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RESEARCH ARTICLE

Strategic HRM Practices and Digital Capabilities of University Teachers in Shenzhen: Role of Lifelong Learning

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ABSTRACT

This study examines how diverse strategic HRM practices contribute towards enhancing digital capabilities among university teachers in Shenzhen, China, taking lifelong learning orientation as a moderating variable. The study used quantitative research using a cross-sectional survey design. The structural equation modelling (SEM) method was applied for analysis using a 360-sampling size. The results suggest that training and development, performance recognition, compensation and organisational supportive environment have a positive impact on enhancing the digital capability of university teachers. However, higher LLO was found to have the strongest positive significant moderation effect on the relationship between performance recognition and training and development and teachers' digital capability. However, this was opposite in compensation, and there is no significant moderation effect of LLO found on the organisational supportive environment. Universities should strengthen their HRM practices and policies for employee development and cultivating a lifelong learning culture.

Contribution/Originality: This study contributes to the existing literature by linking strategic HRM practices with digital capability in the academic context. It is one of the very few studies investigating lifelong learning as a moderating variable and highlights strategic use of HRM practices to enhance teaching effectiveness and overall learning outcomes.

1. Introduction

Digital transformation in higher education has disrupted conventional learning and teaching methods. According to Qolamani and Mohammed (2023), the rapid development of digital tools and innovations like data analytics, learning management systems, artificial intelligence and other innovations has transformed teaching practices, administrative functions and student experiences. This has evolved traditional face-to-face teaching methods based on textbooks, lectures, and examinations to data-driven teaching and learning methods.

In China, the government has launched a new informatisation policy in education. The *Education Informatisation 2.0 Action Plan*, launched in 2018, has enabled the education system in China to enter the 2.0 era from the 1.0 era, marking that China's education informatisation has entered a new stage (Yan & Yang, 2021). This has a new road for innovation-driven development for improving the higher education system in China globally. Similarly, China launched *Smart Education of China" (SEC) platform* in 2022, which reflects the spillover effect of digital technology (China Education Daily, 2024). In 2023, about 519,000 educational institutions across China were linked to this platform, benefiting about 293 million learners and 18.8 million teachers (China Education Daily, 2024). The platforms offer ample digital resources for teachers to offer training and teacher capacity-building activities. For example, this has expanded quality online courses, where the MOOC (Massive Open Online Course) action plan offers 190,000 customised online courses for university teachers, enabling hybrid teaching practices and innovation in teaching methods to create creation of a lifelong learning culture, and development of "Digital China".

However, to avail the benefits offered by digital transformation in education by universities, the digital capability building of teachers becomes pivotal. In this context, strategic human resource management can play a vital role in enhancing the digital capabilities of university teachers (Apriyanto et al., 2025). This requires implementing holistic HR strategies like data-driven HR planning, recruitment, training and development, incentive-based performance systems, and other organisational support for fostering innovation and collaboration.

The digital transformation has created various opportunities for universities to enhance their learning outcomes. The *Education Informatisation 2.0 Action Plan 2035* involves "Wisdom Teaching" mode and an intelligent learning environment supported by artificial intelligence technology for fostering innovation in education (Yan & Yang, 2021). However, despite China's Education Modernisation 2035 plan in China, it is still backward in independent innovation of core technologies in education, which presents a significant gap with the international advanced level. Research suggests that about two-thirds of teachers in China need improvement in their professional qualities and teaching abilities due to a lack of adaptability to new smart education tools and environment (China Daily, 2020). This requires education reform and upgrading among teachers. Hence, this requires the application of strategic HRM practices for digital capability building of teachers in universities. This study aims to fill this gap in research by examining the role of HRM in the education sector in upskilling teachers to strive towards achieving the Education Informatisation 2.0 Action Plan and make the universities achieve innovative, sustainable growth.

1.1. Research Objectives

i. To assess the gap in the current digital capabilities of university teachers in Shenzhen, China.
ii. To analyse the importance of digital capabilities development for university teachers in Shenzhen, China.
iii. To examine various strategic HRM practices and their role in enhancing digital capabilities among university teachers in Shenzhen, China.
iv. To assess how lifelong learning orientation is a moderator between strategic HRM practices and digital capabilities of university teachers in Shenzhen, China.

1.2. Research Questions

i. What is the current gap in digital capabilities of university teachers in Shenzhen, China?
ii. What is the importance of digital capabilities development for university teachers in Shenzhen, China?
iii. How do various strategic HRM practices enhance digital capabilities among university teachers in Shenzhen, China?
iv. How lifelong learning orientation moderate the relation between strategic HRM practices and the digital capabilities of university teachers in Shenzhen, China?

