2015; Tawde et al., 2023). Green purchase behavior was measured by eight items (Sudbury-Riley & Kohlbacher, 2016; Tawde et al., 2023). Implementation intention was measured by six items (Dholakia et al., 2007; Gollwitzer, 1999; Tawde et al., 2023). Action self-efficacy with two items and coping self-efficacy with three items were adopted from report of Schwarzer & Renner (2000) and Tawde et al. (2023). A five-point Likert scale was used in all items of the questionnaire, ranging from 1 (i.e., indicating "highly disagree") to 5 (i.e., indicating "highly agree") (see measurement items in Appendix A).

For statistical analysis, SmartPLS (version 3) software was used for hypothesis testing (see Figure 1).

Results

Testing Measurement Model

Table 2 shows reliability and validity of all latent variables. First, in terms of internal consistency reliability, all constructs displayed values of Cronbach's alpha, CR, and rho_A above the acceptable thresholds. Cronbach's alpha of ASE is only 0.69, but it still meets the lower limit for the construct reliability of acceptance ranging from 0.6 to 0.7 (Hair et al., 2015). Then, the convergent validity of each measure is assessed with factor loadings, CR and AVE. There were six deleted items in the measurement model (GPB1, GPB2, GPB3, GPB4, GPB6, and CSE3). Table 2 shows all the items with factor loadings exceeding 0.708, CR between 0.7 and 0.95, and AVE higher than 0.50, verifying the convergent validity (Fornell & Larcker, 1981; Hair et al., 2015).

Table 3 and Table 4 show discriminant validity with Fornell-Larcker criterion and Heterotrait-Monotrait (HTMT) Ratio. In the HTMT matrix, the correlation of each pair of factors must be below the minimum benchmark of 0.85 (Henseler et al., 2015). In Fornell-Larcker criterion, the square root of the AVE of each construct on the diagonal side is greater than the correlation between the constructs (Hair et al., 2015). Hence, the presence of adequate discriminant validity is confirmed.

Given the adequacy of reliability, convergent validity, and discriminant validity of the reflective model, we proceed to evaluate the structural model.

Testing Structural Model

Concerning Wetzels et al. (2009), the quality of the structural model is classified based on R-squared values (i.e., small: 0.02; medium: 0.13; large: 0.26). In the model, implementation intention and green purchase behavior had R-squared values of 0.42 and 0.55, respectively. Hence, the predictive accuracy of the structural model was supported (see Table 2).

Hypotheses Analysis

Green purchase intention had a significantly positive impact on implementation intention (p-value ≤ 0.001, supporting H1). Implementation intention had a significantly positive impact on green purchase behavior (p-value ≤ 0.001, supporting H2). Green purchase intention had a significantly positive impact on green purchase behavior (p-value ≤ 0.001, supporting H3) (see Table 5).

Moderation Effect Analysis

It revealed all insignificant moderating effects. In Table 6, action self-efficacy insignificantly moderated the causal relationship between green purchase intention and implementation intention, although both green purchase intention and action self-efficacy had significantly positive effects on implementation intention (H1a was rejected). Similarly, in Table 7, coping self-efficacy insignificantly moderated the causal relationship between implementation intention and green purchase behavior, although both implementation intention and coping self-efficacy had significantly positive effects on green purchase behavior (H2a was rejected). In Table 8, action self-efficacy insignificantly moderated the causal relationship between green purchase intention and green purchase behavior. only green purchase intention had a significantly positive effect on green purchase behavior, whereas action self-efficacy had an insignificant effect on green purchase behavior (H3a was rejected). Lastly, Table 9 shows that coping self-efficacy insignificantly moderated the causal relationship between green purchase intention and green purchase behavior. While both green purchase intention and coping self-efficacy had significantly positive effects on green purchase behavior (H3b was rejected).

Discussion

Based on the integrated framework of SOR-IRT-MOA (Tawde et al., 2023), this study investigates the sequencing relationship of green purchase intention-behavior and Implementation intention, along with the moderating role of Action self-efficacy and coping self-efficacy to bridge the green gap.

