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THE LINK BETWEEN FACE RECOGNITION TECHNOLOGY ADOPTION AND EMPLOYEE ENGAGEMENT: DOES JOB EVALUATION MATTER?

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ABSTRACT

Face recognition has been increasingly incorporated to workplaces to improve the workplace environment. It allows managers to identify workers hence efficiently manage human resource. This paper investigates the impact of four dimensions of face recognition (namely accuracy, time-saving, friendly interface, and data transparency) on employee engagement. The role of job evaluation in the relationship between face recognition and employee engagement is also examined. Using the probability sampling technique, a sample of 218 valid observations was gathered through the structured questionnaire survey in Vietnam, which is explored by correlation analysis and structural equation modelling. This study finds that face recognition significantly impacts employee emotional and moral engagement while having no effect on employees' continuance engagement. In addition, job evaluation has no moderating effect on the relationship between face recognition and emotional and continuance engagement, except for the link between face recognition and moral engagement. The results of this study demonstrate the vitality of face recognition in increasing employee engagement, incredibly in terms of emotion and morale. Face recognition is found to improve workplace fairness and confidence for employees. Meanwhile, information about working time helps employees self-assess their work progress and make adjustments to achieve goals at work. Finally, the interaction between job evaluation and face recognition increases moral engagement at the workplace, while it has no interaction with face recognition on emotional and maintaining engagement.

Keywords: *Face recognition, employee engagement, job evaluation*

1. INTRODUCTION

Ensuring the engagement of a quality workforce has become the most crucial task in any business (Jha et al., 2018; Nam & Luu, 2022; Vu et al., 2022). The lack of employee engagement is the reason for the decline in competitiveness (Nam & Bao Tram, 2021; Varma, 2017). Furthermore, it is found that the rapid advancement in information technology brings more opportunities for firms to create innovation (Chi, 2021; Chi & Hoang Vu, 2022; Trang & Nam, 2022) including the application of technologies in human resource management (HRM) (Vu, Hoang, et al., 2022; Zahoor et al., 2022). As a tool widely applied in the workplace, face recognition is investigated in the relationship with employee engagement in this study.

Face recognition, the process of identifying an individual identity given a face image, is a digital product with outstanding features compared to traditional software such as fingerprint recognition (Berle, 2020). Barreiro and Treglown (2020) demonstrated that using face recognition in HRM is easier and faster than traditional methods. Tippett et al. (2017) considered face recognition as a means to optimize employees' time and effort, ensuring quality in managing human resources. What is more, it is among the most efficient biometric technologies for managing workflow (Rho & Shin, 2020) and improving safety in operation in smart factories (Chen et al., 2018). Image detection is also the first phase to conduct more advanced features such as face coding in order to analyze users' emotions and cognition, thus allowing smart human-centered manufacturing solutions (Generosi et al., 2022). Therefore, it is crucial to study the impact of face recognition on employee engagement so that managers gain more insights into the usefulness of this tracking solution and plan further deployment.

Several studies have shown the basic dimensions of face recognition. For example, Yang and Han (2020) suggested four characteristics: real-time registration, system stability, accuracy, and friendly interface. Trivedi & Patel (2021) proposed five aspects of face recognition: fast processing time, the accuracy of automatic calculation, flexibility in the time attendance system, a simple document system, and transparency. This study examines face recognition under its four dimensions (accuracy, time-saving, friendly interface, and data transparency). Cesário and Chambel (2017) stated three main variables: engagement level, degree of commitment, and performance assessment in which job and organizational commitment positively affect employee performance and working attitude. Research on the impact of face recognition on employee engagement however is still limited.

Furthermore, several scholars examine the link between job evaluation and employee engagement. For example, Kim et al. (2019) demonstrated that the source of employment and job evaluation increased employee engagement in an organization. However, the interaction of job evaluation between face recognition and employee engagement has not been yet examined.