2. Literature Review

2.1. Strategic HRM practices to enhance digital capabilities among university teachers

2.1.1. Recruitment Policy and Practices

Recruitment plays a vital role during the digital transformation of any business. According to Gilch and Sieweke (2021), recruitment plays a central role in companies where they need to hire employees who possess digital skills to meet the requirements of digital transformation. However, the overall digital capability of staff is not only dependent on HRM intervention within the organisation; it also depends on how much digital literacy the candidates already have due to their academic background. HRM strategies that can be indicators of the development or improvement of the overall digital capability of the staff can be confounded by the fact that the pre-existing digital literacy can also contribute to high digital understanding. Therefore, the level of digital understanding that the staff already have should be controlled to find the true effect of HRM strategy, aiming towards the improvement of digital capability.

2.1.2. Training and Development

There is a positive relation between employee training and development and organisational performance. Naitore and Wanyoike (2019) stated that employee training helps in enhancing the knowledge base, a positive mindset and enhancing expertise level. The strategic intent of universities nowadays is to adapt to digitalisation, where the training and development of faculty members is perceived as a skill development function towards developing human capital for universities to achieve a competitive advantage. Budiadiet al. (2024) argued that employee development methods like mentoring, career advancement opportunities, and workshops are vital in enhancing the skills of employees and are also key drivers of organisational success. Howard et al. (2021) mentioned six effective teaching strategies used by SHRM to help in developing teachers' digital competence. These include role models, learning by design, authentic experiences, reflection, collaboration, and feedback. These were proven to effectively enhance the digital skills of the teachers.

H1: Training and development positively impact digital capabilities among university teachers

2.1.3. Performance Recognition and Compensation

Employee recognition is a motivator that influences employee effectiveness. According to Maszudi and Pratiwi (2025) and Allui and Sahni (2016), compensation influences employee performance. In this context, recognising and rewarding positive employee behaviour and a shift towards digital technology and automated systems motivate employees to be more active towards developing skills and achieving organisational goals. For example, universities can develop competency-based benchmarks aligned with monetary and non-monetary benefits towards fostering a culture where teachers are encouraged to develop their digital skills. This will further help in overcoming resistance among employees, mainly aged faculty members who are less adept at technological change and believe in traditional teaching methods. Such methods will encourage teachers of every age group to be adaptive towards digitalisation. Hence, recognition and reward are considered vital SHRM factors that motivate employees towards adopting digital tools and capabilities.

H2: Performance Recognition positively impacts digital capabilities among university teachers

H3: Compensation positively impacts digital capabilities among university teachers

2.1.4. Organisational Supportive Environment

Various supporting elements in an organisation help in employee upskilling. Hwang and Seo (2025) mentioned communication, which plays a vital role in technology acceptance. This implements new processes more transparently, mitigating digitalisation resistance among the employees. Similarly, a robust digital infrastructure is vital to support employees in upskilling and fostering innovation. This will eliminate resource barriers, facilitating smoother transitions of employees to digitalisation. McCarthy et al. (2023) further argued that the best organisational support to enhance digital transformation includes communication, upgrading tools, worker empowerment, capability building, and leadership support. For example, the most successful digital transformation starts with a change in mindset, which can be achieved with supportive leadership. This will help teachers adopt risk-taking and become more agile and collaborative towards digital capability building. Supportive leaders who recognise the need for digital transformation and identify potential talents are observed to achieve positive transformation success in every organisation.

H4: Organisational Supportive Environment positively impacts digital capabilities among university teachers

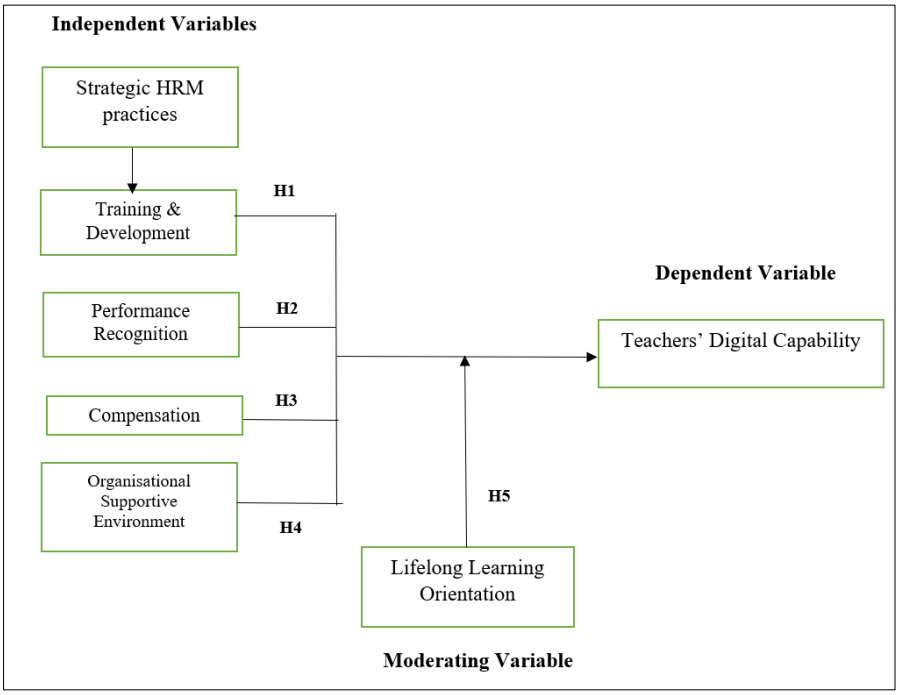
2.1.5. Lifelong Learning Orientation as a moderator