This study proved significant sequencing casual relationships from GPI, II to GPB with absolute positive impacts. It is consistent to previous findings, regarding the simple yet effective role of implementation intention to convert green purchase intention into actual behavior (Dholakia et al., 2007; Gollwitzer & Sheeran, 2006; Webb & Sheeran, 2006); unfortunately, it is inconsistent to the extant literature of Green gap (Duong, 2022; ElHaffar et al., 2020; Johnstone & Tan, 2015b; H. V. Nguyen et al., 2019). There are two possible approaches to justify the disparity. First, this research is aimed at university students, young and highly educated citizens, who are aware of sustainability issues, and willing to take initiatives and live green (Chan, 2001). Therefore, it is logical that these individuals can easily enact their intention and perform green purchasing. Second, with the support of Implementation intention, the customer no longer struggles to realize the green shopping, or in other words, Green gap may only occur in the absence of plans.

On the other hand, contrary to the expectation, ASE and CSE do not facilitate the causal relationship of GPI and GPB, leading to the rejection of moderation hypotheses H1a, H2b, H3a, and H3b. The findings do not align with the exant behavioral studies (Di Maio et al., 2021; Tawde et al., 2023), thus, calling for further research to examine the inconsistency, or to propose other internal attributes as moderators to intervene in the Green gap.

Theoretical Implication

Instead of the common theory of planned behavior, this research applies and tests a new framework of Stimuli-Organism-Response with image research theory and motivation-opportunity-ability theory as underpinning theories. Additionally, this study emphasises the direct correlation between GPI, Implementation intention, and GPB, which is in line with the findings in existing green psychology literature. Last but not least, the outcomes expand the empirical evidence of green consumerism in the context of Vietnam.

Practical Implication

For educators, marketers, and policymakers, this study provides significant insights into students, the young, and future sustainable customers. First, if their green belief matches their actual behavior, the focus should be on establishing the green intention and factors that motivate it: more green knowledge in lectures, pro-environmental issues in advertisements, sustainable lifestyles in media, reasonable price of green products due to the limited budget of students, green products availability, etc. Second, the advice is to target customers with implementation intention. Although it is challenging to influence one's internal traits, convenient conditions can be created to encourage plan creation, so that the students who want to realize their Green purchase intention can practice the habit of planning and perform the green buying decisions.

It informs policymakers and strategies for marketers about the key predictors of consumers' green purchase behavior. Marketers would do well to understand the drivers and barriers to the green purchase behavior of students. This understanding will enable them to tailor their product offerings and formulate marketing strategies to encourage green buying behavior.

Policymakers must communicate the importance of environmental protection to customers and, more importantly, demonstrate how natural resources are being destroyed. To effectively convey this message, businesses should use specific figures and images to highlight the environmental impacts of consuming harmful products. This awareness can be raised through seminars or environmental protection campaigns.

Marketers should strengthen their online sales channels and home delivery services to increase the number of green products. In addition, offering promotions and discounts can help increase purchase intentions of students. Companies selling green products can incentivize recycling or reuse by providing discounts to customers who bring in old products for recycling. This strategy not only encourages the green purchase behaviour but also promotes positive environmental impacts. Marketers should focus on building sustainable relationships with customers to enhance satisfaction and trust. Strengthening customer relationships can be achieved by organizing or participating in community activities and supporting environmental protection programs.

Conclusion

In conclusion, the current study examines the gap between green purchase intention and green purchase behavior among the students of VNU-HCM. The results show that there is no such green gap, green purchase behavior can be created from green purchase intention and Implementation intention. With a simple plan in advance, one can be prepared, ready to seize the opportunity, and confident to translate the intention into actual behavior. The moderating role of action self-efficacy and coping self-efficacy to narrow the intention-behavior gap are also proposed, but not supported by the data.

There are certain limitations to this study. First, the product mentioned is green products in general. Second, only a few variables have been added to the model as it is a newly adopted framework of SOR - IRT - MOA from Tawde et al. (2023). Third, the sample size of 233 is relatively small compared to the capacity of nearly 100,000 students of VNU-HCM. Fourth, the responses are self-reported, rather than the actual purchase at a real shopping situation.

Future research can investigate green gap with a specific type of product, conduct in a different context or extend the sample size to observe the variation of the outcome. In terms of research design, incorporating other self-driven psyche variables or elaborating on the mediating effect of Implementation intention are also potential research directions.