Departing from the above studies, this paper investigates the impact of face recognition on employee engagement under four dimensions: accuracy, time-saving, friendly interface, transparent data, and the moderating role of job evaluation. Research results show that face recognition software positively impacts employee engagement regarding emotion and ethics. This paper also examines the role of job evaluation in strengthening these relationships (emotional engagement-ethical commitment-employee engagement). Based on the research results, managerial implications for enterprises in applying information technology to human resource management are generated.

Face recognition

According to Yu et al. (2020), face recognition relates to a number of technologies to build up a complete system, including recognizing, storing, comparing pre-existing human face images, and evaluating facial contour patterns to determine the user's identity through images (Hamann & Smith, 2019; Trương et al., 2020). Hence, it is a new-generation attendance management solution with preeminent features, which allows contactless and efficient attendance tracking thanks to powerful algorithms compared to other solutions such as fingerprint scanning. This system has

received considerable attention due to its potential for a wide range of law enforcement and business administration applications (Trương et al., 2020).

Employee engagement

Schaufeli and Bakker (2002) posit that employee engagement is a fulfilling mental state characterized by vitality, devotion, and passion. Employee engagement, therefore, indicates the association between employees and work and how they make work a part of their lives (Kanungo, 1982). Employees with high levels of engagement tend to see work as their life rather than tasks to be completed. Similarly, according to Muhammad et al. (2011), employee engagement is a decisive factor in the rise or fall of the organization. Highly motivated employees will help the organization achieve its goals. Mohamed and Raghu (2012) suggest that employees with good work motivation will encourage ethical behaviour in the organization. Meanwhile, Amabile, (1996) recognizes the importance of intrinsic motivation to creative activities at work.

As a matter of fact, employee engagement relates to their responsibility for the job concerning affection, continuance, and moral obligation aspects (Meyer & Allen, 1991). More specifically, these components reflect employees' attitudes and feelings toward the job and the organization. The greater employees' responsibilities and affection are, the higher their job performance will be, thereby helping to improve the connection between the individual and the team. This paper thus studies employee engagement from three perspectives: (1) emotional commitment, (2) maintaining commitment, and (3) moral commitment.

Face recognitions and emotional commitment

According to Shehu and Dika (2010), an effectively implemented computerized recognition system will lead to more accurate employee timekeeping results and payroll calculations and make employees happier hence more productive. Tarigan et al. (2019) believe that technology's accuracy helps create a stable work system and smooth coordination between departments and helps employees feel more satisfied. Campbell et al. (2004) assert that accuracy allows the organization to trace the issues and contributions mentioned by employees reliably. Therefore, the need to answer employees' questions or complaints will be properly and adequately addressed, and employees' satisfaction at work will increase. According to Gabuya et al. (2022), the time-saving capabilities of time attendance software help employees limit late enrollment. Employees don't have to wait in long lines for their check-in turn, which encourages employee attachment to the organization.

Dolson and Young (2012) recognize the time-saving potential of online applications, in particular government websites, to help increase user satisfaction. Specifically, users will not have to spend much time moving or waiting for their turn. In addition, online operations are much faster than manual procedures. This is quite compatible with employees automatically being timed by Face recognition through the company's camera, or right on their phone application. These features save time, thereby increasing the user experience. According to Alenezi et al. (2017), to achieve absolute confidentiality of information, the speed and timely provision of information also need to be focused on increasing the reliability of the data. The study participants of these authors agree that the information they need is always available on the system, and almost all can be easily and quickly accessed.

According to Sia et al. (2002), data transparency will create common ground about the direction of employees. They will feel part of the organization. According to Men (2015), when organizations promptly share essential, complete, relevant, and honest information with employees, employees will feel more engaged. Campbell et al. (2004) also recognized a positive relationship between information quality and the ability to save time. That is, important information will also be provided quickly to users. Therefore, this correlation also contributes to the increase in employee performance in the organization.

