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Article

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Key factors affecting employee job satisfaction in Malaysian manufacturing firms post COVID-19 pandemic: a Delphi study

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ABSTRACT

The purpose of this research is to examine the determinants that impact employee job satisfaction in the manufacturing industry of Malaysia in the midst of technological progress and economic changes that have been further complicated by the COVID-19 pandemic. The study utilizes the Delphi method to ascertain and rank workplace factors that influence job satisfaction. By employing a qualitative Delphi approach, the study amasses expert consensus in order to investigate the complex dimensions of job satisfaction within the manufacturing sector. The study solicits input from industry experts via two rounds of surveys in order to evaluate the significance of a variety of working environment factors. The analysis is guided by theoretical frameworks, including Maslow's Hierarchy of Needs and Herzberg's Two-Factor Theory. In descending order of importance, industry experts agreed that compensation and benefits are the most significant determinant of employee job satisfaction, followed by support for work-life balance, rewards and recognition, organizational support, and opportunities for career growth and development. This research contributes to the body of knowledge on job satisfaction by utilizing the Delphi method, which is an innovative approach in this particular domain, to obtain expert consensus regarding the factors that influence job satisfaction in the manufacturing industry. This approach overcomes the constraints of quantitative methodologies by offering comprehensive analyses of the qualitative dimensions of employee satisfaction. In addition, the study provides policymakers and industry stakeholders with actionable suggestions, underscoring the importance of implementing comprehensive approaches to improve job satisfaction.

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Introduction

Comprehending the complexities of job satisfaction in the manufacturing sector has become more crucial due to the rapid progress in technology and the changing global economic conditions. The significance of job satisfaction is widely recognized, supported by extensive research that emphasizes its crucial role in enhancing employee productivity and organizational performance (Badrianto & Ekhsan, 2020; Zhang et al., 2020). The relationship between the manufacturing sector and economic growth is crucial in Malaysia, as the former serves as a pivotal driver of the nation's Gross Domestic Product (GDP), making a significant contribution (Malaysian Investment Development Authority, 2024). Nevertheless, the emergence of the COVID-19 pandemic has brought about unparalleled difficulties, highlighting the vulnerability of job satisfaction during crises and its potential consequences for the productivity of the sector

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and, consequently, the overall economic well-being of the nation (Department of Statistics Malaysia (DOSM)), 2022).

The COVID-19 pandemic, marked by Malaysia's Movement Control Order (MCO), implemented in three phases—first from March 18 to May 3, 2020, followed by a second phase from September 1 to December 31, 2020, and a third phase from January 1 to March 31, 2021—has further exacerbated the existing challenges faced by the manufacturing workforce. The pressures encompass a variety of factors, including blurred boundaries between work and personal life, heightened workloads resulting from disruptions in global supply chains, and a notable impact on job satisfaction (Aziz et al., 2020; Loh & Teoh, 2021). In addition, the swift transition to automation and the incorporation of digital tools for remote work, although essential for sustaining operations, have brought about fresh concerns regarding job stability and the outlook for employment, thereby adding complexity to the job satisfaction scenario (Hemmati et al., 2022).

Current research primarily utilizes quantitative methodologies, which provide valuable insights but often fail to thoroughly examine the multifaceted factors that influence employees' job satisfaction. This study aims to address this by utilizing the Delphi method, a qualitative research methodology that enables experts to reach a consensus, in order to identify and assess the various factors that impact job satisfaction in Malaysia's manufacturing industry. This study aims to comprehensively examine the various factors in the workplace that affect job satisfaction among employees in Malaysia's manufacturing sector. Additionally, it seeks to evaluate the impact of these factors in a ranking manner. The research aims to attain these objectives in order to gain a thorough comprehension of the factors that influence job satisfaction, thereby filling a substantial gap in the existing knowledge base.

This research holds significance that goes beyond mere academic enrichment, as it provides practical implications for industry stakeholders and policymakers. This study aims to analyze the factors that impact job satisfaction. The findings of this study will provide organizational leaders with practical insights to foster a workforce that is more satisfied, productive, and resilient. Furthermore, through the utilization of the Delphi method, this study not only enhances the range of methodologies employed in the field of job satisfaction research but also establishes a precedent for future qualitative investigations into the complexity of employee satisfaction across diverse sectors and regions.

Theoretical underpinning

The study on employee job satisfaction within Malaysia's manufacturing industry utilizes Herzberg's Two-Factor Theory and Maslow's Hierarchy of Needs to provide a detailed examination of satisfaction determinants. Herzberg's theory categorizes factors influencing job satisfaction into motivators and hygiene factors. Motivators, such as achievements and recognition, directly enhance job satisfaction by fostering positive work attitudes and long-term satisfaction (da Cruz Carvalho et al., 2020; Ganesh & Liu, 2022). Recognition, for instance, is essential for building a sense of value and respect among employees, leading to improved performance (Alias et al., 2020; Purwanti & Indradewa, 2022). Conversely, hygiene factors, including salary and workplace conditions, are necessary to prevent dissatisfaction. Although not promoting long-term satisfaction, their absence leads to employee discontent (Basril, 2022; Ju, 2021). Balancing these factors is crucial for creating a conducive work environment and minimizing dissatisfaction (Alrawahi et al., 2020; Smith & Sweet, 2021).

Maslow's Hierarchy of Needs complements this by emphasizing the importance of fulfilling employees' basic to advanced needs. It suggests that job satisfaction is significantly influenced by meeting these needs sequentially, starting from physiological needs to self-actualization (Alias et al., 2020; Patricia & Asoba, 2021). Financial security is highlighted as a fundamental aspect that impacts employees' sense of safety and job security (Acquah et al., 2021; Smith & Sweet, 2021). Higher-level needs, such as social belonging, esteem, and self-actualization, are pivotal for motivation, with positive relationships and recognition playing critical roles in employee dedication and satisfaction (Numonjonovich, 2022; Pudjiastuti & Sijabat, 2022).

In summary, integrating Herzberg's and Maslow's theories provides a comprehensive framework for understanding and enhancing job satisfaction in the manufacturing sector. Organizations can achieve higher levels of employee satisfaction and performance by addressing both sets of needs, from basic

security to psychological growth and recognition. This strategic approach ensures a motivated workforce, conducive to achieving organizational goals.

Literature review

Job satisfaction

Job satisfaction is a psychological condition that pertains to an individual's emotions and attitudes towards their job. This refers to a wide range of emotional reactions towards different aspects of work. These aspects include the type of work, the acknowledgement received for accomplishments, and the chances it offers for personal and professional growth (García et al., 2019; Haitao, 2022). The importance of job satisfaction lies in its capacity to impact not only the personal welfare of individuals but also the overall performance and productivity of organizations. The notion of job satisfaction has been thoroughly examined, uncovering its reliance on an equilibrium between an employee's expectations and the compensation they receive in exchange for their work. Herzberg's Two-Factor Theory differentiates between 'hygiene factors' and 'motivators'. Hygiene factors, such as salary and work conditions, serve to prevent dissatisfaction but do not inherently promote satisfaction. On the other hand, motivators, such as recognition and achievement, actively contribute to job satisfaction (Basalamah & As'ad, 2021; Sapta et al., 2021). This theory emphasizes the importance for organizations to consider and deal with both sets of factors in order to promote a favourable work environment and improve employee satisfaction.

Furthermore, job satisfaction is highly subjective, exhibiting substantial differences among employees based on their individual values, expectations, and assessments of fairness and managerial assistance. Certain individuals may experience contentment in their present position and compensation, whereas others may perceive a sense of unfairness or lack of acknowledgment, resulting in dissatisfaction (Davidescu et al., 2020; Nguyen, 2020). The variability underscores the significance of tailored strategies in handling job satisfaction, which involves comprehending the specific needs and expectations of each employee. Job satisfaction has a broader influence that goes beyond the individual and has an impact on the outcomes of the organization. Content employees are more prone to displaying favourable dispositions towards their work, resulting in increased levels of drive, involvement, and efficiency. Furthermore, they exhibit a greater tendency to synchronize their individual objectives with those of the organization, thereby enhancing its overall achievement (Ahmad et al., 2021; Ali & Anwar, 2021; Ishfaq et al., 2021). In contrast, discontentment can lead to reduced drive, heightened employee attrition, and adverse effects on the overall performance of the organization. Job satisfaction is a crucial element of organizational management, requiring a thorough comprehension and strategic approach to improve employee well-being and organizational success. To achieve this, one must consider both internal and external factors, acknowledge the unique nature of contentment, and establish strategies and measures that foster a constructive and fulfilling workplace atmosphere.

Working environment

The work environment significantly influences employee behaviour, performance, and overall job satisfaction. The term refers to the combination of physical and psychological factors that influence employees' performance, including their efficiency, motivation, and overall well-being (Badrianto & Ekhsan, 2020; Muhammad et al., 2022). An ideal work environment is distinguished by factors that facilitate and augment the efficiency of workers, encompassing the spatial arrangement of the workplace, the interpersonal dynamics within the company, and the cultural and ethical principles that regulate conduct. The physical elements of the work environment, such as furniture designed for optimal body support, sufficient illumination, and suitable noise levels, play a crucial role in enhancing employee comfort and well-being. This, in turn, reduces fatigue and stress levels, while also enhancing concentration and productivity (Atmaja & Puspitawati, 2021; Mawardi, 2022). Nevertheless, the work environment encompasses more than just the physical aspects and also encompasses psychological and social factors, such as the nature of interpersonal connections, job stability, acknowledgment, and prospects for advancement.

These factors collectively impact employees' job satisfaction and their level of involvement with their work and the organization (Basalamah & As'ad, 2021).