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APPENDIX

Table 1: Respondent Demographics

Categories	Outcomes	Respondents	Percentage (%)
Gender	Male	106	45.49
	Female	127	54.51
Age	From 18 to 23 years old	217	93.13
	From 24 to 29 years old	14	6.01
	From 30 years old and above	2	0.86
University	University of Technology (VNU-HCM)	27	11.59
	University of Information Technology (VNU-HCM)	32	13.73
	University of Science (VNU-HCM)	29	12.45
	University of Social Sciences and Humanities (VNU-HCM)	35	15.02
	University of Economics and Law (VNU-HCM)	31	13.30
	International University (VNU-HCM)	79	33.91
School year	Bachelor_1st year	18	7.73
	Bachelor_2nd year	35	15.02
	Bachelor_3rd year	34	14.59
	Bachelor_4th year	126	54.08
	Above Bachelor_4th year	20	8.58
Total		**233**	**100.00**

Source: The Authors.

Table 2: Reliability and Convergent Validity of Latent Cconstructs

Constructs Thresholds	Code	Factor loading ≥ 0.708	Cronbach's alpha	rho_A	CR [0.7;0.95]	AVE ≥ 0.5	R-squared
Action self-efficacy			0.69	0.71	0.86	0.76	
	ASE1	0.90					
	ASE2	0.84					
Coping self-efficacy			0.7	0.75	0.87	0.77	
	CSE1	0.92					
	CSE2	0.83					
Green purchase behavior			0.78	0.79	0.87	0.7	0.55
	GPB5	0.84					
	GPB7	0.82					
	GPB8	0.84					
Green purchase intention			0.71	0.74	0.83	0.62	
	GPI1	0.72					
	GPI2	0.82					
	GPI3	0.82					
Implementation intention			0.91	0.91	0.93	0.68	0.42
	II1	0.84					
	II2	0.83					
	II3	0.82					
	II4	0.79					
	II5	0.82					
	II6	0.85					

Notes: CR = Composite reliability, AVE = Average variance extracted.
Source: The Authors.

Table 3: Discriminant Validity (Fornell-Larcker Criterion)

Constructs		Fornell-Larcker Criterion				
		1	2	3	4	5
1	Action self-efficacy	0.87				
2	Coping self-efficacy	0.59	0.88			
3	Green purchase behavior	0.49	0.55	0.83		
4	Green purchase intention	0.36	0.37	0.57	0.79	
5	Implementation intention	0.53	0.52	0.66	0.53	0.83

Source: The Authors.

Table 4: Discriminant validity (Heterotrait-Monotrait Ratio)

Constructs		Heterotrait-Monotrait Ratio (HTMT)				
		1	2	3	4	5
1	Action self-efficacy	Criteria ≤ 0.85				
2	Coping self-efficacy	0.83	0.72	0.72	0.63	
3	Green purchase behavior	0.65	0.51	0.78		
4	Green purchase intention	0.52	0.64			
5	Implementation intention	0.67				

Source: The Authors.

Table 5: Results of Hypothesis Testing

Hypothesis	Relationship	Estimate	Effect size (f2)	Supported
H1	Green purchase intention -> Implementation intention	0.37***	0.183 (medium)	Yes
H2	Implementation intention -> Green purchase behavior	0.37***	0.17 (medium)	Yes
H3	Green purchase intention -> Green purchase behavior	0.26***	0.093 (small)	Yes

Note: *** p-value ≤ 0.001; ** p-value ≤ 0.01; * p-value ≤ 0.05.

Source: The Authors

Table 6: Result of Moderation Effect H1a

Hypothesis	Relationship	Estimate	Effect size (f^2)	Moderating effect
H1a	Green purchase intention -> Implementation intention	0.37***	0.183 (medium)	No
	Action self-efficacy -> Implementation intention	0.38***	0.217 (medium)	
	Moderation effect -> Implementation intention	-0.04	0.004 (no effect)	

Note 1: Moderating effect = (Green purchase intention) x (Action self-efficacy)

Note 2: *** p-value ≤ 0.001; ** p-value ≤ 0.01; * p-value ≤ 0.05.

Source: The Authors.