From the above arguments, the article proposes the following research hypotheses:
H1a: The accuracy of face recognition has a positive impact on emotional engagement
H2a: The time-saving of face recognition has a positive impact on emotional engagement
H3a: The friendly interface of face recognition has a positive impact on emotional engagement
H4a: The data transparency of face recognition has a positive impact on emotional engagement

Face recognition and maintaining engagement
Gupta et al. (2019) proposed an automated timekeeping system to streamline manual hotel processes. The automation of repetitive tasks is capable of enhancing the accuracy of attendance records hence reducing the burden of human error and improving employee satisfaction. According to McLindin (2005), this technology provides reliable individual information and allows protection and control of sensitive information in the data system, which helps preserve the absolute accuracy of the dataset without being affected.Dauda and Akingbade (2011) argue that investment in technology would increase employee motivation and morale, thus reducing trade-offs such as time, money, and effort and motivating employees to innovate themselves.

Similarly, administrators can effectively cut production costs using face recognition as it reduces time compared to traditional physical tracking systems. Adewole et al. (2014) believe that implementing a timekeeping system based on electronic biometrics will broadly support and shorten the time to do business for organizations or any organization, thus preventing time-consuming processes. Employee biometric time attendance systems provide administrators with easy access to individual attendance records and easy tracking of monthly attendance summaries.

According to Granic (2017), user-friendly interfaces are vital for new technologies. Most people assume that new technology can perform any function because it is user-friendly. When everything is available in the system and easy to operate, they can achieve their tasks by pressing a few clicks. Conversely, if the interface is not user-friendly, employees will have to spend time asking for help from the technical department or even the costs of adopting new technology. Gupta et al. (2019)assert that the friendliness of the software interface significantly impacts employee work engagement. Information presented accurately and efficiently on the system will help employees feel satisfied when using it and reduce any costs incurred to operate the system. Nielsen (1993) estimated that improvements in the user interface would reduce training time by half a day per user and increase the performance of professional users by 10%.

Che et al. (2018) mention that data transparency in the organization helps employees quickly determine the right direction, saving unnecessary costs. Byrd and Turner (2000) stated that data transparency increases traceability and accessible data flow between authorized employees within or across organizations regardless of location. Thus, employees will spend less money and effort

to access and understand the company's data set and increase peace of mind when working at the organization. According to Adewole et al. (2014), information from the biometric authentication system about the number and location of employees who have visited the dining area is the basis for automatic employee expense accounting. Face recognition technology provides reliable cost accounting without allocating fictitious costs to all employees (including those at home) or only one group cost.

From the above arguments, the article proposes the following research hypotheses:

H1b: The accuracy of face recognition has a positive impact on maintaining engagement

H2b: The time-saving of face recognition has a positive impact on maintaining engagement

H3b: The friendly interface of face recognition has a positive impact on maintaining engagement

H4b: The data transparency of face recognition has a positive impact on maintaining engagement

Face recognitions and moral engagement

According to Gabuya et al. (2022), the face recognition monitoring system of Cebu Technological University-Tuburan Campus uses biometric fingerprint scanning and DTR logging. The system has the advantages of enhanced security, electronic records, better management than traditional timekeeping, increased accuracy, and at the same time, helps students to take attendance in a timely and efficient manner. After using this attendance software, students have increased their sense of being on time for school, and the truancy rate has also decreased significantly. Therefore, considering the old-fashioned way of attendance, where each teacher or class president checks the number of students, automatic attendance software will help students improve their school attendance. Two research groups, i.e. Shehu and Dika (2010), and Tarigan et al. (2019), believe that the accuracy of workplace technology plays a great role in calculating work productivity and operating an organization, which improves the competitiveness and job satisfaction of employees. Researchers, such as Ashbourn (2004), Wayman et al. (2005), argue that face recognition technology can also be applied to e-government projects.