The importance of a positive work environment is further emphasized by its influence on employee retention and turnover rates. An affirming and all-encompassing work environment, distinguished by effective guidance, transparent correspondence, and reciprocal regard, cultivates a feeling of acceptance among staff members, promoting allegiance and enduring dedication to the institution (Cohen & McKay, 2020; Moslehpour et al., 2022). Moreover, companies that give importance to the growth and welfare of their employees by offering ongoing educational opportunities and health and wellness initiatives exhibit a dedication to their employees' achievements, both in their personal lives and careers. Multiple studies have consistently demonstrated that a work environment that is carefully planned and effectively supervised can result in elevated levels of job contentment, heightened productivity, and improved overall organizational effectiveness (Dziuba et al., 2021; Kurniawaty et al., 2019). Organizations that allocate resources towards establishing and sustaining an ideal work environment not only experience enhanced employee productivity but also establish themselves as highly desirable employers, thereby attracting and retaining exceptional individuals in a fiercely competitive market. Ultimately, the work environment plays a crucial role in shaping employee satisfaction, engagement, and performance. Organizations that acknowledge and respond to this reality by investing in their physical and psychological work environments can achieve substantial advantages, such as improved employee welfare, increased productivity, and long-term organizational prosperity.

Compensation and benefit

Compensation and benefits are crucial factors that directly impact employee job satisfaction within any workplace. Compensation, the payment provided by an organization to employees for services, time, effort, and skills (Reddy, 2020), is a powerful tool for influencing employee performance, productivity, and retention (Paais & Pattiruhu, 2020). As the cost of living rises due to inflation, employees increasingly seek pay adjustments to fulfil financial needs (Gipper, 2021; Waitzberg et al., 2022). These adjustments, implemented through fixed rates, percentage raises, or merit-based systems, allow employees to maintain financial stability and achieve greater life satisfaction (Reddy, 2020). Performance-based incentives, overtime pay, and ensuring pay equity are compensation strategies that directly link effort and reward, leading to improved job satisfaction (Anh, 2022; Bendezú et al., 2023; Ibrahim & Boerhaneoddin, 2010; Reddy, 2020; Schmillen, 2022). Moreover, benefits packages—non-wage compensation such as health insurance, childcare support, and more—influence job satisfaction by providing financial security and improving quality of life (Banks et al., 2021). Benefits that support personal and professional development, such as educational reimbursements, further contribute to satisfaction (Abilash & Siju, 2021; Adamovic et al., 2022). Prior research demonstrates a positive relationship between compensation, benefits, and job satisfaction (Nurlina, 2022). Employees who receive adequate compensation and desirable benefits are more likely to be dedicated and engaged. For the manufacturing industry, understanding this link is vital to developing effective compensation and benefit strategies that boost job satisfaction and talent retention.

Work-life balance support

Work-life balance support is crucial for employee job satisfaction, and mental health plays a significant role (Aruldoss et al., 2021). Frontline electronics manufacturing workers often face job strain due to heavy workloads and night shifts, leading to depression, burnout, and sleep disruptions (Abdirahman et al., 2020). Positive mental health is essential for productivity, focus, decision-making, and task completion, fostering feelings of competence and job satisfaction. Conversely, work-related stress can lead to absenteeism, turnover, decreased productivity, and lower job satisfaction (Abdirahman et al., 2020). Prioritizing mental health and offering rejuvenation opportunities helps employees feel rested and psychologically healthy, enhancing satisfaction, engagement, and performance. Additionally, strong mental health supports emotional control (Haar & Brougham, 2022), allowing employees to handle work challenges effectively and leading to positive job satisfaction.

Flexible work arrangements like working from home (WFH) and hybrid models are increasingly common post-pandemic. These options promote work-life balance and job satisfaction (Sousa-Uva et al., 2021) by giving employees autonomy to meet both work and personal needs (Panojan et al., 2022). Flexible policies can mitigate the stress of long commutes for manufacturing workers, saving time, reducing exhaustion, and boosting job satisfaction. They also offer financial benefits, positively impacting employee well-being. Research demonstrates that a healthy work-life balance significantly enhances overall job satisfaction for manufacturing employees (Aruldoss et al., 2022; Susanto et al., 2022). By supporting work-life balance, manufacturing industries can reduce psychological distress and increase employee satisfaction.

Rewards and recognition

Rewards and recognition programs play a crucial role in promoting employee job satisfaction. By formally acknowledging employee contributions, these programs cultivate a sense of belonging and incentivize superior performance (Ali & Anwar, 2021). Consistent appreciation promotes overall organizational well-being, fostering a positive work environment and elevating employee morale (Ramli & Rasdi, 2021). In the manufacturing sector, well-designed incentive programs—both monetary and non-monetary—are essential for motivating employees and upholding productivity and quality standards (Hassan & Govindhasamy, 2020; Tarigan et al., 2022). These programs inspire employees through the recognition of their achievements, ultimately leading to increased job satisfaction (Ramli & Rasdi, 2021).

Non-monetary rewards, such as public recognition or service awards, offer significant benefits without relying on financial incentives (Hassan & Govindhasamy, 2020; Ibrahim, 2021). They cultivate a sense of value within the organization. On the other hand, monetary rewards directly align employee efforts with organizational goals through tangible financial incentives (Koo et al., 2020). This direct acknowledgment of hard work fosters loyalty and success. Additionally, opportunities for promotion provide both recognition and motivation, offering employees skill growth, increased responsibility, and a greater sense of satisfaction (Ibrahim, 2021; Sija, 2021). This progression leads to personal development, enhanced self-esteem, and overall job satisfaction. As Ibrahim (2021) demonstrate, a positive correlation exists between effective recognition programs and job satisfaction, with continuous acknowledgment promoting higher levels of motivation. Within the manufacturing industry, investing in intrinsic rewards and recognition programs can yield direct benefits. This fosters a supportive work environment that prioritizes employee satisfaction and well-being, potentially impacting key organizational outcomes.

Organizational support

Organizational support plays a vital role in driving job satisfaction. This support can encompass transformational leadership, empowerment and autonomy, effective leadership, transparent communication, and a safe work environment. Research has extensively demonstrated that supportive organizational environments cultivate a sense of security and psychological well-being among employees. When employees feel protected from harassment, bullying, or other forms of unfair treatment, they exhibit greater engagement, a willingness to take initiative, and a propensity to contribute their optimal efforts. This heightened sense of security and trust fostered by strong leadership is a crucial element within supportive organizational environments. Transformational leaders inspire employees and align their work with the organization's goals, creating a sense of purpose and satisfaction (Rawashdeh et al., 2020; Triraharjo et al., 2020). Empowerment and autonomy give employees control over their work, reducing stress and boosting engagement (Teoh et al., 2022). Effective leaders listen, involve employees in decision-making, and prioritize their safety, fostering belonging and further enhancing job satisfaction (Nanjundeswaraswamy, 2023; Triraharjo et al., 2020). In industries with heavy machinery, a safe environment is paramount for employee focus and well-being. Transparent communication builds a learning culture where knowledge-sharing drives innovation. Informed and involved employees feel valued, promoting self-actualization and job satisfaction (Haron et al., 2022; Widarmanti et al., 2021). By providing clear communication, growth opportunities, and a supportive atmosphere, organizations create a positive

culture that significantly improves employee engagement, reduces stress, and elevates overall well-being (Haron et al., 2022; Triraharjo et al., 2020).

Career growth and development opportunities

Career growth and development opportunities significantly influence job satisfaction. This dimension encompasses growth opportunities, professional development, and job rotation. Growth opportunities empower employees to advance their careers by acquiring new skills and responsibilities. This continuous learning and adaptability are essential (Halim Abd, 2020; Naiemah et al., 2021). Employees who see potential for growth within the company experience increased job satisfaction; ongoing learning enables them to apply their skills effectively, fostering teamwork and personal achievement (Salleh et al., 2020). Professional development, including training programs, workshops, courses, and mentorship, enhances employees' skills and leads to career fulfilment (Mustafa et al., 2021). Organizations that invest in professional development signal their commitment to employee growth, increasing loyalty and job satisfaction. Employees feel valued and supported, which encourages them to take on challenging roles with confidence (Elian et al., 2020). Job rotation offers employees diverse work experiences, preventing monotony and developing a versatile skill set. It can boost job satisfaction by exposing employees to different roles and responsibilities, keeping them engaged and motivated (Iberahim et al., 2020; Salleh et al., 2020). Job rotation not only combats boredom but also demonstrates a clear career advancement path within the organization, promoting security and personal growth. Salleh et al. (2020) emphasize that professional development significantly advances employees' careers and increases their organizational value. By offering clear growth and development opportunities, organizations can foster long-term employee happiness and job contentment, demonstrating the importance of this dimension.

