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Building a Better Future Workforce: Digital Dexterity and Psychological Empowerment

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***Abstract*— As the business landscape progresses, the advancement of information systems is becoming increasingly valuable in shaping the future workforce. The rising demand for skilled employees who can navigate and manage technological tools and stay engaged in the workplace requires businesses to make significant efforts to advance their workforce's digital competencies and cognitive satisfaction. To understand this phenomenon better, considering the future workforce, specifically final-year students, could provide more valuable insights, as previous studies have been unable to capture this illustration fully. This research intends to understand willingnessto engage behaviour of the future workforce through digital dexterity (i.e., personal-innovativeness, and computers self-efficacy) and psychological empowerment. A hypothesis-based framework delineated with seven paths, and data were collected through a questionnaire survey. To analyze the collected data from 147 respondents, a multivariate data analysis technique "PLS-SEM" was practiced. The study finding illustrated that personal innovativeness played a major role in impacting willingness to engage behavior followed by computer self-efficacy. These findings are novel and significant, providing new insights into the complex relationship between model variables among final-year students. The implications of this study would be particularly valuable for businesses looking to understand better and engage with the future workforce.**

Keywords—Digital Dexterity, Work Engagement, Psychological Empowerment, Future Workforce, PLS-SEM.

I. INTRODUCTION

As we gaze into the future, it becomes evident that the workforce is primed to endure substantial shifts as technology evolves at an unprecedented pace. With each successive year, novel innovations and breakthroughs appear to be unsettling traditional norms and altering the nature of work. One of the foremost ways technologies update the workforce is by facilitating more adaptable and remote work procedures. The COVID-19 pandemic has quickened this tendency, as businesses have had to become accustomed to employees working from home. This change has permitted better work-life balance for workers and boosted access to talent for companies, who can now employ from a global pool of applicants [1].

One more important development is the rise of automation, which is primed to disrupt various businesses and reinstate a substantial number of jobs. Although this will unquestionably lead to job shortfalls and losses, it also can generate new prospects for workers, specifically in data analysis, data visualization, programming, and artificial intelligence. Furthermore, as machines take possession of regular and monotonous tasks, employees will be capable of concentrating on more inventive and intricate work that involves human skills and judgment [2].

Furthermore, apart from these changes, technology is also renovating how we learn and acquire new skills. Online education and training programs are currently broadly accessible, empowering employees to upskill and reskill at their stride and from anywhere around the globe. It will be mainly significant as employees pursue to adapt to the promptly varying concerns from human capital aspects and safeguard the employability amid the rise of automation and related disrupting technologies [3].

However, as technology renovates the nature of work, it also ignites a kaleidoscope of questions that must be addressed about the future of jobs and the social contract between workers, employers, and society [4]. For instance, integrating digital mechanisms in each job compels the employees to keep pace with work irrespective of their working domain and sector. It includes boosting work performance by learning new tools and techniques. It also involves grooming the workforce's creativity level to accept and make better use of technology [5]. More importantly, the employees' cognitive empowerment also relates to such disruptions, shaping satisfaction, engagement, and higher performance [6], [7].

Numerous research studies have been conducted on disruptive technologies, employee performance, and productivity. Various works also discussed the role of psychological empowerment towards workforce engagement

for business development and resilience [7], [8]. As we look to the future of work, it is essential to understand how the job landscape may evolve and how it will impact the potential workforce [5]. However, previous studies have failed to understand this matter comprehensively. The potential workforce indicates the "near to graduate" students who about to induce in the industry. By gaining a deeper understanding of the potential workforce, we can better anticipate their needs and prepare them for the changing demands of the job market. Ultimately, this will require a creative and innovative approach that is open to new ideas and perspectives and a willingness to adapt and evolve with the changing needs of the workforce [9].