According to Uddin et al. (2014), the automatic attendance system can replace the previous methods of recording attendance. Information is recorded and then automatically transferred to a computer for processing. The computer is then used to perform all the necessary calculations to construct timesheets and payroll. An automated system quickly reduces common manual system errors and allows employees to be more productive, avoiding wasted time. Employees are more conscious of their professional focus. The research results of Mohamed and Raghu (2012) demonstrate that using the proposed system is more efficient and faster than using the traditional Fixed Timesheet or Fingerprint Reader. The average request time is about 10.21 seconds, while the finger scan time for each student is 4 seconds. If an issue requires students to use a different fingerprint, the time to do so is only 14 seconds. Shortening the attendance software at the beginning of the hour will help students voluntarily arrive on time for attendance so as not to affect the class and other students. According to Jonah (1995), the advantage of an employee attendance monitoring system is that it can reduce the time required to enter 'hours worked' data into the payroll system and reduce errors in implementing the company's timekeeping policies. Singh et al. (2017) confirm that the time attendance system proposed by the authors would have the feature of automatically integrating and linking with the biometric timekeeping system. This will make the system faster and save employees from the manual work of integrating the organization's attendance system with the leave and pay management system. From here, the employee's self-awareness at work also increased significantly.

According to Gabuya et al. (2022), a reasonable organization of data information helps employees easily track attendance results. The information about the starting and ending hours of work is clearly and scientifically shown to affect employees' work motivation. Rahmanian and Davis (2014) believe that employees perform better with the Rate UI design than with legacy interfaces because they can focus on each image separately and specify similarities without referring to other pictures. This reduces the comparison burden resulting in a lower cognitive load. Having clearly and thoughtfully designed enterprise software can stimulate employee productivity accountability. Zhang et al. (1999) assert that the basic goals for creating a website that motivates employees are the same as creating a motivating work environment. The website interface should provide the conditions and environment that maximize employee satisfaction and allow them to focus on and achieve high performance on the task.

According to Byrd and Turner (2000), when employees are allowed access to information related to themselves on different mobile platforms, it helps them to self-assess their performance. From the perception of work, employees are encouraged to improve the quality of work. Regarding the transparency of data and information, Sia et al. (2002) and Men (2015), both believe that this attribute will help employees deeply orient their career development path and stick with the company for a long time. And they are also valued in the organization and taken care of, providing all the important information. Since then, employees are deeply aware of their position in the company, gradually increasing their high sense of responsibility for their work. According to Shukla and Bhandari (2019), the face recognition system helps employees maintain and self-calculate overtime hours. Each organization has a policy on the number of hours contributed as overtime by employee type. So this will also help keep an up-to-date log with the alignment of a certain number of hours according to city or local policy. This process will not need human intervention, and this can be a fully automatic process for an attendance monitoring system, thus helping to protect the transparency of data recorded on the system. system. From there, employees can rest assured to perform well at work, improving the sense of working harder.

From the above arguments, the article proposes the following research hypotheses:
H1c: The accuracy of face recognition has a positive impact on moral engagement
H2c: The time-saving of face recognition has a positive impact on moral engagement
H3c: The friendly interface of face recognition has a positive impact on moral engagement
H4c: The data transparency of face recognition has a positive impact on moral engagement

The role of job evaluation

According to Hakanen et al. (2021), job performance evaluation contributes a great deal to employees' long-term job engagement, and this is considered to be the most important job resource when reminding employees factors affecting employee engagement. Similarly, Hackman (1980) also argue that performance appraisal gives accurate and insightful information about an employee's performance. Thereby, the assessment creates a concept of the meaning of work, the level of job completion, and the competitiveness among employees to complete the assigned tasks. Performance appraisal enables employees and managers to immediately evaluate and consider the positive contributions to work that elite employees have made, in the long run, it promotes their ability to perform better. That employees' ability to sustainably stick with the job and the company.