Lifelong learning requires individuals to constantly improve. According to Koç (2024), individuals are expected to be lifelong learners because knowledge gained in school is not sufficient to grow and survive. This includes all planned learning activities, like formal, informal, and enhancing skills and knowledge in personal and professional life. Research suggests that lifelong learning supports the acquisition of fundamental skills, and this can include digital literacy and other skills while increasing prospects for innovation. Elçi (2024) argued that learning among teachers involves stimulating learning from one another, creating an environment for learning, and new approaches.

In education settings, teaching and learning methods have become digital, where teachers need to be updated with the latest digital tools and innovative teaching models. Hence, such a learning approach aligns HRM approaches for making the teachers adapt digital skills.

H5: Lifelong Learning Orientation moderates the relation between strategic HRM practices and the digital capabilities of university teachers

Figure 1: Conceptual Framework



2.2. Theoretical Framework

The lifelong learning theory presents a suitable theoretical framework for this study. Lifelong learning theory is conducted throughout lifetime by a person's lifetime for improving skills, knowledge and competencies from a social, career, or individual standpoint (Thwe & Kalman, 2024). This involves processes which have the ability to transform an individual's body, mind, and social experiences intellectually, practically, and emotionally, hence resulting in developing a more experienced person. The education sector has undergone a paradigm shift where traditional teaching and learning methods have evolved with digitalisation. In this context, change and transformation are a constant process for every business and in every sector, which makes employees stay updated with relevant trends and constantly learn and acquire new skills and competencies. From an individual perspective, lifelong learning is vital from the perspective of work, self-updating, employability, meeting job and employer requirements, and adapting to current technological changes in the education sector (Mansour & El Aissaoui, 2025). Hence, in future, the education sector will evolve and leverage technology to be innovative and resilient. In this context, if teachers adopt a life-long learning orientation, it will help them explore new opportunities, acquire new certifications, credentials and qualifications, making them build a secure future.

2.3. Research Gaps

Previous studies have discussed digital transformation in education. However, they have focused on overall transformation, like including new pedagogies and assessment, curriculum design and development, incorporating artificial intelligence, big data and other tools for hybrid and online learning (McCarthy et al., 2023; Qolamani & Mohammed, 2023), but none of the studies discussed the importance of developing digital skills among university teachers using strategic HRM. The discussion on HRM processes in universities is mainly related to human resource planning, performance and staffing (Naitore & Wanyoike, 2019), and none of them focused on upskilling of teachers. Also, previous studies have significant gaps in the theoretical framework (Thwe & Kalman, 2024), where lifelong learning theory is discussed in general, which offers potential for research using variables like developing digital literacy among teachers.

3. Research Methodology

This study adopted a quantitative methodology using a cross-sectional survey design. Using a cross-sectional survey is more feasible because it allows researchers to collect data from diverse individuals at a single point in time from all teachers working in universities in Shenzhen, China.

Shenzhen is a technological hub in China where 15,000 full-time higher education faculty and the highest concentration of advanced-degree-holding teachers/professors in China with a Master's or higher degree (Shenzhen Government, 2021).

According to Nanjundeswaraswamy and Divakar, S. (2021), the Cochran's Sample Size formula is: $n_0 = Z^2\ p\ (1 - p) / e^2$

Where, Z = Z-score at target CI; p = estimated population proportion; e = margin of error. As per 95% Confidence Level, 5% Margin of Error, and Population Proportion of 0.5, the Sample Size would be:

$$n_0 = (1.96^2 * 0.5(1-0.5))/0.05^2 = 384.16$$

Therefore, the adjustment for the known population of N = 15000 would be

$$N = \frac{n_0}{1+\frac{n_0-1}{N}}$$

$$= \frac{384}{1+\frac{383}{15000}} = 377.77 = 374.48 = 375 \text{ (approximately)}$$

In SEM, the sample size should be proportional to the number of observed indicators (items), where 5 to 10 samples per item can ensure low loading error variance in structural paths (Chomeya et al., 2024). The study used 36 items for the SEM-PLS model. The sample size required for this study was (36 x 10) = 360 samples at least. Considering the non-response of 15%, around 414 survey questionnaires were distributed.

The study adopted purposive sampling. This sampling is a non-probability sampling technique which allows researchers to select participants based on specific characteristics that are relevant to the study. Initially, 398 responses from university teachers in Shenzhen, China, were collected. After removing the incomplete and invalid responses, 360 samples were finally included in the final data analysis process. The KMO

and Bartlett's sampling adequacy included all 36 items for the 7 variables of interest. The KMO Coefficient (KMO = 0.874) is higher than the threshold of 0.6, indicating an adequate sample size. The Bartlett's test results indicated significant Sphericity (chi-square = 16668.92, $p < 0.05$), depicting significant validity.