Adding to the above arguments by elaborating on the age of rapid technological change and digital transformation, the future workforce represents a crucial study area for organizations that seek to remain competitive and innovative. By gaining a deeper understanding of the potential workforce, organizations can identify the digital competencies required in the future workplace and cultivate psychological empowerment among employees. Through innovative strategies and a willingness to adapt to changing needs, organizations can prepare their workforce for the challenges and opportunities of the future [9], [10]. Research in this area is essential to warrant organizations to be fortified the knowledge and insights they need to navigate the rapidly evolving work landscape and create a well-positioned workforce to thrive in the digital age. Ultimately, the future of work demands a thoughtful and innovative approach grounded in a comprehensive understanding of the potential workforce and their evolving needs [5].

Ahmed et al. [9] proposed the expression of digital dexterity by explaining it by personal-innovativeness and technological self-efficacy. The novel concept of digital dexterity suggests that an employee should be competent enough in digital and technological matters so that he/she can adopt the innovations for personal and professional purposes and utilize them through creativity to solve issues, increase productivity and create a supportive environment at the workplace towards organizational resilience. Discussing digital dexterity in the future workforce context would be the need of time, and conducting the research to grasp its role in engaging the employees would be a resourceful aspect of digital transformation.

The present research aids literature on digital transformation and business efficiency by discovering the impact of digital dexterity and psychologicalempowerment on employees' willingness to engage in the workplace. Given the increasingly dynamic and ever-evolving nature of the contemporary business environment, it is essential to understand the factors that underpin an individual's motivation and engagement in the workplace [11]. To this end, this study intends to investigate how digital dexterity and psychological empowerment relate to an individual's willingness to engage in work activities. Througha comprehensive literature review and empirical investigation, this research seeks to deepen our understanding of the relationship between digital dexterity, psychological empowerment, and employee engagement. The findings of this study will provide valuable insights into how organizations can optimize their digital transformation initiatives and foster a culture of empowerment to enhance business efficiency and competitiveness. Ultimately, this research aims to advance our knowledge of the elements which excel workforce commitment and role of digital transformation in shaping the future workforce. By shedding light on the complex interplay between digital dexterity, psychological empowerment, and employee engagement, this study has the potential to inform organizational policies and practices that promote a more agile, productive, and engaged workforce.

II. Literature Review

A. Digital Dexterity

Digital Dexterity (DD) means an individual's ability to effectively and efficiently navigate and use digital technologies to achieve desired outcomes. This includes not only the technical skills necessary to operate various digital tools and platforms but also the cognitive and behavioural competencies needed to adapt to new technologies and effectively communicate and collaborate in digital environments [9]. According to Hizam et al. [12], an individual's innovativeness and technology self-efficacy (individuals' belief in their ability to use digital technologies) are key components that contribute to the development of DD. Individuals with these qualities can retain their digital dexterity and keep up with the demands of an ever-evolving digital work environment [9]. This study used the term "technology self-efficacy" interchangeably with "computer self-efficacy."

B. Personal Innovativeness

The extent to which one is open and interested in novel and innovative ideas or technologies can be described as personal innovativeness (PI). It involves being exposed to new experiences, creative thinking, and actively seeking and experimenting with new ways of doing things [13]. At the heart of any successful task lies a spark of innovation, the driving force that sets individuals apart. PI is the key to unlocking this spark, a critical predictor of an individual's willingness and intention to perform a task effectively [12]. Recent studies have shown that a high degree of PI can imbue individuals with a sense of skill and interest, elevating their work spirit to new heights and propelling them towards greater achievements [14], [15].

PI is not merely a behavioural trait; it is a way of life, a force that empowers individuals to think outside the box and push beyond their limits. The impact of PI can be felt in both the personal and professional domains, boosting an individual's cognitive beliefs and enhancing their competency in the workplace [10]. This sense of empowerment allows highly innovative individuals to take on new challenges with confidence and grace, adapting quickly to changing situations and thriving in the face of adversity [16]. Furthermore, it is important to note that the influence of PI extends beyond the individual level to the broader context of organizational culture [10]. When employees possess and cultivate innovation, they can tap into a psychological sense of belief and purpose, resulting in greater productivity and a more positive attitude toward their work [17]. Moreover, the ability for creativity within individuals can make them feel empowered to explore new possibilities, leading to a surge of energy and enthusiasm that drives individuals towards a

greater willingness to work in a dedicated and committed manner [16]. In a similar line, study hypotheses are proposed as:

Hypothesis 1a (H1 a): Personal innovativeness positively impacts willingness to engage at work.