Methodology

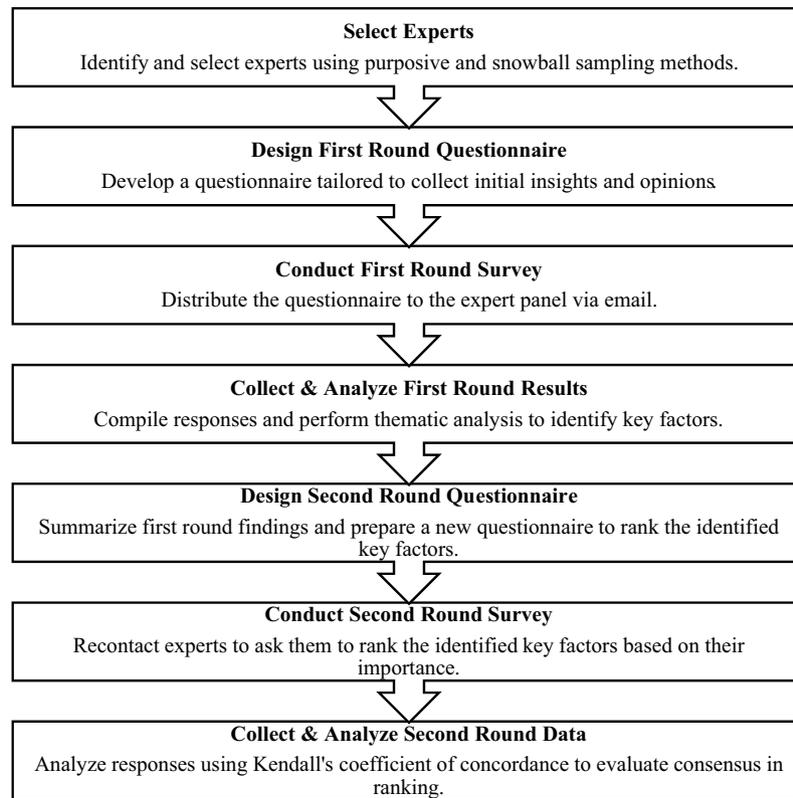
Research design

This study aimed to identify factors within the working environment that influence job satisfaction among employees in Malaysian manufacturing firms. Prior to participation, all experts involved in this study provided their written informed consent, acknowledging their understanding of the study's purpose, their voluntary participation, the confidentiality of their responses, and their right to withdraw from the study at any point without penalty. A two-round Delphi method was utilized to gather insights and opinions from experts in the field, deemed effective for mitigating potential expert fatigue and achieving consensus on the subject matter (Taze et al., 2022; Vax et al., 2021). This method is flexible and iterative, allowing for comprehensive data collection and analysis from a panel of selected experts. Specifically, feedback was solicited from managerial-level experts with extensive experience in the manufacturing sector in Malaysia. The Delphi study process is summarised in Table 1.

Sampling design and data collection

In this research, a combination of purposive and snowball sampling techniques was employed to gather a panel of 20 experts from various Malaysian manufacturing firms. Purposive sampling was strategically utilized to identify key managerial figures within distinct manufacturing units, aiming to ensure a diverse representation of industry practices and perspectives (Taylor, 2020). To enhance this group and secure a broad spectrum of insights, the snowball sampling method was incorporated, allowing for the inclusion of additional participants recommended by the initial respondents. This approach was particularly effective in accessing senior managers or niche experts who might otherwise be difficult to reach (Haber & Schärli, 2021).

The panel of experts was pivotal in examining the factors influencing job satisfaction within the manufacturing sector. A two-round Delphi method was used for data collection, with questionnaires distributed via email. The first round was critical for eliciting initial responses, where open-ended questions allowed experts to introduce new factors they deemed relevant but possibly overlooked in the

Table 1. Delphi study process.

preliminary survey design (Jaam et al., 2022). This phase helped in identifying a wide range of job satisfaction factors, enhancing the depth of the analysis (Mirata et al., 2020; Nasa et al., 2021). In the subsequent round, experts reviewed a compiled list of anonymized responses to assess consensus and rank the importance of each factor (Shinners et al., 2021; Vax et al., 2021). This quantitative step was vital for refining insights and achieving a collective agreement on the critical elements affecting job satisfaction (Soh & Martens, 2022; Saihi et al., 2023).

The iterative nature of the Delphi method ensured that each round built upon the insights of the previous, maintaining continuity even in the face of potential expert dropouts (Subramaniam et al., 2024). This process facilitated a comprehensive and deep understanding of job satisfaction factors, reflecting the collective expertise of the panel. Through this structured approach, the research aimed to produce robust, actionable findings applicable to improving managerial practices within Malaysia's manufacturing industry.

Questionnaires

The questionnaires developed for this Delphi study are crucial in obtaining expert opinions on the factors influencing job satisfaction in Malaysian manufacturing companies. Their structure is carefully designed to elicit thorough and well-organized responses in two rounds. During the first round, the questionnaire is used to actively involve the expert panel. Its purpose is to gather a wide range of insights on the factors that determine job satisfaction. The format used encourages experts to provide an extensive list of relevant factors, utilizing their professional experiences. In addition, the questionnaire includes thematic prompts based on recent studies, which guide the experts' input and encourage the identification of new, possibly neglected factors. This method not only structures their answers but also encourages a thorough examination of the subject.

In the second round, the attention is directed towards ranking the factors that were identified in the previous responses. The experts are provided with a synthesized summary of the input from the first

round, which is organized into key themes to review and enhance previous discussions. Subsequently, experts are given instructions to prioritize these themes based on their significance, arranging them in a hierarchical order from the most crucial to the least important. They are provided with explicit guidelines to assign each rank distinctively, avoiding any overlap and ensuring a clear distinction in priority. Examples of both correct and incorrect ranking methods are provided to aid experts in navigating the ranking process, thereby helping them avoid common pitfalls. The [supplementary material](#) contains both rounds of questionnaires.

Ethical approval

The study obtained ethical approval from the INTI International University Ethical Committee (Ref. No. INTI/UEC/2024/008). All the participants in the study, provided written informed consent, confirming their voluntary decision to take part. The study placed great importance on maintaining privacy and confidentiality. To achieve this, all responses were made anonymous and used exclusively for research purposes.

Data analysis

The first round of the Delphi method involved thematic analysis to identify patterns within the data, focusing on data organization, presentation, and conclusions. Data were transcribed, reviewed, and coded using Excel for thematic categorization, highlighting common themes and insights (Mundt et al., 2022). Visualization tools like charts and tables facilitated the easy interpretation of these themes, enhancing understanding of expert opinions. The analysis culminated in identifying key trends and consensus areas, notably the critical role of a positive work environment in boosting job satisfaction and addressing challenges in meeting employee needs. The second-round data were analyzed with SPSS, employing Kendall's coefficient of concordance (W) to measure expert consensus. This statistical tool assesses the agreement level on ranked scores, where a value near 1 indicates strong consensus and a value of 0.5 signifies moderate consensus. A significant Kendall's W suggests consistent expert criteria, while a low p -value (<0.05) confirms statistical consensus (Wahid et al., 2023). Conversely, a low Kendall's W with a high p -value indicates a lack of consensus, suggesting the need for a further Delphi round to refine and achieve agreement (Jaam et al., 2022).

Results

The first round of the Delphi survey commenced on 03 September 2023. A total of 20 out of 32 experts responded to the questionnaire. The study surveyed experts from three different Malaysian manufacturing firms to gain diverse insights into the industry's managerial and operational practices. The first group of respondents, E1 through E6, work for an Electronic Product Design and Manufacturing Services Company in Bayan Lepas, Penang. The company is well-known for its leadership in high-tech electronic product design, manufacturing, and servicing, with a global reach. The second group, respondents E7 through E15, work for an Electronic Components Manufacturer in Kuala Lumpur, which has two main divisions: production and distribution of electronic components, and advancement of electrical appliances and consumer electronics. Finally, respondents E16–E20 work for a Stainless Steel Coil and Strip Manufacturer in Melaka, which is well-known in the stainless steel industry for its extensive capabilities in large-scale production and advanced material processing technologies. These participants were chosen to represent a diverse range of perspectives, including high-level supply chain management, finance, human resources, and global commodity specialization. Additionally, the group of experts possessed extensive work experience, with more than 6 years of managerial experience. Their ages ranged from 32 to 49 years old. Detailed responses from this diverse group of experts can be found in [Table 2](#).

Following the completion of the first-round survey, the collected data were carefully examined, coded, and presented in a straightforward manner for easy understanding and analysis, highlighting the consistency of responses. The participating experts identified 31 key findings relevant to the research topic during the first round. These findings were then categorized into 5 dimensions, covering a broad range

Table 2. Expert who participated in the Delphi method.

No	Age	Experience (in years)	Position in MF	Background of MF
E1	35	10	Assistant Purchasing Manager	A manufacturing services company located in Bayan Lepas, Penang, Malaysia, that engages in the design, manufacturing, and servicing of electronic products. Additionally, they provide design engineering services
E2	37	8	Global Materials Quote Manager	
E3	33	7	Purchasing Supervisor	
E4	42	7	Global Commodity Manager (Capacitor)	
E5	42	9	Global Commodity Manager (Non-Ceramic Capacitor)	
E6	49	22	Supply Chain Management Director	A manufacturing company located in Kuala Lumpur, Malaysia, that specializing in the production, distribution, and sale of electronic components
E7	38	10	Supplier on boarding Manager	
E8	45	18	SCM Director	
E9	37	11	Purchasing Manager	A manufacturing company located in Kuala Lumpur, Malaysia, that are dedicated to the advancement of electrical appliances and consumer electronics products
E10	32	9	Logistic Manager	
E11	35	12	Human Resource Manager	
E12	34	7	Finance Supervisor	
E13	32	10	Purchasing Manager	
E14	40	16	Finance Director	
E15	36	10	Finance Manager	
E16	42	10	Material Quotation Manager	
E17	40	11	Supply Chain Manager	
E18	43	16	Business Analytics Senior Director	
E19	38	10	Logistic Supervisor	A leading manufacturing company of Stainless-Steel Coil, Stainless Steel Strip located in Melaka, Malaysia
E20	38	9	Engineering Supervisor	

Table 3. Consolidation of round one Delphi findings.

No	Dimension	Themes
1	Compensation and benefits	<ul style="list-style-type: none"> • Pay Adjustments • Compensation Structure • Overtime Pay • Equitable Pay • Variable Pay • Paid Time Off (PTO) • Benefits Package • Health and Wellness Programs • Childcare and Family Support Programs • Travel and Expense Benefits
2	Rewards and Recognition	<ul style="list-style-type: none"> • Educational Reimbursement • Recognition Programs • Incentive Programs • Non-Monetary Rewards • Awards and Achievements • Monetary Rewards • Project Completion Bonus • Profit sharing • Promotion opportunities
3	Career growth and development opportunities	<ul style="list-style-type: none"> • Opportunity for growth • Opportunities for professional development • Job Rotation
4	Organizational Support	<ul style="list-style-type: none"> • Transformational Leadership • Empowerment and Autonomy • Effective Leadership • Transparency of communication
5	Work-life balance support	<ul style="list-style-type: none"> • Mental Health • Mental Rejuvenation • Work Flexibility Arrangement • Eliminate Commute Stress • Financial Wellness

of factors in the working environment that impact employee job satisfaction in the manufacturing industry in Malaysia. A detailed breakdown of this classification is presented in Table 3. Among the 5 dimensions, compensation and benefits received the most attention, with a total of 11 themes identified. Rewards and recognition emerged as the second dimension with 8 themes. The dimension of career growth and development opportunities included 3 themes. Organizational support was characterized by 4 themes. Lastly, the work-life balance support dimension included 5 themes.