Demographic exploration indicates that 54.17% are male and 41.67% are Female teachers. Most of the teachers are between 30 to 49 years old, where 41.39% are 30 to 39 years old, and 29.44% are 40 to 49 years old. Only 15.83% are 20 to 29 years old, and 10.56% are 50 to 59 years old. Most of the participants, or 80% of them, have 1 to 10 years of experience in the teaching profession, where 29.72% of them have 6 to 10 years of experience, and 13.06% have 11 to 20 years of experience.

The study utilised an online structured survey questionnaire, as this will enable maintaining the reliability of questions for every participant. The questions were adapted from previous studies. The study used Structural Equation Modelling (SEM) as the data analysis tool. The Confirmatory Factor Analysis method has been used to conduct the reliability and validity test of the scales used in the survey, namely Training and Development (TD), Performance Recognition (PR), Compensation (C), Organisational Supportive Environment (OSE), Lifelong Learning Orientation (LLO), and Pre-existing Digital Knowledge and Skill (PDKS). As per Table 1, adequate factor loadings of all items (>0.7) indicate each item under each scale has a strong contribution to the development of the respective variables. The scales have high validity (AVE > 0.8), high Composite Reliability (CR > 0.9) and very high internal consistency (Cronbach's Alpha > 0.9).

Table 1: Factor Loadings, Reliability and Validity

	Factor Loadings							**AVE**	**CR**	**Cronbach's alpha**
	C	**LLO**	**OSE**	**PDKS**	**PR**	**TD**	**TDC**			
C1	0.927							0.800	0.948	0.938
C2	0.885									
C3	0.899									
C4	0.859									
C5	0.900									
LLO1		0.952						0.872	0.995	0.964
LLO2		0.946								
LLO3		0.947								
LLO4		0.929								
LLO5		0.895								
OSE1			0.943					0.860	0.970	0.959
OSE2			0.936							
OSE3			0.937							
OSE4			0.893							
OSE5			0.927							
PDKS1				0.952				0.908	0.974	0.966
PDKS2				0.958						
PDKS3				0.958						
PDKS4				0.945						
PR1					0.938			0.885	1.047	0.969
PR2					0.930					
PR3					0.941					
PR4					0.963					

PR5	0.931				
TD1		0.930	0.837	0.969	0.952
TD2		0.910			
TD3		0.914			
TD4		0.915			
TD5		0.905			
TDC1			0.984 0.846	0.973	0.970
TDC2			0.929		
TDC3			0.927		
TDC4			0.878		
TDC5			0.883		
TDC6			0.932		
TDC7			0.904		

Table 2: Measurement Scales

Latent Scales	Items	Source
Training & Development (TD)	TD1. Off-job trainings are provided TD2. On-the-job Trainings are provided TD3. Feedbacks are taken during training TD4. Training contents are relevant. TD5. Trainee-specific needs are addressed.	Muzaffar (2016)
Performance Recognition (PR)	PR1. Contributions at work are recognised by the supervisor PR2. Receive feedback for productive work performance. PR3. The organisation's employee recognition mechanism is fair PR4. Organisation values unique talents and contributions. PR5. Performance-specific rewards are given.	Jo & Shin (2025)
Compensation (C)	C1: I am satisfied with my current salary and benefits. C2: Compensation policies in my organisation are transparent and fair. C3: I receive adequate financial rewards for my work. C4: The organisation provides competitive incentives compared to other workplaces. C5: The compensation system motivates me to perform better.	Nawab & Bhatti (2011)
Organisational Supportive Environment (OSE)	OSE1: The supervisors are supportive and reliable. OSE2: The colleagues are supportive and cooperative. OSE13:Coworkers have interpersonal relationships. OSE4: The work environment encourages open communication. OSE5: Inclusive culture that supports diversity.	Naz et al. (2020)
Lifelong	LLO1: Actively seek out opportunities to learn new skills.	Akyol (2016)

Learning Orientation (LLO)	LLO2: I believe continuous learning is essential for my professional growth. LLO3: I participate in learning activities outside my job requirements. LLO4: I am motivated to update my knowledge regularly. LLO5: I value feedback as a tool for learning and improvement.	
Teachers' Digital Capability (TDC)	TDC1: Confident in effectively using digital portals to develop learning materials and activities TDC2: Confident in effectively conducting online research and critically assessing digital information. TDC3: Confident in effectively digitally handling and analysing students' assessment and performance data TDC4: Use digital platforms to communicate and collaborate with colleagues TDC5: Confident in effectively using multiple alternative digital software and tools for professional uses. TDC6: Maintain a strong digital identity as an educator. TDC7: Have adequate knowledge of ethical issues related to digital data usage.	Saubon & Briones (2022)
Pre-existing Digital Knowledge and Skill (PDKS)	PDKS1: Learned digital technologies and tools as a subject in my academic career PDKS2: Already had pursued a course or certification in digital technology. PDKS3: Already had practical skills in digital platforms and tools. PDKS4: Digital technologies have always been my hobby or passion	