Table 7: Result of Moderation Effect H2a

Hypothesis	Relationship	Estimate	Effect size (f^2)	Moderating effect
H2a	Implementation intention -> Green purchase behavior	0.37***	0.17 (medium)	No
	Coping self-efficacy -> Green purchase behavior	0.23***	0.067 (small)	
	Moderation effect -> Green purchase behavior	-0.06	0.005 (no effect)	

Note 1: Moderating effect = (Implementation intention) x (Coping self-efficacy)

Note 2: *** *p*-value ≤ 0.001; ** *p*-value ≤ 0.01; * *p*-value ≤ 0.05.

Source: The Authors.

Table 8: Result of Moderation Effect H3a

Hypothesis	Relationship	Estimate	Effect size (f^2)	Moderating effect
H3a	Green purchase intention -> Green purchase behavior	0.26***	0.093 (small)	No
	Action self-efficacy -> Green purchase behavior	0.06	0.004 (no effect)	
	Moderation effect -> Green purchase behavior	0.07	0.009 (no effect)	

Note 1: Moderating effect = (Green purchase intention) x (Action self-efficacy)

Note 2: *** *p*-value ≤ 0.001; ** *p*-value ≤ 0.01; * *p*-value ≤ 0.05.

Source: The Authors.

Table 9: Result of Moderation Effect H3b

Hypothesis	Relationship	Estimate	Effect size (f2)	Moderating effect
H3b	Green purchase intention -> Green purchase behavior	0.26***	0.093 (small)	No
	Coping self-efficacy -> Green purchase behavior	0.23***	0.067 (small)	
	Moderating effect -> Green purchase behavior	-0.04	0.002 (no effect)	

Note 1: Moderating effect = (Green purchase intention) x (Coping self-efficacy)

Note 2: *** p-value ≤ 0.001; ** p-value ≤ 0.01; * p-value ≤ 0.05.

Source: The Author.

Measurement Scale

CONSTRUCT	VARCODE	ITEM
Green Purchase Intention (Chan, 2001; Chekima et al., 2015; Tawde et al., 2023)	GPI1	I will consider buying green products because they are less polluting.
	GPI2	If I ever need to switch from the existing products' type/ brand to another format, I would switch for ecological reasons.
	GPI3	For my next purchase, I plan to switch to a green version available.
Green Purchase Behavior (Sudbury-Riley & Kohlbacher, 2016; Tawde et al., 2023)	GPB1	Whenever there is a choice and information available, I would select a green product that contributes to the least amount of environmental damage.
	GPB2	I don't mind switching to green products due to environmental reasons.
	GPB3	If I understand the potential damage the products can cause to the environment, I would consider not purchasing them.
	GPB4	If I understand that products are harmful to the environment, I won't buy them.
	GPB5	I don't mind paying a slight premium for green products even when regular-priced products are available for buying.
	GPB6	I do not buy a product if I understand that the company selling it is environmentally irresponsible.
	GPB7	I purchase green products if I know they are less damaging to the environment, regardless of their price.
	GPB8	I make every possible effort to purchase ecologically safe products.

Measurement Scale

CONSTRUCT	VARCODE	ITEM
Implementation Intention (Dholakia et al., 2007; Gollwitzer, 1999; Tawde et al., 2023)	II1	I have a plan in mind for the next visit to the store to buy green products
	II2	When I next go for a product purchase, I will pursue my plan to buy green products
	II3	The strength of my actual plan to buy green products is strong
	II4	My actual intention to rigorously search and buy green products is strong
	II5	I have a plan of action to buy green products on my next visit
	II6	The plan I have made to buy green products can be considered to be complete
Action Self-efficacy (Schwarzer & Renner, 2000; Tawde et al., 2023)	ASE1	I can manage to stick to my aim to buy green products even if I have to make a well-charted detailed plan
	ASE2	I can manage to stick to my aim to buy green products even if I have to rethink my way of buying and procuring 'green products' decision
Coping Self-efficacy (Schwarzer & Renner, 2000; Tawde et al., 2023)	CSE1	I can manage to stick to the intention of buying green products even if I have to persevere and try several ways until it works
	CSE2	I can manage to stick to the intention of buying green products even if I need a long time to develop the necessary routines that would contribute to supporting actions for buying green products.
	CSE3	I can manage to stick to the intention of buying green products even if I do not receive a great deal of support from others when making my first attempts.

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