Hypothesis 1b (H1 b): Personal innovativeness positively influences psychological empowerment.

Hypothesis 1c (H1 c): Psychological-empowerments as a mediator relating personal innovativeness and willingness to engage at work.

C. *Computer Self-Efficacy*

Computer self-efficacy (CSE) describes one's confidence and ability to use computers and related technologies to accomplish tasks effectively. It involves having the skills and knowledge necessary to navigate information technologies [18]. In today's ever-evolving technological landscape, employees' technology self-efficacy and digital dexterity have become increasingly important in the workplace. It is widely acknowledged that a person's conviction and capacity to employ digital tools effectively can greatly impact their performance and commitment to their work roles [9].

Studies have confirmed that digital dexterity, such as technology self-efficacy plays a critical role in fostering one's dedication and commitment towards their organization [19], thereby increasing their enthusiasm and motivation towards completing assigned tasks [12]. Moreover, scholars argue that digital competency, also known as information technology literacy, is a critical component of persons' effectiveness and cognitive beliefs and feelings [20], particularly among students [9], [12].

As the upcoming generation of the workforce, students must possess these skills to believe in their capabilities to thrive in their future jobs. Research has confirmed that CSE is a robust predictor of an individual's cognitive acts or states toward task completion and personal and emotional control [12]. Hence, those confident in their technology skills are better prepared to handle the demands of their job roles, resulting in increased energy and dedication towards achieving success in their work [9], [21].

Acquiring digital dexterity is paramount for students as it is fundamental in preparing them for the future workforce [12]. This ability makes them more likely to engage and be committed to their future careers, leading to greater success. It cannot be emphasized enough how important it is for individuals to possess the digital skills and confidence required to thrive in tomorrow's workplace, and their perceived self-control and actions play a significant role in this [9], [22]. Based on these, the subsequent hypotheses are postulated:

Hypothesis 2a (H2a): Computer self-efficacy positively influences willingness to engage at work.

Hypothesis 2b (H2b): Computer self-efficacy positively influences psychological empowerment.

Hypothesis 2c (H2c): Psychological-empowerments as a intermediary between computer self-efficacy and willingness to engage at work.

D. *Psychological Empowerment*

Psychological empowerment (P.E) is a psychosomatic characterized by sagacity to manage, autonomy, and self-determination. It involves feeling competent and effective, having a sense of impact, and experiencing a meaningful connection to one's work [23].

PE has long been recognized as a reliable predictor of positive behavioural tendencies among the workforce [7]. Through a series of comprehensive research endeavors, a group of scholars uncovered that individual who quay a sense of psychological empowerment is more prone to being motivated and unwaveringly dedicated to their job roles [6]. Another empirical analysis established that PE is indeed a robust forecaster of individual positive behavioural outcomes [24]. As it turns out, employees with a firm grip on their self-control and confidence are more inclined to take on their tasks with a sense of determination and passion [25]. Consequently, wepropose the next hypothesis:

Hypothesis 3 (H3): Psychological empowerment positively influences willingness to engage at work.

E. *Research Framework:*

The depicted relationship between willingness towards engagement, two factors of digital-dexterity ("personal-innovativeness, computer self-efficacy"), and psychological empowerment were established in the research framework, which was developed based on a thorough reviewof relevant literature. Figure 1 provides an illustration of thisframework.