4. Findings

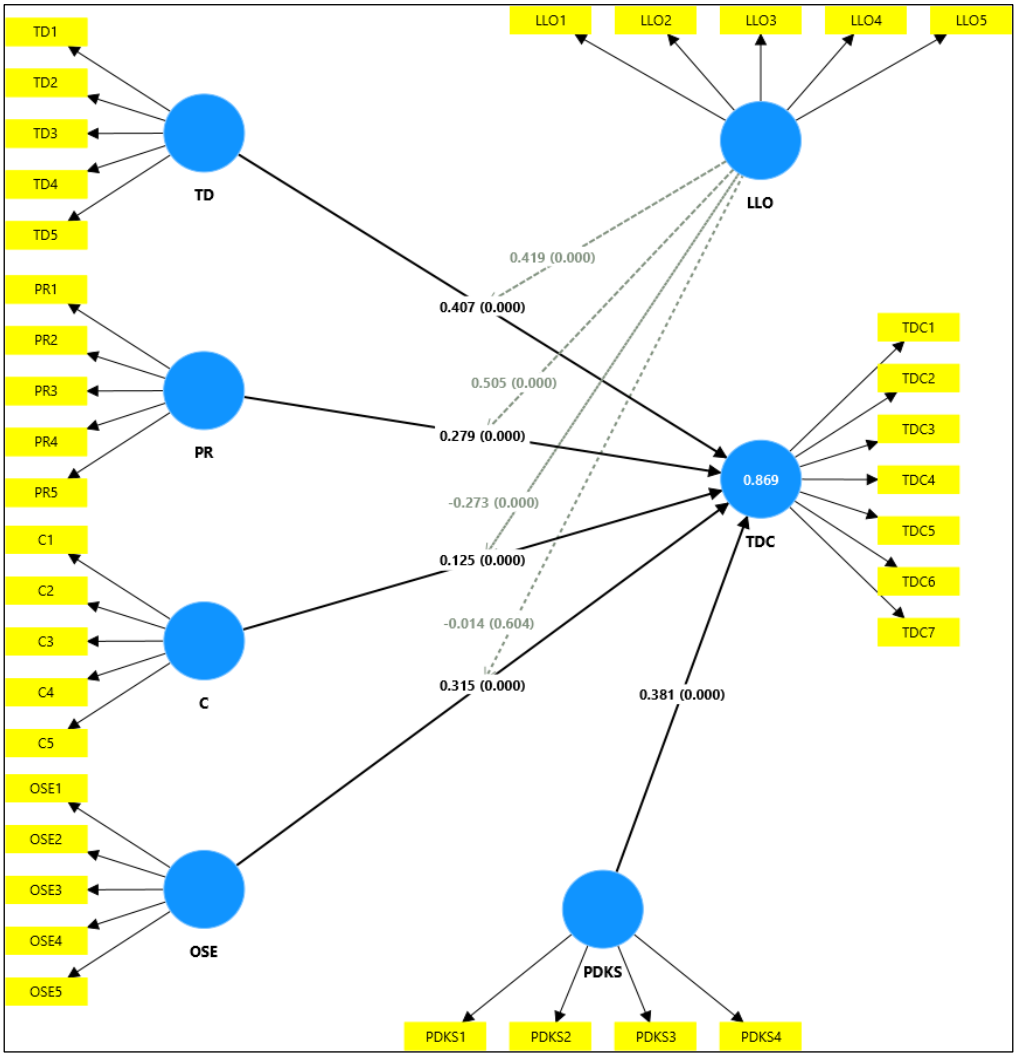
The following latent variables are developed by calculating the average of the underlying items within each latent variable. Average Training and Development (3.268 ± 1.058), average Performance Recognition (3.243 ± 1.226), average Organisational Supportive Environment (3.023 ± 1.099) and Lifelong Learning Orientation (3.308 ± 1.179) within teachers are currently at a moderate level. The average Compensation (3.569 ± 0.932) is at a higher than moderate level.

Table 3: Descriptive Statistics of Average Latent Variables

	Mean	SD	Min	Q1	Q2 (Median)	Q3	Max
TDm	3.268	1.058	1	2.4	3.2	4.2	5
PRm	3.243	1.226	1	2.2	3.6	4.2	5
Cm	3.569	0.932	1.2	2.8	3.6	4.4	5
OSEm	3.023	1.099	1	2.2	3	4	5
PDKSm	2.688	1.236	1	2	2.5	3.5	5
LLOm	3.308	1.179	1	2.2	3.2	4.2	5
TDCm	3.058	1.120	1	2.143	3.143	4	5

As per correlation analysis, the demographic variables such as Sex, Age and Experience are not correlated with the dependent variable Teachers' Digital Capability. Therefore, demographics cannot have any confounding effect on the Teachers' Digital Capability.