On 19 October 2023, the Delphi study's second phase began, with experts previously involved asked to rank factors affecting job satisfaction in Malaysia's manufacturing sector. They used a scale of 1 (most important) to 5 (least important), with instructions to assign unique values to each dimension for

Table 4. Second round of Delphi survey.

Experts	Work-life balance support	Compensation and benefits	Rewards and recognition	Organizational support	Career growth and development opportunities
E1	4	1	3	2	5
E2	3	1	4	2	5
E3	2	1	4	3	5
E4	5	1	2	3	4
E5	3	4	2	1	5
E6	5	3	2	4	1
E7	3	1	2	4	5
E8	2	4	5	1	3
E9	2	1	3	4	5
E10	3	2	1	5	4
E11	2	1	3	5	4
E12	1	2	5	4	3
E13	2	1	4	3	5
E14	4	5	1	3	2
E15	1	2	3	5	4
E16	1	4	3	5	2
E17	1	2	4	3	5
E18	2	3	4	5	1
Mean	2.56	2.17	3.06	3.44	3.78
Group Rank	2	1	3	4	5

accurate analysis (Ali & Anwar, 2021). To address potential participant drop-off, a known issue in Delphi studies, reminder emails were sent every 3-4 days (Tee et al., 2022; Mohd Noor et al., 2022). The round saw 18 experts responding, slightly fewer than the initial 20, highlighting the criticality of participant numbers for data validity (Kurdi et al., 2020). This aligns with Clayton's (1997) recommendation for a final expert panel size of 15–30, confirming the study's adherence to established Delphi method standards.

The mean and group rank for each factor in the second round of the Delphi method were calculated, as shown in Table 4. The data reveal that the mean rankings for the five dimensions range from 2.17 to 3.78. The order of importance of these dimensions is as follows: (1) Compensation and benefits with a mean of 2.17, (2) Work-life balance support with a mean of 2.56, (3) Rewards and recognition with a mean of 3.06, (4) Organizational Support with a mean of 3.44, (5) Career growth and development opportunities with a mean of 3.78. It is noteworthy that the consensus ranking, as determined through statistical analysis using Kendall's W, yielded a value of 0.17 and a p-value of 0.016. This outcome indicates a high degree of consistency in the rankings among the expert groups in the second round. Therefore, conducting a third round of the Delphi process is deemed unnecessary.

Discussion

The objectives of this research were to reach a consensus by gathering insights from expert groups on the most influential working environment factors that significantly impact employee job satisfaction in Malaysian manufacturing firms. The prioritization of the five dimensions from most important to least important is as follows: Compensation and benefits; work-life balance support; rewards and recognition; organizational support; career growth and development opportunities. This ranking indicates that compensation and benefits are among the most important working environment factors, while career growth and development opportunities have the least important on employee job satisfaction.

Compensation and benefits

Compensation and benefits stand out as crucial factors within the working environment that directly impact employee job satisfaction levels. This means that organizations must carefully strategize their compensation and benefits packages to foster a positive, productive, and loyal workforce. Drawing from Herzberg's theory, fair compensation can be seen as a hygiene factor necessary to prevent dissatisfaction, while bonuses and incentives serve as motivators that directly enhance job satisfaction. Additionally, Maslow's hierarchy suggests that financial security is a fundamental aspect that impacts employees' sense of safety and job satisfaction. The need for pay adjustment, a process by which organizations

modify employees' pay rates, becomes increasingly important as the cost of living rises due to inflation (Gipper, 2021; Waitzberg et al., 2022). This financial pressure drives the demand for higher income to fulfil financial and material desires. Pay adjustments, executed through various methods like fixed rates, percentage raises, or merit-based adjustments, ensure employees can secure their financial future and achieve greater life satisfaction through higher salaries, thereby reducing financial stress and enhancing job security and satisfaction (Reddy, 2020). Compensation is essentially the pay given by an organization to its employees in exchange for their services, time, effort, and skills (Reddy, 2020). It serves as a pivotal tool for positively influencing employee performance, productivity, and the retention of a talented workforce (Paais & Pattiruhu, 2020). Compensation encompasses much more than base salary, including bonuses, incentives, commissions, and other forms of financial rewards, each potentially carrying different motivational weight. Performance-based incentives, for example, motivate employees by demonstrating a direct correlation between their efforts and rewards, leading to improved job satisfaction. Overtime pay, seen as an additional source of income, further contributes to satisfaction, especially when employees feel their hard work is satisfactorily compensated (Reddy, 2020). Financial concerns can distract employees from their tasks, highlighting the necessity of addressing compensation-related issues to foster high levels of job satisfaction and promote greater workplace concentration and longer-term employment (Ibrahim & Boerhaneoddin, 2010). Thus, employers bear the responsibility to proactively address compensation concerns, ensuring pay structures remain competitive and aligned with employee needs, ultimately contributing to a more engaged and satisfied workforce.

The aspect of fair compensation, or pay equity, is crucial in ensuring employees feel they are receiving equal compensation for equal work, irrespective of personal characteristics (Anh, 2022). This sense of fairness and job security reduces potential compensation-related conflicts, fostering trust and satisfaction among employees, which can lead to higher productivity levels (Bendezú et al., 2023; Schmillen, 2022). By establishing pay equity practices, organizations foster a more diverse and inclusive workplace. This attracts and retains top talent from a wider range of qualified individuals, leading to a more creative and innovative environment. Furthermore, the benefits package—a collection of non-wage compensations paid in addition to salaries—is an essential component of compensation that influences job satisfaction. Competitive benefits packages, which may include health and wellness programs, childcare support, and dental and insurance coverage, not only improve quality of life but also provide financial security for employees and their families (Banks et al., 2021). Additionally, stock purchase plans and travel and expense benefits, as well as educational reimbursements, can significantly ease financial burdens and contribute to job satisfaction. These benefits offer opportunities for personal development and career growth, leading to increased job satisfaction (Abilash & Siju, 2021; Adamovic et al., 2022). Past studies, such as those conducted by Nurlina (2022), have shown that compensation and benefits positively and significantly affect employee job satisfaction. Employees who perceive their compensation as adequate and receive desirable benefits are more likely to be dedicated and engaged at work. These findings underscore the importance for the manufacturing industry to provide an effective compensation and benefits approach that meets employees' needs and preferences, promoting job satisfaction and retention.

Work life balance support

Work-life balance support ranks as the second most important factor in the working environment that directly impacts employee job satisfaction. This shows a clear demand for organizations to prioritize initiatives that empower employees to manage both their professional and personal commitments, ultimately promoting better mental health outcomes. Maslow's hierarchy suggests that achieving work-life balance and maintaining good mental health are essential for fulfilling higher-level needs and achieving overall job satisfaction. Mental health, an important indicator of employees' psychological status, directly affects their job satisfaction (Aruldoss et al., 2021). Employees in the frontline of the electronics manufacturing industry face significant job strain, mainly due to demanding workloads and night shift schedules to meet production targets. This imbalanced work-life schedule leads to depression, burnout, and disrupted natural sleep cycles, negatively impacting satisfaction levels (Abdirahman et al., 2020). Thus, good mental health is crucial for achieving higher productivity and improved job performance, enabling

employees to focus, make wise decisions, and effectively complete tasks. This, in turn, contributes to job satisfaction as they feel competent and successful in their roles.

Negative mental health often stems from work-related stress, a common workplace challenge that can result in higher absenteeism and turnover rates. Employees suffering from job-related mental health issues may take more sick days or leave their positions, affecting their attitude toward job satisfaction and leading to decreased productivity and engagement (Abdirahman et al., 2020). Consequently, inadequate mental health support within the workplace can lead organizations to incur both direct and indirect costs. Direct costs manifest as increased healthcare expenditures stemming from providing mental health treatment for employees. Indirectly, organizations experience lost productivity and elevated replacement costs. Frequent absences and the necessity to hire and train replacements for those leaving due to mental health concerns disrupt workflow and generate additional expenses. To combat mental health issues, the theme of mental rejuvenation emphasizes the need for preserving and recovering mental well-being. Employees who are well-rested and psychologically healthy generally experience increased satisfaction, higher engagement, and better performance, contributing significantly to job satisfaction. Strong mental well-being not only enhances job engagement but also develops strong emotional control abilities (Haar & Brougham, 2022). For instance, optimistic employees are more likely to commit to their tasks and handle work obstacles well, positively affecting job satisfaction. Therefore, prioritizing employee mental health through dedicated support programs and the cultivation of a positive work environment represents both an ethical imperative and a sound economic strategy. By investing in the mental well-being of their workforce, including work-life balance support strategies, organizations can foster a more productive, engaged, and resilient body of employees.