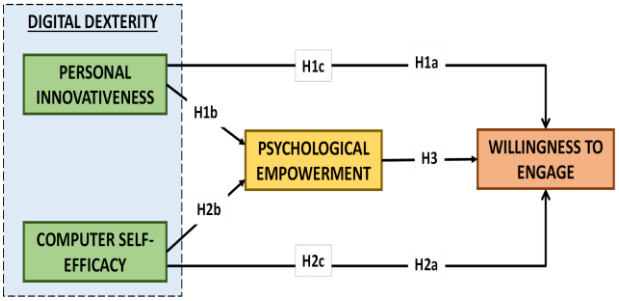

Figure 1: Research Framework

III. METHODOLOGY

Assessing the positivism paradigm, the research employed a deductive approach to scrutinize the proposed research framework. To collect data, we opted for an online survey with snowball sampling, which provided the flexibility to reach the target respondents (final year students of bachelor and master). The responses from 147 students were obtained; this sample size is deemed acceptable for performing the "PLS-SEM" assessment. Survey questions comprised of 02 parts; The demographics and variable questions part. All the questions of the survey adapted from preceding research, ensuring the reliability and validity of the measures used in the study. Specifically, six items for personal innovativeness (PI) and five items for computer self-efficacy (CSE) were taken from a recent study [12], while 12 items were selected from a prior study to measure psychological empowerment (PE) [23]. Finally, five items were adapted from previous research to assess willingness to engage (WE) [12]. SmartPLS v3 was

utilized to analyze the collected data. Using this tool, we aimed to provide a sturdy analysis that enriches the understanding of the research phenomena and augments the generalizability of the study.

IV. Results

A. Demographic Profile

In this study, a sample of 147 respondents was analyzed to determine their demographic characteristics. The demographic analysis results revealed that most participants were male, accounting for 55.10% of the sample, while the remaining 44.90% were female. Leading age cluster located at 26–35-year-old (59.86%), trailed by 18-25 -year-old (40.14%). Regarding the study area, the most common area was Business Studies (50.34%), followed by Engineering (28.57%) and Information Technology (21.09%). Finally, the data showed that most participants had obtained a Bachelor's degree (74.15%) compared to those with a Master's degree (25.85%).

B. Construct Reliability and Validity

Internal consistency of variables in this study was calculated by handling both "Cronbach's alpha" (α) and "Composite reliability". Results showed that all values were greater than 0.70, suggesting good internal consistency among the constructs [26], [27]. Therefore, the measures used in this study were reliable and consistent in measuring the intended constructs.

Convergent validity of this research's instruments was estimated by calculating the "Average Variance Extracted" (AVE). The inferences revealed that all constructs' AVE values were greater than 0.50, indicating good convergent validity. This suggests that the measures used in this study were able tocapture the underlying constructs that they were intended to assess and were evaluating them accurately [26], [27].

This study also calculated the discriminant validity of the measures using the Heterotrait-Monotrait (HTMT) ratio of correlations. The results indicated that all HTMT values were less than 0.85, suggesting good discriminant validity. This signifies that the measures could capture the specific constructs they were designed to measure and did not overlap with other constructs [28].

Table 1 illustrates the measures of construct reliability (α & CR), convergent validity (AVE), and discriminant validity (HTMT).

TABLE 1 - CONSTRUCT RELIABILITY AND VALIDITY

Variables	α	CR	AVE	HTMT			
				CSE	PE	PI	WE
CSE	0.903	0.928	0.720				
PE	0.940	0.944	0.585	0.117			
PI	0.918	0.936	0.711	0.543	0.088		
WE	0.893	0.921	0.700	0.590	0.174	0.735	

C. Indicator Reliability and VIF

This study's findings confirmed that most outer-loading values were greater than 0.70, signifying a strong relationship between the indicators and their corresponding constructs [26], [27]. Furthermore, it was observed that even values above 0.50 were deemed acceptable, representing that all indicators are dependable measures of their respective constructs [25], [29]. Table 2 displays the outer loadings for each of the indicators.

The variance inflation factor (VIF) assessment was conducted to check for multicollinearity in the inner model, and the results, as presented in Table 3, indicate no issues with multicollinearity. The VIF values were below 3, the fully accepted threshold for detecting multicollinearity [27]. Therefore, the inner model was found to be reliable and accurate, and the potential for bias or distortion due to multicollinearity was minimized.