Figure 2: PLS-SEM Model in SMART PLS



As per model fit analysis, the developed SEM model has a significant predictability or model fitness (chi-square 2275.7, $p < 0.05$), where the residual errors are within the acceptability threshold (SRMR < 0.08). The d_ULS (1.386, $p < 0.05$) and d_G (1.144, $p < 0.05$) are also significant, showing significant model fitness. SEM results highlights that the VIFs are lower than 2, indicating almost no risk of multicollinearity. The HTMT matrix highlights that the coefficients are lower than 0.4, indicating very high Discriminant Validity within the model components.

Correlations within the Latent Variables highlights that Compensation is significantly and positively correlated with Organisational Supportive Environment ($r = 0.177$, $p < 0.05$), which is negatively correlated with Training and Development ($r = -0.170$, $p < 0.05$) and positively correlated with Performance Recognition ($r = -0.135$, $p < 0.05$). Lifelong Learning Orientation is positively correlated with Compensation ($r = 0.291$, $p < 0.05$).

Figure 2, the HR strategies, namely Training and Development, Compensation, Performance Reward, Organisational Supportive Environment, along with Previous Digital Knowledge and Skill and Lifelong Learning Orientation can collectively predict 86.9% variability (R-square = 0.869) in Teachers' Digital Capability.

Table 4: PLS-SEM Model Results for Path Coefficients

	Coeff.(O)	Coeff. (M)	SD	T stat	P values
C -> TDC	0.125	0.131	0.033	3.744	0.000
LLO -> TDC	0.193	0.192	0.047	4.118	0.000
OSE -> TDC	0.315	0.316	0.025	12.576	0.000
PDKS -> TDC	0.381	0.377	0.028	13.843	0.000
PR -> TDC	0.279	0.270	0.052	5.368	0.000
TD -> TDC	0.407	0.401	0.036	11.325	0.000
LLO x TD -> TDC	0.419	0.408	0.038	11.136	0.000
LLO x PR -> TDC	0.505	0.481	0.077	6.57	0.000
LLO x C -> TDC	-0.273	-0.279	0.03	9.041	0.000
LLO x OSE -> TDC	-0.014	-0.013	0.026	0.519	0.604

As per Table 4, Training and Development (B = 0.407, $p < 0.05$) has the strongest and significant independent positive effect on Teachers' Digital Capability. Organisational Supportive Environment (B = 0.315, $p < 0.05$) has the second strongest positive influence on the Teachers' Digital Capability. Performance Recognition (B = 0.279, $p < 0.05$) also has a positive and significant effect on Teachers' Digital Capability, followed by the positive and significant effect of Compensation (B = 0.125, $p < 0.05$). The Pre-existing Digital Knowledge and Skill (B = 0.381, $p < 0.05$) also has a very strong and positive significant effect, which indicates that this control variable has a strong contribution to the development of Teachers' Digital Capability.

As per Table 4, Lifelong Learning Orientation (B = 0.505, $p < 0.05$) has the strongest and significant positive moderation effect on the relationship between Performance Recognition and Teachers' Digital Capability. It indicates that for teachers with higher lifelong learning orientation, the effect of performance recognition on the growth of teachers' digital capability is significantly higher than the teachers with lower lifelong learning orientation. Lifelong Learning Orientation (B = 0.419, $p < 0.05$) has a positive and significant moderation effect on the relationship between Training and Development and Teachers' Digital Capability. It indicates that for teachers with higher lifelong learning orientation, the effect of training and development on the development of teachers' digital capability is significantly higher than the teachers with lower lifelong learning orientation. However, Lifelong Learning Orientation (B = -0.273, $p < 0.05$) has a significantly negative moderation effect on the relationship between Compensation and Teachers' Digital Capability. According the Figure 3, the effect is inverse compared to the teachers with lower lifelong learning orientation. Instead of increasing, for teachers with a higher lifelong learning orientation, compensation is reducing the digital capability. However, there is no significant moderation effect of Lifelong Learning Orientation on the effect of Organisational Supportive Environment.