The adoption of flexible work arrangements, such as Working from Home (WFH), teleworking, and telecommuting, has become the norm after the Covid-19 pandemic. Many organizations now implement a hybrid work model, combining WFH with office-based work, allowing employees to meet work commitments and family responsibilities without rushing (Sousa-Uva et al., 2021). This approach effectively adapts to work-life balance and achieves job satisfaction by creating a conflict-free balance between work and personal life. Flexible work policies empower employees with greater autonomy to choose work options that suit their individual needs and preferences, thereby mitigating commute stress levels (Panojan et al., 2022). Many manufacturing workers face long commutes, which can significantly raise stress levels due to the time spent commuting and physical exhaustion. Offering options such as remote work or flexible hours can minimize commuting stress, save time, and relieve the stress of rush-hour traffic, leading to higher job satisfaction. Flexible work schemes also offer financial benefits, such as savings on petrol, work attire, and parking fees. These tangible rewards, along with improved work-life balance, better control over expenses, and more efficient resource allocation, positively impact employees' well-being and overall job satisfaction (Abdirahman et al., 2020). Research by Susanto et al. (2022) and Aruldoss et al. (2022) shows that employees with a healthy balance between professional and personal life report higher overall job satisfaction. Manufacturing industries that recognize and support work-life balance policies can promote a harmonious integration of work and personal life, leading to lower psychological distress and increased employee job satisfaction.

Rewards and recognition

Rewards and recognition stand as the third most crucial factor influencing employee job satisfaction, where recognition programs acknowledge employees' efforts and dedication, fostering organizational attachment and performance (Ali & Anwar, 2021). This demonstrates the paramount importance of fostering a culture of appreciation within the workplace. By implementing well-structured rewards and recognition programs, organizations can significantly enhance employee morale, reduce turnover, and cultivate a workforce that is both motivated and committed to achieving organizational goals. According to Herzberg's theory, recognition is a key motivator that directly enhances job satisfaction by fostering positive work attitudes and long-term satisfaction. Ramli and Rasdi (2021) notes that regular appreciation enhances both employee and organizational well-being, suggesting that such programs boost morale and create a positive working atmosphere. Incentive programs, incorporating both monetary and non-monetary elements, are essential for motivating employees, especially in the manufacturing sector,

to maintain productivity and quality standards (Hassan & Govindhasamy, 2020; Tarigan et al., 2022). These programs, as Ramli and Rasdi (2021) supports, effectively inspire employees by rewarding them for their achievements, leading to increased job satisfaction. Non-monetary rewards, such as public recognition and service awards, play a significant role in enhancing employee satisfaction and performance without financial incentives (Hassan & Govindhasamy, 2020; Ibrahim, 2021). These practices, by highlighting employees' contributions and offering symbolic rewards, help in building a sense of belonging and value within the organization.

Conversely, monetary rewards focus on financial incentives to motivate employees towards achieving organizational goals, offering tangible benefits and aligning employee efforts with the company's objectives (Koo et al., 2020). Such rewards are seen as a direct acknowledgment of employees' hard work, contributing to loyalty and organizational success. Promotion within an organization serves as both recognition and motivation, providing employees with opportunities for skill leverage and improved job satisfaction through higher positions, responsibility, and challenges (Ibrahim, 2021; Sija, 2021). This progression not only fulfills personal growth desires but also enhances self-esteem and satisfaction, as employees are recognized by their peers and the organization. Ibrahim (2021) highlight the positive correlation between effective recognition programs and job satisfaction, demonstrating that continuous acknowledgment leads to high motivation and satisfaction levels among employees. This underscores the need for organizations to prioritize the development and implementation of recognition initiatives that transcend occasional grand gestures and instead cultivate an ongoing practice of appreciating employees' contributions. The value of regular, even small-scale, expressions of recognition cannot be overstated in the creation of a positive and supportive work environment where employees feel consistently valued. This approach aligns with the principle that recognition should be an inherent element of organizational culture rather than a sporadic event. The manufacturing industry benefits from investing in intrinsic rewards and recognition programs, cultivating a supportive work environment that promotes employee satisfaction and well-being.

Organizational support

Organizational support emerges as a pivotal factor influencing job satisfaction, encapsulating transformational leadership, empowerment and autonomy, effective leadership, and transparent communication. This highlights the importance of organizational support and its profound impact on employee well-being. By fostering transformational leadership, which inspires and motivates employees, organizations can cultivate a sense of ownership and purpose within the workforce. Furthermore, empowering employees with autonomy and transparent communication fosters a climate of trust and psychological safety, where individuals feel comfortable taking risks and voicing their ideas. Transformational leadership, as suggested by Herzberg's theory, inspires and motivates employees, fostering a sense of ownership and purpose within the workforce. Transformational leadership, which inspires innovation and aligns employee efforts with organizational goals, plays a crucial role in enhancing job satisfaction. This leadership style encourages employees to see the value in their work and its contribution to the company's objectives, fostering a sense of purpose and satisfaction (Rawashdeh et al., 2020; Triraharjo et al., 2020). Empowerment and autonomy allow employees to take control over their tasks, reducing stress and promoting a positive working environment. This approach leads to more engaged employees, better teamwork, and higher job satisfaction (Teoh et al., 2022).

Effective leadership extends beyond guidance to include listening to employees' concerns, involving them in decision-making, and ensuring their safety. Effective leadership extends guidance to include listening to employees' concerns, involving them in decision-making, and ensuring their safety. By actively soliciting employee feedback, leaders not only demonstrate respect for their team members but also gain valuable insights into the challenges and opportunities present within the workplace. Fostering a collaborative decision-making process empowers employees, builds trust, and can lead to more innovative solutions. Furthermore, prioritizing employee safety signals a genuine concern for their well-being, a key factor in creating a positive and psychologically safe work environment. Such practices not only increase job satisfaction but also instill a sense of belonging and security among employees (Nanjundeswaraswamy, 2023; Triraharjo et al., 2020). Ensuring a safe and stress-free work environment,

particularly in industries with heavy machinery, is vital for employees to focus on their tasks without fear of accidents, further boosting job satisfaction.

Transparency and open communication within an organization encourage a learning culture, where sharing knowledge and addressing concerns collectively leads to problem-solving and innovation. When employees are informed and involved, they feel valued and respected, contributing to their self-actualization and overall job satisfaction (Haron et al., 2022; Widarmanti et al., 2021). Organizational support, through clear communication, professional growth opportunities, and a supportive atmosphere, has been shown to significantly improve employee engagement, reduce workplace stress, and enhance well-being, underscoring the importance of a positive organizational culture in elevating employee job satisfaction (Haron et al., 2022; Triraharjo et al., 2020). Open dialogue encourages a learning culture, where knowledge sharing and collaborative problem-solving drive innovation. Employees who are kept informed and involved feel valued and respected, fostering a sense of self-actualization and ultimately, greater job satisfaction. This highlights the critical role of organizational support in creating a positive work environment.

Career growth and development opportunities

Career growth and development opportunities, though ranked lowest among five key dimensions, still significantly influence job satisfaction. This demonstrates that career growth and development opportunities are integral to the many dimensions that significantly influence an employee's overall productivity and satisfaction within their professional context. Maslow's hierarchy suggests that achieving self-actualization and personal growth is essential for overall job satisfaction. This dimension encompasses growth opportunities, professional development, and job rotation. Growth opportunities allow employees to advance their careers by acquiring new skills and responsibilities, essential for continuous learning and adaptability (Halim Abd, 2020; Naiemah et al., 2021). Employees passionate about their growth within the company show increased job satisfaction, as ongoing learning enables them to apply their skills effectively, fostering teamwork and personal achievements (Salleh et al., 2020).

Professional development involves training programs like workshops, courses, or mentorship, enhancing employees' skills and career fulfilment (Mustafa et al., 2021). Organizations investing in such development signal their commitment to employee growth, increasing loyalty and job satisfaction. This investment shows employees they are valued and supported, encouraging them to tackle more challenging roles confidently (Elian et al., 2020).

Job rotation offers employees varied work experiences, combating monotony and fostering a versatile skill set. This practice can lead to greater job satisfaction by introducing employees to different roles and responsibilities, thus keeping them engaged and motivated (Iberahim et al., 2020; Salleh et al., 2020). Job rotation not only prevents job boredom but also highlights a clear path for career advancement within the organization, contributing to a sense of security and personal growth. Despite its lower ranking, career growth and development significantly contribute to job satisfaction. Salleh et al. (2020) found that professional development notably advances employees' careers and increases their organizational value. Offering clear growth and development opportunities can thus ensure long-term employee happiness and job contentment, highlighting its importance even if it's considered the least significant among the dimensions studied.

Implications of the study

The research emphasizes that compensation and benefits are paramount in determining job satisfaction, especially in the manufacturing sector where the nature of work and financial stability are crucial (Ahamad et al., 2023; Amin, 2022). Manufacturing jobs, often physically demanding and involving risks, necessitate adequate compensation to ensure safety and satisfaction. Conversely, career growth and development are seen as less critical, possibly due to the specialized nature of manufacturing roles and limited vertical progression opportunities (Hwa & Hamid, 2022). In such settings, employees might prioritize job security, appropriate pay, or a supportive work culture over rapid career advancement (Mohanavel et al., 2021; Tan & Omar, 2022).

To boost job satisfaction in Malaysian manufacturing firms, recommendations include revising compensation strategies to meet employee expectations, offering competitive salaries, and implementing fair promotion policies. Adjusting pay to match economic conditions or skill levels can help alleviate financial stress, enabling employees to concentrate on their work (Sorn et al., 2023). Enhancing employee well-being through wellness programs and addressing burnout by ensuring equitable workload distribution are also advised (Ali & Anwar, 2021; Ramli & Rasdi, 2021). Recognizing the importance of rewards and recognition as key to job satisfaction, establishing informal acknowledgment practices alongside formal recognition can significantly impact motivation and engagement (Abdirahman et al., 2020). Leadership's investment in reducing repetitive tasks through technology, providing clear instructions, and fostering a culture of trust by allowing decision-making autonomy can greatly enhance job satisfaction (Hasan et al., 2021; Vinberg & Danielsson, 2021). Training opportunities for personal advancement, including leadership and managerial skills, can equip employees with valuable tools for their roles, encouraging specialization and application in preferred fields. This approach promotes a supportive environment for professional growth, deepening job satisfaction and long-term commitment (Sija, 2021).