In addition, Schaufeli and Bakker (2002) suggested that job evaluation is also considered the first step to success besides factors such as colleagues, managers, work guidance, and initiative. employee engagement in the workplace, thereby promoting outstanding work productivity. The authors also concluded that positive reviews would help employees increase their ability to complete tasks early and accurately, and they can quickly achieve work results that align with their aspirations. However, research on the role of job evaluation is still limited. Therefore, we suggest the hypothesis that:

H5: Job evaluation moderates the influence of the following factors on employee engagement: accuracy, time-saving, user-friendly interface, and data transparency.

By integrating the aforementioned theoretical background and empirical evidence, a conceptual framework for exploring the impact of face recognition on employee engagement is proposed (see Figure 1).

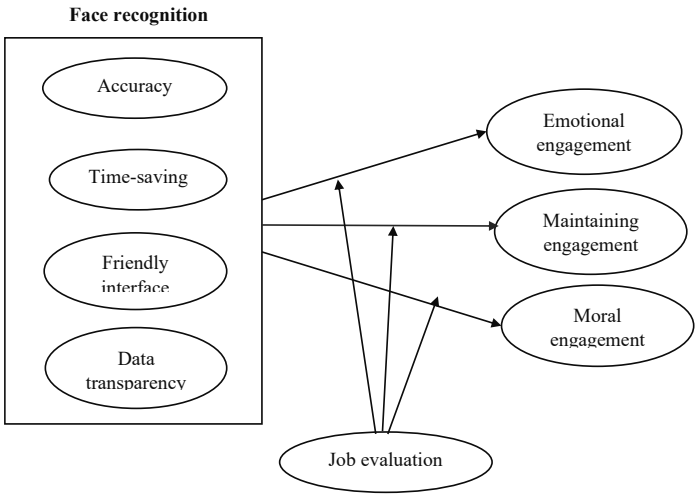

Figure 1. Research Model

2. RESEARCH METHOD

To operationalize latent constructs in the study, scales have been taken from the prior literature with relevant modification in item wordings to fit the context. Accuracy, time-saving, and friendly interface are in conformity with the studies of Gabuya et al. (2022). Four items of data transparency are captured by Byrd and Turner (2000). Emotional engagement, maintaining engagement, and moral engagement have both three items and are validated by Meyer and Allen, (1991). Three items of job evaluation are adopted from Ibrahim et al.(2016). These items are measured on a five-point Likert scale ("1" for strongly disagree to "5" for strongly agree) (Table 1).

Table 1. Measurement scale

Construct	Items	Sources
Accuracy (ACC)	Face recognition effectively measures employee working time	Gabuya et al., (2022)
	Face recognition ensures data integrity	
	In essence, each employee is connected to Face recognitions	

	Face recognition is a reliable means of properly paying employees' wages	
	Face recognition provides accurate information for salary calculation	
Time-saving (TIM)	The results are recorded immediately on the system	Gabuya et al., (2022)
	The data is easily collected through the clock system of Face recognition	
	Employees spend less time in performing attendance through Face recognition	
	Face recognition instantly verifies employee identity in real time	
Friendly interface (FRI)	Face recognition is very easy to use	Gabuya et al., (2022)
	The information displayed on the screen is readable	
	Information is presented and displayed clearly	
	The location of the message appearing on the software is clear and consistent	
Data transparency (DAT)	All employees in the company can access the data recorded on Face recognition	Byrd & Turner, (2000)
	Employees can use the phone to access timekeeping data recorded on the computer	
	Employees can know the salary received through timekeeping results	
	Employees can detect irregularities in timekeeping (forgot timekeeping, timekeeping errors, ...)	
Emotional engagement (EMO)	I consider the company as my second home	Meyer & Allen, (1991)
	I feel that working at the company is something to be proud of	
	I consider the difficulties the company is facing as a problem that I need to solve	
Maintaining engagement (MAI)	I feel that leaving the company now will cause many difficulties for me	Meyer & Allen, (1991)
	I can hardly find a similar job if I leave the company	
	I feel my income will be affected if I leave the company	
	The company provides many suitable policies for me to feel stable in this job	
Moral engagement (MOR)	I feel that I have a high sense of responsibility towards the company	Meyer & Allen, (1991)
	I wholeheartedly stick with and develop with the company	
	I don't think it's advisable to leave the company at this time	
Job evaluation (JOB)	Employees receive an objective, fair, and reasonable job evaluation from the company	Ibrahim et al., (2016)
	Compensation and discipline are partly calculated according to the work evaluation results	
	Employees have the opportunity to improve and develop their ability to work through evaluation results	