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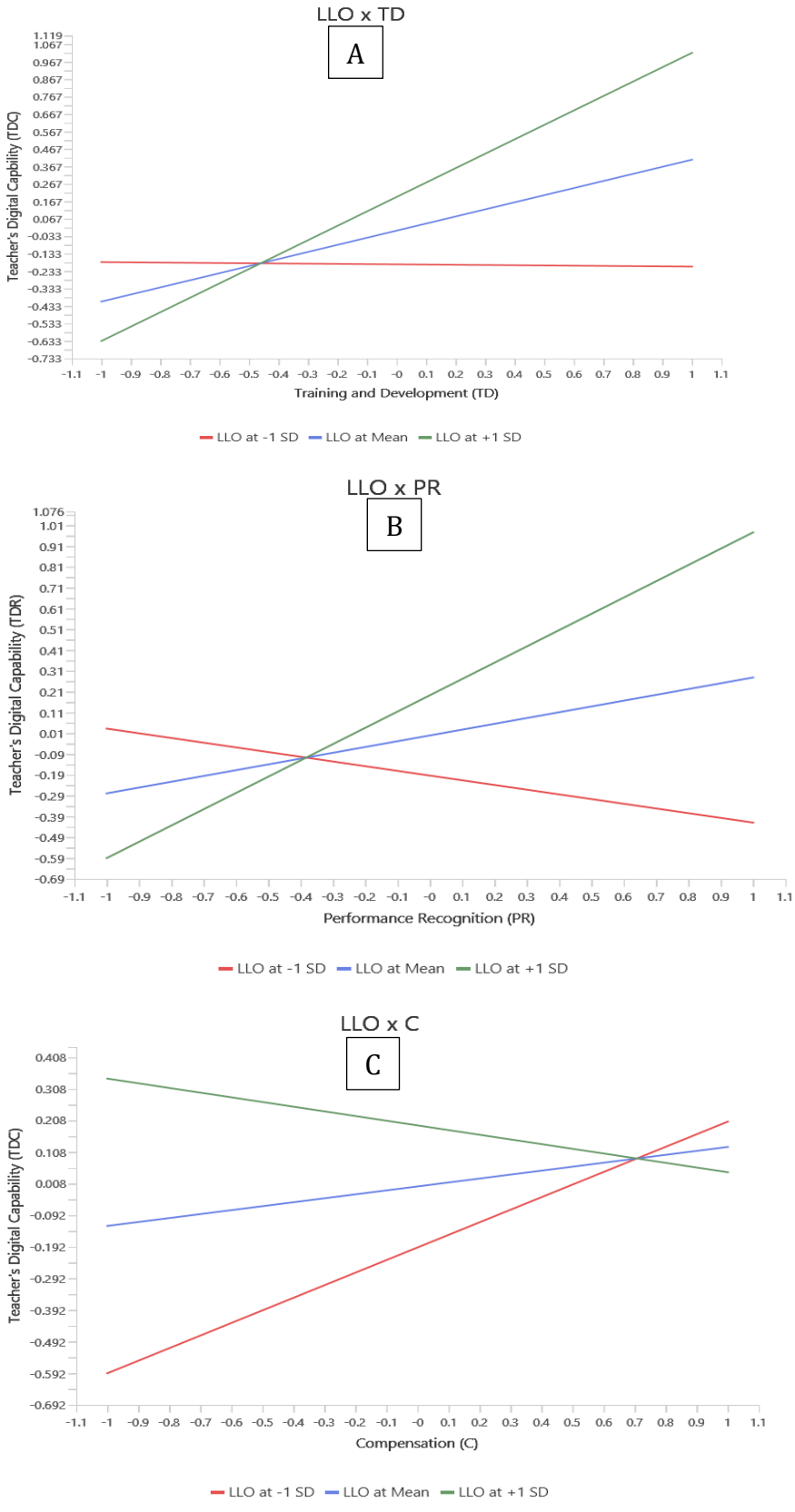
Figure 3: Moderation or Slope Analysis Charts Training and Development (A), Performance Recognition (B), Compensation (C)



5. Discussion

The study examined the role of strategic HRM practices towards enhancing the digital capabilities of university teachers in Shenzhen, China. The findings using SEM analysis offered significant findings related to the application of HRM practices in universities for improving digital capability among teachers. The HRM practices that were considered for analysis included training and development, Performance Recognition and Compensation, Organisational Supportive Environment and Lifelong Learning as a moderating variable.

The analysis supported the first hypothesis, which anticipated that *Training and development positively impact digital capabilities among university teachers*. The findings suggest that training and development have the strongest effect on enhancing digital capabilities among the teachers in Chinese universities ($B = 0.407$, $p < 0.05$). This aligns with the findings of Budiadiet al. (2024), who mentioned that employee training and development using structured training programs by HRM are not just helpful in developing skills but also result in job satisfaction. The findings can be attributed to the fact that organisations are faced with changes in the external business environment requiring adopting to rapid technological advancements, which makes continuous development vital for employees. This is further supported by using the findings of Howard et al. (2021), who mentioned about six HRM training methods for enhancing teachers' digital competence. The support of this hypothesis is theoretically validated as teachers with a lifelong learning orientation are more likely to be upskilled with a constant training and development approach.