Implementing these strategies can improve the work environment in the manufacturing industry, demonstrating a commitment to employee appreciation and respect. Such measures can lead to increased motivation, engagement, and overall satisfaction, benefiting both employees and the organization.

Conclusion, limitations, and Future research

In conclusion, the Delphi study offers valuable insights into the factors within the working environment that impact employee job satisfaction in the Malaysian manufacturing industry over two rounds of analysis. The factors were ranked from most to least influential by groups of experts as follows: compensation and benefits, work-life balance support, rewards and recognition, organizational support, and career growth and development opportunities. Compensation and benefits emerged as the fundamental pillar in the workplace, ranking as the most influential factor in supporting employee job satisfaction. This dimension aligns with foundational theories, such as Maslow's hierarchy of needs and Herzberg's hygiene factors, emphasizing the critical nature of meeting employees' safety and job security needs through adequate base pay, fair treatment, and benefits. The manufacturing industry that recognizes and adopts these insights will be better positioned to improve employee well-being and overall job fulfilment by addressing financial difficulties, thereby lowering stress levels and motivating employees to perform their best.

Despite the study's insights, certain limitations were identified. The potential for limited sample size and representation due to the Delphi approach's nature, expert bias, and the time-consuming process of multiple rounds of data collection and analysis are notable constraints. Future research could address these limitations by engaging a larger and more diverse sample of experts, adopting mixed-method approaches to supplement the Delphi method, and improving the Delphi process's feedback and communication methods. Future studies may also benefit from exploring factors across different countries or regions, employing longitudinal research to examine long-term effects, and leveraging real-time interactions to minimize expert bias. By addressing these areas, future research can provide more comprehensive insights into the working environment's impact on employee job satisfaction in the manufacturing sector.

Author contribution statement

Conception and design: Shu Hwa Loo & Walton Wider; Analysis and interpretation of the data: Shu Hwa Loo & Walton Wider; the drafting of the paper: Surianti Lajuma, Leilei Jiang, Phatthararuethai Kenikasahmanworakhun, Jem Cloyd M. Tanucan, & Mohd Wafiy Akmal Ahmad Khadri; Revising it critically for intellectual content: Shu Hwa Loo & Walton Wider; Final approval of the version to be published: Shu Hwa Loo & Walton Wider; All authors agree to be accountable for all aspects of the work.

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No potential conflict of interest was reported by the authors.

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Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

References

- Abdirahman, H. I. H., Najeemdeen, I. S., Abidemi, B. T., & Ahmad, R. (2020). The relationship between job satisfaction, work-life balance and organizational commitment on employee performance. *Advances in Business Research International Journal*, 4(1), 42–52. <https://doi.org/10.24191/abrij.v4i1.10081>
- Abilash, K. M., & Siju, N. M. (2021). Telecommuting: an empirical study on job performance, job satisfaction and employee's commitment during pandemic circumstances. *Shanlax International Journal of Management*, 8(3), 1–10. <https://doi.org/10.34293/management.v8i3.3547>
- Acquah, A., Nsiah, T. K., Antie, E. N. A., & Otoo, B. (2021). Literature review on theories of motivation. *EPRA International Journal of Economic and Business Review*, 9(5), 25–29. <https://doi.org/10.36713/epra6848>
- Adamovic, M., Gahan, P., Olsen, J., Gulyas, A., Shallcross, D., & Mendoza, A. (2022). Exploring the adoption of virtual work: the role of virtual work self-efficacy and virtual work climate. *The International Journal of Human Resource Management*, 33(17), 3492–3525. <https://doi.org/10.1080/09585192.2021.1913623>
- Ahamad, F., Saini, G. K., & Jawahar, I. M. (2023). Interactive influence of work-life balance benefits, employee recommendation, and job attributes on employer attractiveness and job pursuit intentions: two experiments. *Asian Business & Management*, 22(4), 1215–1242. <https://doi.org/10.1057/s41291-022-00184-4>

- Ahmad, K. Z. B., Jasimuddin, S. M., & Kee, W. L. (2021). Organizational climate and job satisfaction: Do employees' personalities matter? *Management Decision*, 56(2), 421–440. <https://doi.org/10.1108/MD-10-2016-0713>
- Ali, B. J., & Anwar, G. (2021). An empirical study of employees' motivation and its influence job satisfaction. *International Journal of Engineering, Business and Management*, 5(2), 21–30. <https://doi.org/10.22161/ijebm.5.2.3>
- Alias, M., Rahim, N. S. A., Adrutdin, K. F., & Salleh, F. I. M. (2020). Impact reward and recognition toward job satisfaction. *Journal of Critical Reviews*, 7(8), 158–161.
- Alias, N. E., Rohmanan, N. H., Ismail, S., Koe, W. L., & Othman, R. (2018). Factors influencing turnover intention in a Malaysian manufacturing company. In ICE-BEES 2018: International Conference on Economics, Business and Economic Education 2018 (Vol. 2018, pp. 771–787). KnE Social Sciences. <https://doi.org/10.18502/kss.v3i10.3171>
- Alrawahi, S., Sellgren, S. F., Altouby, S., Alwahaibi, N., & Brommels, M. (2020). The application of Herzberg's two-factor theory of motivation to job satisfaction in clinical laboratories in Omani hospitals. *Heliyon*, 6(9), e04829. <https://doi.org/10.1016/j.heliyon.2020.e04829>
- Amin, B. M. (2022). The effect of financial and non-financial rewards on executives 'performance in manufacturing firms: a case study at Kulim-hi tech park, Kulim, Kedah, Malaysia. *International Journal of Innovation and Industrial Revolution*, 4(11), 13–27. <https://doi.org/10.35631/IJIREV.411002>
- Anh, N. T. N. (2022). Effects of equity perceived organizational support and job satisfaction on organizational commitment in Macao's gaming industry. *Management Decision*, 60(9), 2433–2454.
- Aruldoss, A., Berube Kowalski, K., Travis, M. L., & Parayitam, S. (2022). The relationship between work-life balance and job satisfaction: Moderating role of training and development and work environment. *Journal of Advances in Management Research*, 19(2), 240–271. <https://doi.org/10.1108/JAMR-01-2021-0002>
- Aruldoss, A., Kowalski, K. B., & Parayitam, S. (2021). The relationship between quality of work life and work-life-balance mediating role of job stress, job satisfaction and job commitment: evidence from India. *Journal of Advances in Management Research*, 18(1), 36–62. <https://doi.org/10.1108/JAMR-05-2020-0082>
- Atmaja, N. P. C. D., & Puspitawati, N. M. D. (2021). Effect of physical work environment through productivity employees job satisfaction as an intervening variable. *International Journal of Business, Economics and Law*, 17(5), 98–104.
- Aziz, N. A., Othman, J., Lugova, H., & Suleiman, A. (2020). Malaysia's approach in handling COVID-19 onslaught: Report on the Movement Control Order (MCO) and targeted screening to reduce community infection rate and impact on public health and economy. *Journal of Infection and Public Health*, 13(12), 1823–1829. <https://doi.org/10.1016/j.jiph.2020.08.007>
- Badrianto, Y., & Ekhsan, M. (2020). The impact of work motivation, work environment, and career development on employee job satisfaction. *Journal Visi Management*, 9(1), 100–112.
- Banks, L. M., Davey, C., Shakespeare, T., & Kuper, H. (2021). Disability-inclusive responses to COVID-19: Lessons learnt from research on social protection in low-and middle-income countries. *World Development*, 137, 105178. <https://doi.org/10.1016/j.worlddev.2020.105178>
- Basalamah, M. S. A., & As'ad, A. (2021). The role of work motivation and work environment in improving job satisfaction. *Golden Ratio of Human Resource Management*, 1(2), 94–103. <https://doi.org/10.52970/grhrm.v1i2.54>
- Basril, H. (2022). Literature review determination of employee satisfaction and performance: hygiene and motivator factors analysis. *Dinasti International Journal of Management Science*, 3(5), 976–984. <https://doi.org/10.31933/dijms.v3i5.1199>
- Bendezú, A. R., Lira, L. A. N., Riojas, D. R., & Puga, N. B. (2023). Gender pays equity in times of pandemic Covid-19: A systematic literature review. *International Journal of Professional Business Review*, 8(1), e0937. <https://doi.org/10.26668/businessreview/2023.v8i1.937>
- Clayton, M. J. (1997). Delphi: A technique to harness expert opinion for critical decision-making tasks in education. *Educational Psychology*, 17(4), 373–386. <https://doi.org/10.1080/0144341970170401>
- Cohen, S., & McKay, G. (2020). Social support, stress and the buffering hypothesis: A theoretical analysis. In *Handbook of Psychology and Health*, IV, 253–267.
- Davidescu, A. A., Apostu, S. A., Paul, A., & Casuneanu, I. (2020). Work flexibility, job satisfaction, and job performance among Romanian employees—Implications for sustainable human resource management. *Sustainability*, 12(15), 6086. <https://doi.org/10.390/su12156086>
- da Cruz Carvalho, A., Riana, I. G., & Soares, A. D. C. (2020). Motivation on job satisfaction and employee performance. *International Research Journal of Management, IT and Social Sciences*, 7(5), 13–23.
- Department of Statistics Malaysia (DOSM). (2022). Malaysia's Gross Domestic Product. Retrieved 2023, August 20, from https://www.dosm.gov.my/v1/index.php?r=column/cthemByCat&cat=90&bul_id=eEvpMkdqOVkzNHZSZ210NVlzROUxZz09&menu_id=SjgwNXdiMOJIT3Q2TDBIWXdkdUVldz09.
- Dziuba, E. H., Dziuba, S. T., Ingaldi, M., & Zhuravskaya, M. (2021). Employees' job satisfaction and their work performance as elements influencing work safety. *System Safety: Human – Technical Facility – Environment*, 2(1), 18–25. <https://doi.org/10.2478/czoto-2020-0003>
- Elian, S., Paramitha, C. D., Gunawan, H., & Maharani, A. (2020). The impact of career development, work-family conflict, and job satisfaction on millennials' turnover intention in banking industry. *Journal of Business Management Review*, 1(4), 223–247. <https://doi.org/10.47153/jbmr14.422020>
- Ganesh, R., & Liu, Y. (2022). Employee satisfaction in the sales department of the manufacturing industry: an approach with Herzberg's two-factor theory. *International Journal of Services, Economics and Management*, 13(1), 57–77. <https://doi.org/10.1504/IJSEM.2022.122003>