According to Hair et al. (1998), the sample size must be at least 5 times the total number of observed variables analyzed. The research paper includes 26 observed variables, so the sample size must be at least 130. Therefore, the sample size in this study is determined to be 150. The research examined AI project participants from three prominent Vietnamese companies (ViTech Group, LED Fawookidi, Canh Quan Hoang Gia) as well as the Intellectual Property Office of

Vietnam, all of whom provided consent for the survey to be conducted. The questionnaire was sent to the responding employees by heads of departments and divisions. A total of 300 questionnaires were given out, and 235 responses were collected. By reviewing the gathered survey questionnaires, 218 were deemed valid, signifying a response rate of 72.7%.

Among respondents, 90 are male, equivalent to 45% of the survey sample, while female counterparts account for 55%. Regarding age, respondents aged 25-30 occupy 29%, whereas 51% are from 31 to 40, 16% are from 41-50, and just 4 % are over 50 years old. 11% of participants have less than one year of work experience; 37% have been working for 1-3 years; 30% have been employed for 3-5 years; 14% have a tenure of 5-7 years, and 7% have been working for over 7 years.

Data analysis methods are used to analyze and test the research hypotheses as follows: Confirmatory factor analysis (CFA) is used to evaluate the reliability and validity of each structure in the model. The measurement model scale is used to evaluate the overall fit with the actual data, the convergent value, and the discriminant value. The model fit indexes include χ2/df, good fit index (GFI), normative conformity index (TLI, NFI), comparative fit index (CFI), and approximate mean error. Root mean squares (RMSEA) were tested with the following criteria: from 1 to 5 for χ2/; above 0.90 for GFI, TLI, and CFI (Kline, 2011); and less than 0.08 for RMSEA (Bollen, 1989).

3. RESULTS AND DISCUSSIONS

The reliability of the research data is presented in Table 2. The reliability analysis results show that all observed variables have Cronbach Alpha scores greater than 0.8, the mean-variance (AVE) values greater than 50%, and the composite reliability (CR) values above 0.7. The combined confidence and location variance calculation is based on the observed boundary load factor. Thus, three scales in the primary model achieve the necessary reliability and convergence.

Table 2. The reliability and convergent validity

Construct	Cronbach Alpha	F-loading	AVE (%)	CR
Accuracy	0.903	0.762 – 0.896	78%	0.920
Time-saving	0.925	0.712 – 0.780	55%	0.792
Friendly interface	0.932	0.703 – 0.878	50%	0.753
Data transparency	0.908	0.710 – 0.855	65%	0.881
Emotional engagement	0.883	0.721 – 0.836	66%	0.863
Maintaining engagement	0.890	0.711 – 0.857	51%	0.801
Moral engagement	0.855	0.739 – 0.880	52%	0.766
Job evaluation	0.902	0.703-0.842	59%	0.885

CMIN/df = 1.439; CFI = 0.922; GFI = 0.900, TLI = 0.913; RMSEA = 0.048; PCLOSE = 0.845

To test research hypotheses about the impact of face recognitions on employee engagement, the article uses a linear structural model to analyze the proposed hypotheses. The results of the analysis of the linear structural model from the survey data of the study showed that: Chi –square/df = 1,530 is less than 3; GFI = 0.913, CFI = 0.915, TLI = 0.912, IFI = 0.918 are all greater than 0.9; RMSEA = 0.045 is less than 0.05. Table 3 shows that all hypotheses are accepted, except that four hypotheses H1b, H2b, H3b, and H4b are rejected.