TABLE 2 . OUTER-LOADINGS

Variables	Instruments	Outer-Loadings
Computer Self-Efficacy	C.S.E 1	0.810
	C.S.E 2	0.863
	C.S.E 3	0.907
	C.S.E 4	0.834
	C.S.E 5	0.824
Psychological Empowerment	P.E 1	0.790
	P.E 2	0.792
	P.E 3	0.783
	P.E 4	0.787
	P.E 5	0.603
	P.E 6	0.719
	P.E 7	0.805
	P.E 8	0.822
	P.E 9	0.729
	P.E 10	0.600
	P.E 11	0.830
	P.E 12	0.868
Personal Innovativeness	P.I 1	0.883
	P.I 2	0.874
	P.I 3	0.783
	P.I 4	0.812
	P.I 5	0.851
	P.I 6	0.850
Willingness to Engage	W.E 1	0.866
	W.E 2	0.857
	W.E 3	0.793
	W.E 4	0.834
	W.E 5	0.832

TABLE 3 - INNER VIF

	CSE	PE	PI	WE
CSE		1.319		1.330
PE				1.015
PI		1.319		1.320
WE				

D. Structural Model Analysis

The results of "PLS-SEM" analysis show a positively strong connection between Personal Innovativeness(PI) and Willingness to Engage (WE), as evidenced by a β coefficient of 0.531 and a p-value of 0.000, thereby supportingH1a (PI → WE). However, there is no statistically meaningful associations between PI and Psychological Empowerment (PE), as specified by a β coefficient of 0.031 and a p-value >

0.05, thereby rejecting H1b (PI → PE). Conversely, our analysis confirms H2a (CSE → WE), which asserts that there is a statistically significant positive relationship between Computer Self-Efficacy (CSE) and WE, with a β coefficient of 0.267 and a p-value <0.001. The relationship between CSE and PE is also significant, with a β coefficient of 0.104 and a p-value < 0.05, indicating that H2b (CSE → PE) is accepted.

The relationship between PE and WE is statistically substantial, with a β coefficient of 0.126 and a p-value of 0.041, supporting H3 (PE → WE). However, the analysis shows that PE fails to mediate the relationship between digital dexterity factors (PI, CSE) and WE, thereby rejecting H1c (PI → PE → WE) and H2c (CSE → PE → WE). Finally, the predictor variables explain 52.7% of the variance in WE, confirming a substantial R-square value (Figure 2). Findings of overall hypothesis are presented in Figure 2 and Table4.

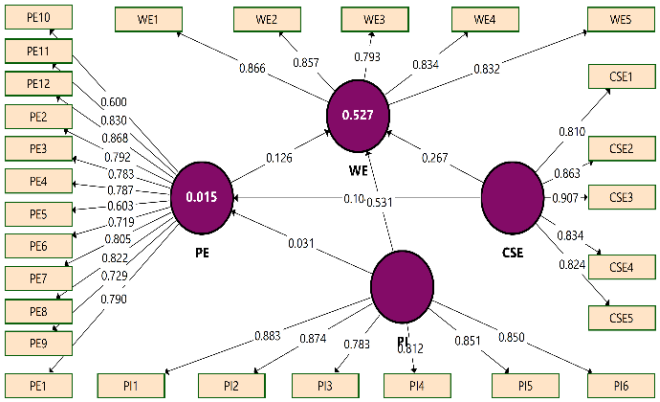

Figure 2: PLS-SEM Results

TABLE 4 - HYPOTHESIS RESULTS

Hypotheses	β	T Statistics	P Values	Results
PI → WE	0.531	7.649	0.000	Accepted
CSE → WE	0.267	4.025	0.000	Accepted
PI → PE	0.031	0.240	0.405	Rejected
CSE → PE	0.104	1.973	0.044	Accepted
PE → WE	0.126	1.980	0.041	Accepted
PI → PE → WE	0.003	0.204	0.419	Rejected
CSE → PE → WE	0.013	0.764	0.223	Rejected

E. f^2 Effect Size

To assess influence of the predictor factors towards outcome factor , we used the f-square effect size measure. The analysis revealed that all predictor variables, except personal innovativeness (PI) towards psychological empowerment (PE), had a statistically significant effect with an f-square effect size of at least 0.02. Notably, PI towards willingness to engage (WE) had a substantial effect size (f2 = 0.451), while the effect size for PI towards PE was negligible (f2 < 0.02) [26], [27]. The f-square outcome is showed in Table-5.