- García, D. M., Molina, I. R., & Marco, J. M. (2019). The effect of job characteristics on intrinsic and extrinsic job satisfaction: the moderating role of psychological capital. *Psychologica*, 62(1), 39–56. https://doi.org/10.14195/1647-8606_62-1_2
- Gipper, B. (2021). The economic effects of expanded compensation disclosures. *Journal of Accounting and Economics*, 71(1), 101338. <https://doi.org/10.1016/j.jacceco.2020.101338>
- Haar, J., & Brougham, D. (2022). Work antecedents and consequences of work-life balance: A two sample study within Malaysia. *The International Journal of Human Resource Management*, 33(4), 784–807. <https://doi.org/10.1080/09585192.2020.1751238>
- Haber, C., & Schärli, A. (2021). Defining spotting in dance: A Delphi method study evaluating expert opinions. *Frontiers in Psychology*, 12, 540396. <https://doi.org/10.3389/fpsyg.2021.540396>
- Haitao, N. (2022). Relationship of challenges, recognition and co-workers to job satisfaction (Study of human resource management literature). *Dinasti International Journal of Digital Business Management*, 3(2), 356–364. <https://doi.org/10.31933/dijdbm.v3i4.1329>
- Halim Abd, S. N. (2020). Employer's role performance towards employees' satisfaction: A study of SME Industry 4.0 in Malaysia. In *Challenges and Opportunities for SMEs in Industry 4.0* (pp. 140–154).
- Haron, H., Jamil, N. N., Ramli, N. M., Abd Aziz, S., Sulaiman, S., Gautama, I., Gui, A., Sari, S. A., Rosli, N. A., & Kamarudin, N. K. (2022). Human governance index of manufacturing sector of shariah compliant companies in Malaysia: A preliminary analysis. *Journal of Governance and Integrity* 5(2), 283–296. <https://doi.org/10.15282/jgi.5.2.2022.7361>
- Hasan, T., Jawaad, M., & Butt, I. (2021). The influence of person–job fit, work–life balance, and work conditions on organizational commitment: investigating the mediation of job satisfaction in the private sector of the emerging market. *Sustainability*, 13(12), 6622. <https://doi.org/10.3390/su13126622>
- Hassan, Z., & Govindhasamy, C. (2020). An investigation on extrinsic and intrinsic rewards on employee retention: A study in Malaysian manufacturing companies. *Journal of Business and Economic Analysis*, 03(01), 55–69. https://doi.org/10.1142/j_10.36924sbe.2020.3104
- Hemmati, M., Newaz, M. S., Rahman, M. K., Appolloni, A., & Zailani, S. (2022). Sustainability performance of digitalized manufacturing industry in COVID era: a comparative study between developed and developing economies. *Sustainability*, 12(24), 98.
- Hwa, E. P., & Hamid, S. R. (2022). An exploratory study on skills management of the skilled blue-collar workers in the automotive manufacturing industry in Malaysia. *Global Business & Management Research*, 14(1), 158–170.
- Ibrahim, I. I., & Boerhaneoddin, A. (2010). Is job satisfaction mediating the relationship between compensation structure and organisational commitment? A study in the Malaysian power utility. *Journal of Global Business and Economics*, 1(1), 43–61.
- Iberahim, H., Shamsul, A. S., Azhar, F. A., & Aminuddin, Z. H. A. (2020). Exploring job design as predictors of job performance at a Malaysian automobile company. *Jurnal Intelek*, 15(2), 48–59. <https://doi.org/10.24191/ji.v15i2.303>
- Ibrahim, I. (2021). Factors effecting employees retention in the Malaysian manufacturing industry during the pandemic Covid-19: The mediating role of job satisfaction. *Asian Journal of Research in Business and Management*, 3(3), 24–39.
- Ishfaq, U., Batool, S., Wadood, F., Ullah, A., & Ullah, M. (2021). An empirical study on motivation and job satisfaction: Manufacturing employees' perspective in Malaysia. *Journal of Economics and Business*, 20(4), 28–38.
- Jaam, M., Awaisu, A., El-Awaisi, A., Stewart, D., & El Hajj, M. S. (2022). Use of the Delphi technique in pharmacy practice research. *Research in Social & Administrative Pharmacy: RSAP*, 18(1), 2237–2248. <https://doi.org/10.1016/j.sapharm.2021.06.028>
- Ju, J. (2021). The effect of job satisfaction on organizational commitment and work discipline. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*, 4(1), 1328–1339. <https://doi.org/10.33258/birci.v4i1.1759>
- Koo, B., Yu, J., Chua, B. L., Lee, S., & Han, H. (2020). Relationships among emotional and material rewards, job satisfaction, burnout, affective commitment, job performance, and turnover intention in the hotel industry. *Journal of Quality Assurance in Hospitality & Tourism*, 21(4), 371–401. <https://doi.org/10.1080/1528008X.2019.1663572>
- Kurdi, B., Alshurideh, M., & Alnaser, A. (2020). The impact of employee satisfaction on customer satisfaction: Theoretical and empirical underpinning. *Management Science Letters*, 10(15), 3561–3570. <https://doi.org/10.5267/j.msl.2020.6.038>
- Kurniawaty, K., Ramly, M., & Ramlawati, R. (2019). The effect of work environment, stress, and job satisfaction on employee turnover intention. *Management Science Letters*, 9(6), 877–886. <https://doi.org/10.5267/j.msl.2019.3.001>
- Loh, C. H., & Teoh, A. P. (2021, May). *The adoption of big data analytics among manufacturing enterprises during Covid-19 crisis in Malaysia* [Paper presentation]. In Ninth International Conference on Entrepreneurship and Business Management (ICEBM 2020) (pp. 95–100). Atlantis Press. <https://doi.org/10.2991/aebmr.k.210507.015>
- Malaysian Investment Development Authority. (2024). *Key highlights of the manufacturing sector in 2022*. Malaysian Investment Development Authority. <https://www.mida.gov.my>.
- Mawardi, M. C. (2022). Alternative work arrangements, work environment, and job stress on job satisfaction and turnover intention. *Golden Ratio of Human Resource Management*, 2(1), 27–39. <https://doi.org/10.52970/grhrm.v2i1.155>
- Mirata, V., Hirt, F., Bergamin, P., & van der Westhuizen, C. (2020). Challenges and contexts in establishing adaptive learning in higher education: Findings from a Delphi study. *International Journal of Educational Technology in Higher Education*, 17(1), 1–25. <https://doi.org/10.1186/s41239-020-00209-y>