Table 3. Path analysis results of the baseline model

Path			Standardized Beta	p-value	Hypothesis
H1a: Accuracy	→	Emotional engagement	0.323	0.001	Accepted
H2a: Time-saving	→	Emotional engagement	0.312	0.003	Accepted
H3a: Friendly interface	→	Emotional engagement	0.147	0.033	Accepted
H4a: Data Transparency	→	Emotional engagement	0.259	0.019	Accepted
H1b: Accuracy	→	Maintaining engagement	-0.114	0.322	Not supported
H2b: Time-saving	→	Maintaining engagement	-0.075	0.196	Not supported
H3b: Friendly interface	→	Maintaining engagement	-0.050	0.185	Not supported
H4b: Data Transparency	→	Maintaining engagement	-0.009	0.103	Not supported
H1c: Accuracy	→	Moral engagement	0.227	0.016	Accepted
H2c: Time-saving	→	Moral engagement	0.353	0.000	Accepted
H3c: Friendly interface	→	Moral engagement	0.021	0.042	Accepted
H4c: Data Transparency	→	Moral engagement	0.514	0.000	Accepted

Table 3 shows that accuracy has the greatest impact on employee emotional engagement (0.323). This result confirms the conclusion of Shehu and Dika (2010), Tarigan et al. (2019), and Campbell et al. (2004), which are completely suitable when applied with face attendance software. The accuracy in recording and measuring the working time of employees helps them feel more satisfied with what they have spent and feel fairness in the organization. However, accuracy did not affect employee retention. This result is contrary to the hypothesis proposed and also negates the conclusion of Gupta et al. (2019) and McLindin (2005) about the positive impact of software's accuracy on employee retention. A possible explanation is that the timekeeping software displaying the attendance process of employees will cause them to put a lot of effort and expense into trying to get to work as soon as possible. However, getting to work early depends on external factors such as traffic jams, while the tracking system may not work resulting from power outages and Wi-Fi disconnection. So employees may find their work will cost a lot of money, and they may become discouraged and look for another more suitable job.

Table 3 also demonstrates that data transparency has the most significant impact on employee morale (0.514). This result coincides with the study of Byrd and Turner (2000). Employees have the right to self-assess their working process for a period of time, then learn from their own experiences and improve their productivity afterward. However, data transparency does not affect the intention to maintain. This result is in line with Che et al. (2018) that data transparency has a positive impact on employee retention.

According to Baron and Kenny (1986), a necessary condition is that the independent variable must have an effect on the dependent variable. However, other authors (Judd & Kenny, 1981; Kenny et al., 1998; MacKinnon, 2000; Shrout & Bolger, 2002) argue that the total effects need not be significant for a mediating relationship to exist. Therefore, we need a more accurate way to evaluate the intermediate relationship. Bootstrapping is a technique that involves repeated sampling from a sample dataset and estimating the indirect effect (A*B) in each resampled dataset. By repeating this process, the distribution of A*B is formed and gives a confidence interval of the indirect effect relationship (Preacher and Hayes, 2004). Therefore, to analyze the moderating effect of job evaluation, we conducted Hayes PROCESS macro in SPSS 22.0. Hypotheses H5-9, H5-10, and H5-12 are accepted, other hypotheses are not supported (see Tables 4).