TABLE 5 – F-SQUARE EFFECT SIZE

	CSE	PE	PI	WE
CSE		0.028		0.113
PE				0.033
PI		0.001		0.451

F. PLS-Predict

Table-6 displays Root Mean Squared Error i.e., RMSE, Mean Absolute Error, i.e., MAE, and Q^2_predict values for each item of two response variables: Psychological Empowerment(PE) and Willingness to Engage (WE), as well as the results for a comparison of PLS and Linear Model (LM) analysis. The Q^2_predict scores for both response variables in the PLS model were generally superior to those of the LM model alone, confirming positive Q^2_predict scores for the PE and WE items indicate that the PLS model explains a substantialproportion of variance in these variables [30].

TABLE 6 – PLS-PREDICT

Item	P.L.S			L.M			P.L.S – L.M		
	R.M.S.E	M.A.E	Q^2_prdict	R.M.S.E	M.A.E	Q^2_prdict	R.M.S.E	M.A.E	Q^2_prdict
PE1	0.803	0.56	-0.032	0.86	0.628	-0.183	-0.057	-0.068	0.151
PE2	0.709	0.451	-0.003	0.755	0.516	-0.136	-0.046	-0.065	0.133
PE3	0.767	0.501	-0.016	0.809	0.566	-0.131	-0.042	-0.065	0.115
PE4	0.856	0.585	-0.023	0.907	0.652	-0.148	-0.051	-0.067	0.125
PE5	0.817	0.581	-0.021	0.855	0.637	-0.117	-0.038	-0.056	0.096
PE6	0.801	0.552	-0.009	0.855	0.617	-0.15	-0.054	-0.065	0.141
PE7	0.782	0.542	-0.005	0.836	0.588	-0.148	-0.054	-0.046	0.143
PE8	0.789	0.553	0.003	0.838	0.606	-0.125	-0.049	-0.053	0.128
PE9	0.742	0.513	-0.027	0.768	0.555	-0.101	-0.026	-0.042	0.074
PE10	0.784	0.539	-0.016	0.805	0.58	-0.071	-0.021	-0.041	0.055
PE11	0.73	0.541	-0.015	0.771	0.571	-0.113	-0.034	-0.030	0.098
PE12	0.82	0.614	0	0.867	0.652	-0.117	-0.047	-0.038	0.117
WE1	0.552	0.398	0.427	0.557	0.41	0.417	-0.005	-0.012	0.010
WE2	0.604	0.445	0.357	0.615	0.453	0.335	-0.011	-0.008	0.022
WE3	0.716	0.525	0.263	0.689	0.513	0.318	0.027	0.012	-0.055
WE4	0.671	0.481	0.231	0.688	0.49	0.193	-0.017	-0.009	0.038
WE5	0.684	0.515	0.325	0.703	0.516	0.287	-0.019	-0.001	0.038

V. DISCUSSION

This research aimed to elucidate the role of digital dexterity and psychological empowerment towards willingness to engage behavior of future workforce. The research framework was outlined with 07 hypotheses and analyzed through PLS-SEM analysis. The data analysis was validated through numerous techniques such as data reliability, validity, outer loadings, path analysis, and PLSpredict. The resulting model showed the r-squared value of 0.527, which means a 52.7% change was recorded in the dependent variable due to independent variables. Four hypotheses resulted as significant ones. The PLSpredict technique also proved the model's predictive validity.

Towards the hypotheses outcome, H1a, i.e., PI → WE, confirms this association is statistically substantial, and the hypothesis is accepted. It indicates that higher levels of Personal Innovativeness (PI) lead to a greater willingness to engage (WE) among final-year students, with a significant positive relationship between these variables. This suggests that individuals with greater PI are more likely to embrace change, innovate, and engage with new technologies in the