- Mohanavel, V., Ali, K. A., Ranganathan, K., Jeffrey, J. A., Ravikumar, M. M., & Rajkumar, S. (2021). The roles and applications of additive manufacturing in the aerospace and automobile sector. *Materials Today: Proceedings*, 47, 405–409. <https://doi.org/10.1016/j.matpr.2021.04.596>
- Mohd Noor, N., Rasli, A., Abdul Rashid, M. A., Mubarak, M. F., & Abas, I. H. (2022). Ranking of corporate governance dimensions: A Delphi study. *Administrative Sciences*, 12(4), 173. <https://doi.org/10.3390/admsci12040173>
- Moslehpour, M., Chang, M.-L., Pham, V. K., & Dadvari, A. (2022). Adopting the configurational approach to the analysis of job satisfaction in Mongolia. *European Research on Management and Business Economics*, 28(1), 100179. <https://doi.org/10.1016/j.iemeen.2021.100179>
- Muhammad, L., Ishrat, R., & Afridi, J. R. (2022). The impact of working environment on employee's job satisfaction: A case study of private schools in Peshawar city. *Psychology and Education*, 59, 168–183.
- Mundt, A. P., Rozas Serri, E., Irrarázaval, M., O'Reilly, R., Allison, S., Bastiampillai, T., Musisi, S., Kagee, A., Golenkov, A., El-Khoury, J., Park, S.-C., Chwastiak, L., & Priebe, S. (2022). Minimum and optimal numbers of psychiatric beds: Expert consensus using a Delphi process. *Molecular Psychiatry*, 27(4), 1873–1879. <https://doi.org/10.1038/s41380-021-01435-0>
- Mustafa, M., Coetzer, A., Ramos, H. M., & Fuhrer, J. (2021). Exploring the effects of small-and medium-sized enterprise employees' job satisfaction on their innovative work behaviors: The moderating effects of personality. *Journal of Organizational Effectiveness: People and Performance*, 8(2), 228–250. <https://doi.org/10.1108/JOEPP-07-2020-0133>
- Naiemah, S. U., Beng, T. L., Isa, E. V. M., & Radzi, W. N. W. M. (2021, May). The impacts of job satisfaction, organizational commitment, and job stress on turnover intention: A case in the Malaysian manufacturing. In *AIP Conference Proceedings* (Vol. 2339, No. 1). AIP Publishing.
- Nanjundeswaraswamy, T. S. (2023). The mediating role of job satisfaction in the relationship between leadership styles and employee commitment. *Journal of Economic and Administrative Sciences*, 39(2), 286–304. <https://doi.org/10.1108/JEAS-02-2021-0029>
- Nasa, P., Jain, R., & Juneja, D. (2021). Delphi methodology in healthcare research: How to decide its appropriateness. *World Journal of Methodology*, 11(4), 116–129. <https://doi.org/10.5662/wjm.v11.i4.116>
- Nguyen, L. T. (2020). Workers' job satisfaction in Malaysian companies in export processing zone. *KKU. International Journal of Humanities and Social Sciences*, 9(2), 1–22.
- Numonjonovich, M. M. (2022). Economic development and the role of Maslow's hierarchy of needs. *Web of Scientist: International Scientific Research Journal*, 3(7), 5–10.
- Nurlina, N. (2022). Examining linkage between transactional leadership, organizational culture, commitment and compensation on work satisfaction and performance. *Golden Ratio of Human Resource Management*, 2(2), 108–122. <https://doi.org/10.52970/grhrm.v2i2.182>
- Paais, M., & Pattiruhu, J. R. (2020). Effect of motivation, leadership, and organizational culture on satisfaction and employee performance. *The Journal of Asian Finance, Economics and Business*, 7(8), 577–588. <https://doi.org/10.13106/jafeb.2020.vol7.no8.577>
- Panojan, P., Perera, B. A. K. S., & Dilakshan, R. (2022). Work-life balance of professional quantity surveyors engaged in the construction industry. *International Journal of Construction Management*, 22(5), 751–768. <https://doi.org/10.1080/15623599.2019.1644759>
- Patricia, N. M., & Asoba, S. N. (2021). Theories of job satisfaction in the higher education context. *Academy of Entrepreneurship Journal*, 27(2), 1–16.
- Pudjiastuti, S. D., & Sijabat, R. (2022). Analysis of the effect of compensation, motivation, and Job satisfaction to employee performance: Case study at customer interaction division of PT XYZ. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 5(1), 4130–4143.
- Purwanti, D., & Indradewa, R. (2022). Influence of work environment and organizational culture on turnover intention is mediated by job satisfaction. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*, 5(1), 2615–3076.
- Ramli, A., & Rasdi, R. M. (2021). Leveraging intellectual capital dimensions for promoting learning organization in a rural development agency. *Pertanika Journal of Social Sciences and Humanities*, 29(1), 669–688. <https://doi.org/10.47836/pjssh.29.1.37>
- Rawashdeh, A., Elayan, M., Shamout, M., & Saleh, M. (2020). Job satisfaction as a mediator between transformational leadership and employee performance: Evidence from a developing country. *Management Science Letters*, 10(16), 3855–3864. <https://doi.org/10.5267/j.msl.2020.7.026>
- Reddy, V. S. (2020). Impact of compensation on employee performance. *IOSR Journal of Humanities and Social Science*, 25(9), 17–22.
- Salleh, E. S. M., Dato' Mansor, Z., Zainal, S. R. M., & Yasin, I. M. (2020). Multilevel analysis on employee wellbeing: The roles of authentic leadership, rewards, and meaningful work. *Asian Academy of Management Journal*, 25(1), 123–146. <https://doi.org/10.21315/aamj2020.25.1.7>
- Saihi, A., Ben-Daya, M., & As' ad, R. (2023). Underpinning success factors of maintenance digital transformation: A hybrid reactive Delphi approach. *International Journal of Production Economics*, 255, 108701. <https://doi.org/10.1016/j.ijpe.2022.108701>
- Sapta, I., Muafi, M., & Setini, N. M. (2021). The role of technology, organizational culture, and job satisfaction in improving employee performance during the Covid-19 pandemic. *The Journal of Asian Finance, Economics and Business*, 8(1), 495–505.

- Schmillen, A. D. (2022). Fringe benefits, self-selection, and the public/private compensation differential. *The Journal of Development Studies*, 58(6), 1140–1159. <https://doi.org/10.1080/00220388.2021.2017893>
- Shinners, L., Aggar, C., Grace, S., & Smith, S. (2021). Exploring healthcare professionals' perceptions of artificial intelligence: Validating a questionnaire using the e-Delphi method. *Digital Health*, 7, 20552076211003433. <https://doi.org/10.1177/20552076211003433>
- Sija, A. (2021). The influence of job satisfaction and its effect on employee turnover intention in the financial service industry of Malaysia. *European Journal of Economic and Financial Research*, 5(1), 31–47. <https://doi.org/10.46827/ejefr.v5i1.1066>
- Smith, C. M., & Sweet, J. (2021). Analysis on the influence of salary level and employee satisfaction. *CMU Academy Journal of Management and Business Education*, 1(1), 7–9.
- Soh, E., & Martens, K. (2022). Value dimensions of autonomous vehicle implementation through the Ethical Delphi. *Cities*, 127, 103741. <https://doi.org/10.1016/j.cities.2022.103741>
- Sorn, M. K., Fienena, A. R., Ali, Y., Rafay, M., & Fu, G. (2023). Challenges and strategies for employee retention in the manufacturing industry: A review. *Sustainability*, 14(5), 2885.
- Sousa-Uva, M., Sousa-Uva, A., e Sampayo, M. M., & Serranheira, F. (2021). Telework during the COVID-19 epidemic in Portugal and determinants of job satisfaction: a cross-sectional study. *BMC Public Health*, 21(1), 2217. <https://doi.org/10.1186/s12889-021-12295-2>
- Subramaniam, S. H., Wider, W., Tanucan, J. C. M., Yew Lim, K., Jiang, L., & Prompanyo, M. (2024). Key factors influencing long-term retention among contact centre employee in Malaysia: A Delphi method study. *Cogent Business & Management*, 11(1), 2370444. <https://doi.org/10.1080/23311975.2024.2370444>
- Susanto, P., Hoque, M. E., Jannat, T., Emely, B., Zona, M. A., & Islam, M. A. (2022). Work-life balance, job satisfaction, and job performance of SMEs employees: The moderating role of family-supportive supervisor behaviors. *Frontiers in Psychology*, 13, 906876. <https://doi.org/10.3389/fpsyg.2022.906876>
- Tan, P. L., & Omar, S. S. (2022). Factors influencing employee retention among production operators in manufacturing companies in Malaysia. *Research in Management of Technology and Business*, 3(1), 945–958.
- Tarigan, J., Cahya, J., Valentine, A., Hatane, S., & Jie, F. (2022). Total reward system, job satisfaction and employee productivity on company financial performance: Evidence from Indonesian Generation Z workers. *Journal of Asia Business Studies*, 16(6), 1041–1065. <https://doi.org/10.1108/JABS-04-2021-0154>
- Taylor, E. (2020). We agree, don't we? The Delphi method for health environments research. *HERD*, 13(1), 11–23. <https://doi.org/10.1177/1937586719887709>
- Taze, D., Hartley, C., Morgan, A. W., Chakrabarty, A., Mackie, S. L., & Griffin, K. J. (2022). Developing consensus in histopathology: The role of the Delphi method. *Histopathology*, 81(2), 159–167. <https://doi.org/10.1111/his.14650>
- Tee, M., Rasli, A., Toh, J. S. S. K., Abas, I. H., Zhou, F., & Liew, C. S. (2022). A Delphi method on the positive impact of COVID-19 on manufacturing industry: Perceptions of academics from Malaysia. *Frontiers in Psychology*, 13, 1013974. <https://doi.org/10.3389/fpsyg.2022.1013974>
- Teoh, B. E. W., Wider, W., Saad, A., Sam, T. H., Vasudevan, A., & Lajuma, S. (2022). The effects of transformational leadership dimensions on employee performance in the manufacturing industry in Malaysia. *Frontiers in Psychology*, 13, 913773. <https://doi.org/10.3389/fpsyg.2022.913773>
- Triraharjo, J., Aima, H., Sutawijaya, A., & Badawy Saluy, A. (2020). Effect of transformational leadership and breakthrough leadership on organizational performance through the variable of employee satisfaction. *Jurnal EMA*, 1(2), 49–56.
- Vax, S., Farkas, M., Russinova, Z., Mueser, K. T., & Drainoni, M. L. (2021). Enhancing organizational readiness for implementation: constructing a typology of readiness-development strategies using a modified Delphi process. *Implementation Science: IS*, 16(1), 61. <https://doi.org/10.1186/s13012-021-01132-0>
- Vinberg, S., & Danielsson, P. (2021). Managers of micro-sized enterprises and Covid-19: impact on business operations, work-life balance, and well-being. *International Journal of Circumpolar Health*, 80(1), 1959700. <https://doi.org/10.1080/22423982.2021.1959700>
- Wahid, A., Jinca, M. Y., Rachman, T., & Malisan, J. (2023). Determination of indicators of implementation of sea transportation safety management system for traditional shipping based on Delphi approach. *Sustainability*, 15(13), 10080. <https://doi.org/10.3390/su151310080>
- Waitzberg, R., Gerkens, S., Dimova, A., Bryndová, L., Vrangbæk, K., Jervelund, S. S., ... & Quentin, W. (2022). Balancing financial incentives during COVID-19: A comparison of provider payment adjustments across 20 countries. *Health Policy*, 126(5), 398–407. <https://doi.org/10.1016/j.healthpol.2021.09.015>
- Widarmanti, T., Prasetyo, A. P., & Luturlean, B. S. (2021). The role of employee's job satisfaction in the relationship between transformational leadership and affective commitment at a roof-tile manufacturing company. *International Journal of Human Resource Studies*, 11(1), 306–319. <https://doi.org/10.5296/ijhrs.v11i1.18124>
- Zhang, X. A., Liao, H., Li, N., & Colbert, A. E. (2020). Playing IT safe for my family: Exploring the dual effects of family motivation on employee productivity and creativity. *Academy of Management Journal*, 63(6), 1923–1950. <https://doi.org/10.5465/amj.2018.0680>