Table 4. Moderating effect of job evaluation

Path		ß	t	p	LLCI	ULCI	Moderation
H5-1: Accuracy	→ Emotional engagement	-0.030	*0.879*	0.344	-0.1022	0.0478	No
H5-2: Time-saving	→ Emotional engagement	0.008	*0.322*	0.802	-0.0757	0.1009	No
H5-3: Friendly interface	→ Emotional engagement	-0.011	*-0.233*	0.83	-0.0669	0.0528	No
H5-4: Data Transparency	→ Emotional engagement	-0.060	*-1.620*	0.15	-0.1380	0.0138	No
H5-5: Accuracy	→ Maintaining engagement	-0.031	*-0.874*	0.43	-0.1061	0.0451	No
H5-6: Time-saving	→ Maintaining engagement	0.012	*0.309*	0.79	-0.0760	0.1028	No
H5-7: Friendly interface	→ Maintaining engagement	-0.050	*-1.070*	0.25	-0.1390	0.0417	No
H5-8: Data Transparency	→ Maintaining engagement	-0.002	*-0.111*	0.89	-0.0777	0.0729	No
H5-9: Accuracy	→ Moral engagement	0.302	*10.950*	0.01	0.2500	0.3589	Yes
H5-10: Time-saving	→ Moral engagement	0.078	*1.986*	0.06	0.0192	0.1157	Yes
H5-11: Friendly interface	→ Moral engagement	-0.044	*-1.065*	0.202	-0.1387	0.0417	No
H5-12: Data Transparency	→Moral engagement	0.623	*24.470*	0.01	0.5752	0.6758	Yes

Table 4 shows that job evaluation positively strengthens the impacts of accuracy, time-saving capacity and data transparency on moral engagement. More specifically, job evaluation exhibits the strongest moderating effect on the link between data transparency and moral engagement (0.623). However, there is no statistically significant evidence of the moderating effects of job evaluation on the relationships between face recognition and the two other aspects of engagement, i.e. emotional engagement and maintaining engagement.

This study has contributed several implications to human resource management literature. Firstly, the results of this study demonstrated the vital role of face recognition usage in increasing employee engagement, incredibly emotional and moral engagement. Employees are given confidence and fairness in the workplace when using face recognition. Secondly, face recognition has no significant impact on maintaining engagement. It also shows the time employees make mistakes according to the company's regulations. This makes employees pay attention to affected benefits such as salary, good evaluation from superiors, or other benefits. Therefore, managers should consider minimizing the costs that employees have to spend when making mistakes. Thirdly, the high accuracy of face recognition increases the moral engagement of employees. The high precision of the generic invisible software puts the workers under pressure once they make a mistake. At the same time, having to receive bad reviews from superiors makes employees feel depressed. Meanwhile, information about working time helps employees self-assess their work progress and make adjustments to achieve goals at work. Finally, the interaction between job evaluation and face recognition increases moral engagement at the workplace, while it has no interaction with face recognition on emotional and maintaining engagement.

This study also contributes several practical implications. Firstly, firms need to promote incentive policies to increase employee satisfaction at work. Second, firms should actively apply information technology to manage human resources more effectively. The use of face recognition requires businesses to research the selection of suppliers as well as the characteristics of this application. Third, firms should pay attention to increasing flexibility in timekeeping such as expanding the timekeeping range to avoid unexpected situations that often occur by employees. Four is common to all employees about the benefits of using face recognition. In addition, firms also need to pay attention to flexible timekeeping, assess employees' work progress, or plan to create more reward and evaluation policies for those who adhere well to the workplace rules. hours and willing to contribute over time. Enterprises optimize administrative procedures to save time for employees. For example, with a human resource management system of face recognition, businesses can consider integrating more jobs from applying for leave or business trips. The form created on the

system will be much faster than writing a handwritten document or email. Moreover, the person in charge can save effort in managing, aggregating, and archiving the application.

4. CONCLUSIONS AND SUGGESTIONS

The study also has some limitations as follows. Firstly, the study's sample size is small, which does not generally reflect the attitude of employees when it comes to face recognition. Secondly, the study only focuses on exploiting data of individuals working at four organizations. Therefore, the study cannot deeply assess the satisfaction level of all employees in general when using face recognition and the impact of the software on job engagement. Third, the study was conducted in Hanoi, Vietnam, lacking the diversity of survey sample characteristics. The following research direction for the topic is to expand the survey object and scope. Survey subjects must expand towards a more diverse range of businesses and organizations. The scope can be other provinces with different economic and traffic conditions. In addition, when researching face recognition, it is necessary to learn more about similar software and increase the features that the software affects employee engagement.

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