Hypotheses 2 and 3 proposed that *Performance Recognition and Compensation positively impact digital capabilities among university teachers.* Based on the findings, performance recognition ($B = 0.279$, $p < 0.05$) and compensation ($B = 0.125$, $p < 0.05$) both have a significant impact on enhancing digital capabilities among university teachers in China. These results correlated with the findings from the literature. Firstly, Maszudi and Pratiwi (2025) highlighted that performance recognition in the form of promotions and other recognition motivates employees to be more active and achieve optimal results. In the context of these study findings, due to the launch of the *Education Informatisation 2.0 Action Plan 2035 in China* (Yan & Yang, 2021), teachers are under pressure to upgrade their skills and competencies. In this context, if their efforts towards learning about digital tools are appreciated, they become motivated to achieve optimum outcomes. Likewise, Allui and Sahni (2016) found that when rewards are matched with the accomplishment of strategic goals, compensation plays as a strategic HRM mechanism in helping people attain strategic goals. In this study, this can be aligned with monetary and non-monetary rewards that can be offered to teachers for learning new digital skills and tools, and help the universities' innovation and digitalisation under the Education Informatisation 2.0 Action Plan 2035.

Furthermore, Organisational Supportive Environment, as proposed in hypothesis 4, was supported in the analysis. This variable was found to have the second strongest positive influence on the Teachers' Digital Capability ($B = 0.315$, $p < 0.05$). This aligns with the findings from previous studies that mentioned communication as one of the vital elements in offering an Organisational Supportive Environment to teachers for overcoming digitalisation resistance, and offering digital infrastructure helps in upskilling (Hwang & Seo, 2025). Similarly, other elements like leadership support,

worker empowerment, and resources are helpful in creating a change mindset that motivates teachers to be collaborative towards digital capability building (McCarthy et al., 2023). Moreover, the recruitment that was used as a control variable was found to have a strong contribution towards building digital capabilities among teachers.

On the contrary, hypothesis 5 was related to testing the moderation effect of lifelong learning orientation (LLO) between strategic HRM practices and the digital capabilities of university teachers. There are some significant findings related to this aspect. Higher LLO was found to have the strongest positive significant moderation effect on the relationship between performance recognition and teachers' digital capability (B = 0.505). For teachers with higher LLO, having performance recognition is more effective in developing digital capability, and for people with lower LLO, performance recognition is not that effective. Likewise, teachers with higher LLO, training and development are more effective in developing digital capability (B = 0.419), whereas for teachers with a low lifelong learning mindset, having Training and Development is not that effective. However, there is no significant moderation effect of LLO found on the organisational supportive environment, suggesting that all teachers with high and low LLO benefit equally.

On the contrary, this was found to be opposite in the case of compensation, where employees with low LLO, who are offered higher compensation for the development of digital capability, are significantly higher. While employees with higher LLO, high compensation is reduced motivation to develop digital capability (B = -0.273). The reason behind this could be that teachers who have high LLO are self-driven and personally motivated to grow, where other factors like adapting to trends, sense of purpose, healthy workplace climate, and career development might be vital factors compared to compensation. But teachers with lower LLO might perceive monetary rewards as the main motivators to adopt certain behaviour. Hence, offering them higher compensation helps them develop digital capabilities.

6. Conclusion

The study used quantitative research methodology to examine strategic HRM practices towards enhancing the digital capabilities of university teachers in Shenzhen, China, taking the lifelong learning orientation as a moderating effect. The study used a cross-sectional survey design and found that training and development, compensation, performance recognition and a supportive environment play a vital role in enhancing the digital capabilities of university teachers. In terms of the moderation effect, teachers with high LLO, performance recognition and training and development are more effective in developing digital capability compared to low LLO among teachers. However, the moderation effect was negative in the case of compensation, where the organisational supportive environment showed no moderation effect.

The study highlights significant theoretical and practical implications. Practically, this study offers valuable suggestions for universities to strengthen their HRM practices and policies related to adopting digitalisation and employee development. Since, education sector is becoming highly digitalised, it has transformed traditional learning and teaching methods. Hence, to make the teachers learn and adapt to external changes, and create a pipeline of talented and skilled employee base, universities should design training programs and performance management that should motivate them to adapt to innovations and changes. Likewise, there is a need for developing continuous learning

environments that should foster a lifelong learning approach. Theoretically, this study offers a valuable contribution to aligning HRM practices and lifelong learning for employee development. This requires designing effective HR policies to make the education sector thrive in the digital era.

The first limitation of this study involves geographical limitations because it is confined to Chinese universities. This might impact the generalizability of the outcome for educational institutions that are at lower levels, including schools, and other academic institutions in other nations. Secondly, this study used a cross-sectional survey that collects data at a single point in time. This does not allow for measuring the causality relation between HRM policies and digital capabilities. Hence, future research should focus on a longitudinal study involving repeated observations to study LLO and digital capabilities.

Ethics Approval and Consent to Participate

The researchers used the research ethics provided by the Research Ethics Committee of Universiti Kebangsaan Malaysia (RECUKM). All procedures performed in this study involving human participants were conducted in accordance with the ethical standards of the institutional research committee. Informed consent was obtained from all participants according to the Declaration of Helsinki.

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Conflict of Interest

The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest with respect to the research, authorship, or publication of this article.

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