workplace[31]. Hypothesis H2a, i.e., CSE →WE, explains the positive significance in the association and hypothesisis accepted. It directs that Computer Self-Efficacy (CSE) is positively related to WE among final-year students, indicating that those with higher levels of CSE will be more likely to be willing to engage with new technologies and digital transformations in the workplace. This highlights the importance of developing computer skills and confidence among future employees [9], [21]. Hypothesis H1b, i.e., PI→ PE, reveals the association as not statistically substantial, and the hypothesis is rejected. It shows that no significant relationship exists between PI and Psychological Empowerment (PE) among final-year students. This implies that PI may not necessarily lead to greater feelings of empowerment among individuals, and that other factors may be more important in developing psychological empowerment in the workplace. In future, these results might be different upon joining the industry due to various interactions at the workplace. For H2b, i.e., CSE → PE, it explains the connection is meaningful, and the hypothesis considered as accepted. It implies that CSE is positively related to PE among final-year students. This indicates that individuals with greater CSE are more likely to feel empowered in the workplace, potentially due to their increased ability to use technology and perform tasks more efficiently [9], [21]. Hypothesis H3, i.e., PE → WE, confirms there is a positive significance level in the association, and the hypothesis accepted. It aims to show a significant positive relationship between PE and WE among final-year students. It hints individuals who perceive empowered at job and work will also be more likely to be willing to engage with new technologies and digital transformations, potentially due to their greater sense of control and autonomy 23]. Towards, mediation association of model through PE, H1c, i.e.., PI→PE→WE, reveals this connection not meaningful, and this hypothesis considers rejected.

Similarly, the H2c, i.e., CSE→PE→WE, shows that the relationship is deemed insignificant, therefore rejecting the hypothesis. In both hypotheses, the results suggest that PE is not a significant mediator between Personal PI or CSE and WE among final-year students. This implies that PE may not play a significant role in explaining the relationship between PI/CSE and WE in the context of these students. The results suggest that other factors may play a more significant role in predicting willingness to engage in the workplace, and future research may need to consider other potential mediators or moderators that can better explain this relationship. Additionally, the lack of a significant mediation effect of PE suggests that organizations may need to focus on developing and fostering PI and CSE separately rather than relying on the development of PE to improve employee engagement.

The practical inferences of this study finding towards managing future workforce of final-year students are significant. The study demonstrates that personal innovativeness, computer self-efficacy, and psychological empowerment are important factors for predicting willingness to engage in the workplace. Managers can use this information to tailor their recruitment and training programs to identify and develop these key competencies in their future employees. Moreover, the study suggests that psychological empowerment does not mediate between personal innovativeness/computer self-efficacy and willing towards engagement at workplace. Therefore, managers should focus on directly developing these competencies rather than relying on Psychological Empowerment as an intermediary variable. The research also unveils that personal innovativeness and computer self-efficacy are completely linked with willingness to engage, suggesting that fostering these competencies in futureemployees may lead to engaged workforce. Moreover, the result suggest that CSE is a significant predictor of willingness to engage at workplace, highlighting the importance of providing technical training and support to employees.

This research has numerous theoretical contributions to information systems and human resource management. Primarily, the study's findings establish the importance of personal innovativeness and computer self-efficacy as individual-level predictors of workplace engagement. This outcome is steady with past research in the field and further reinforces the idea that individual characteristics can impact workplace outcomes [6], [8], [17], [19], [21], [24], [32]. Moreover, the research presents insights into the intervening function of the PSE in the vibrant relationship between the individual-level predictors/influences and the workplace engagement. While the results do not provide evidence for the hypothesized mediation, this finding contributes to the ongoing discussion in the literature around the role of psychological empowerment in the workplace. Lastly, the study underlines the need to consider other variables impacting workplace engagement beyond the individual-level predictors studied in this research. This finding emphasizes the complicated nature of workplace engagement and the urge for a more holistic approach to realizing this construct.

The research have certain restraints which should be recognized. Firstly, findings were founded on the cross-sectional data, implying that the underlying associations between DD factors, PE, and WE must be interpreted cautiously. Future studies should employ longitudinal data to acquire a farther ample comprehension of these vibrant relationships. Secondly, the data were derived from a snowball sample, which may undermine the generalizability of the results. Future research could adopt other probability-based sampling techniques to improve the robustness of the findings. Lastly, the study population and context may restrict the external validity and generalizability of conclusions. Thus, it is obligation to conduct replications of these findings in diverse contexts and populations to validate their reliability.

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