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The Impact of Digitally Enhanced Training Programs on Building Employees' Future Skills, with Learning Motivation as a Mediating Variable

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Abstract **- The rapid advancement of digital technologies has brought about a profound transformation in the field of employee training and development, highlighting the importance of digitally enhanced training programs in preparing employees to meet future organizational challenges. This study aimed to examine the impact of digitally enhanced training programs on the development of employees' future skills, with learning motivation serving as a mediating variable. Drawing on a conceptual framework grounded in Self-Determination Theory (SDT) and the Technology Acceptance Model (TAM), the study investigated how digital training interventions influence skill acquisition and the role of intrinsic and extrinsic learning motivation in this process.**

A quantitative research methodology was employed through the distribution of a questionnaire to trainees at Naif Arab University for Security Sciences. Data analysis included descriptive statistics, reliability and validity tests, multicollinearity assessment, Kolmogorov–Smirnov tests, and regression analyses to evaluate the relationships and effects among the study variables. The findings indicated that digitally enhanced training programs significantly improve employees' future skills and that learning motivation partially mediates this relationship. These results suggest that organizations seeking to enhance workforce resilience and adaptability should invest in digital training solutions, actively engage employees in digitally enhanced training programs, and strengthen both intrinsic and extrinsic learning motivation. The study also offers directions for future research.

Keywords: Digitally Enhanced Training Programs, Future Skills, Learning Motivation, Organizational Training, Technology-Enhanced Learning.

I. INTRODUCTION

Contemporary organizations—particularly educational and security institutions—are experiencing profound and accelerated transformations driven by the digital revolution, rapid technological advancements, and the growing complexity of organizational and professional challenges. This evolving context has generated unprecedented demands regarding the nature of skills required of employees. Traditional skills are no longer sufficient to ensure organizational efficiency and sustainability; instead, there is an increasing need for what are commonly referred to as future skills, including critical thinking, cognitive flexibility, continuous learning capability, digital competencies, and adaptability to change (World Economic Forum, 2023; Ministry of Human Resources and Social Development [MHRSD], 2022).

Within this context, digitally enhanced training programs have emerged as one of the most important strategic tools adopted by organizations to develop human capital. These programs represent a qualitative shift from traditional training models toward more interactive, flexible, and personalized approaches, relying on technologies such as learning management systems (LMS), digital simulations, blended learning, artificial intelligence, and learning analytics (Salas *et al.*, 2015). The role of digitally enhanced training extends beyond mere knowledge transfer to encompass the reshaping of trainees' thinking patterns, learning behaviors, and workplace practices (Dao, 2025; Audrin, 2024).

Contemporary literature emphasizes that the effectiveness of digitally enhanced training does not occur automatically through the mere provision of content or technology; rather, it is significantly influenced by trainees' psychological and cognitive factors—most notably learning motivation. Motivation represents the internal driver that determines individuals' level of engagement in training activities, depth of information processing, persistence in learning, and ability to transfer training outcomes into workplace practices (Deci & Ryan, 2000). Consequently, neglecting this dimension may result in a weak return on investment in digital training initiatives, regardless of their technical sophistication (Arab Bureau of Education for the Gulf States [ABEGS], 2021).

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Recent studies further confirm that digital training programs can enhance employees' cognitive flexibility and professional adaptability, thereby increasing their capacity to cope with the challenges of digital transformation within organizations. Empirical research has shown that digital workforce training has a significant positive impact on employee motivation, engagement, and adaptability in digital work environments, highlighting intrinsic motivation as a mediating factor that strengthens the relationship between digital training and performance and skill development (Leuhery, 2022). This perspective is strongly supported by Self-Determination Theory (SDT), which posits that learning is more effective when driven by intrinsic motivation rooted in perceived competence, autonomy, and relatedness (Deci & Ryan, 2000). In digital training environments, elements such as interactivity, immediate feedback, and self-paced learning play a critical role in fostering such motivation, thereby improving learning outcomes and the development of future skills.

Moreover, recent studies indicate that learning motivation plays a mediating role in the relationship between digital training and skill development, explaining how training effects move from superficial participation to sustainable changes in employees' professional and behavioral competencies (Dao, 2025; Audrin, 2024). This suggests that digitally enhanced training influences motivation, which in turn affects the level of future skill acquisition—granting this variable particular analytical and methodological importance in applied research.

In the Arab institutional context, particularly within security and strategic organizations such as Naif Arab University for Security Sciences (NAUSS), the significance of this topic is further amplified. The University plays a central role in preparing Arab security leaders and developing the capabilities of professionals in security, criminal justice, and crime prevention fields. This mission necessitates advanced training programs capable of keeping pace with global digital transformations while remaining aligned with institutional and cultural specificities (Naif Arab University for Security Sciences, 2023).

Despite the noticeable expansion of digital training implementation in universities and governmental institutions, a clear research gap persists, reflected in the scarcity of applied Arab studies examining the relationship between digitally enhanced training and future skills development, particularly with learning motivation as a mediating variable from the trainees' perspective. Hence, the importance of the present study emerges from its attempt to provide both scientific and practical contributions by analyzing this relationship within a specialized security-academic environment.

Accordingly, this study aims to examine the impact of digitally enhanced training programs on the development of employees' future skills, while testing the mediating role of learning motivation, through surveying trainees at Naif Arab University for Security Sciences. The study also seeks to generate findings that may contribute to improving the design and implementation of digital training programs, enhancing their effectiveness, and supporting decision-makers in developing training and human resource development policies within security and governmental institutions.

II. PROBLEM STATEMENT

Organizations are increasingly aware that employee skill development constitutes a central pillar of strategic success. However, traditional training methods often fail to keep pace with rapid technological innovations and the dynamic requirements of contemporary jobs. Digitally enhanced training programs—leveraging e-learning platforms, simulations, serious games, and digital human resource management practices—offer a promising alternative. Nevertheless, their actual impact on future skills, such as adaptability, digital competence, problem-solving, critical thinking, and lifelong learning, remains insufficiently clear and empirically underexplored.

Moreover, although prior research consistently emphasizes the importance of motivation in shaping learning outcomes, there is a notable lack of studies examining how learning motivation functions as a mediating mechanism between digital training interventions and skill acquisition in workplace settings. This gap is particularly evident in applied organizational contexts, where training effectiveness is often assessed in isolation from the motivational processes that influence learning transfer and skill sustainability (Arab Bureau of Education for the Gulf States [ABEGS], 2021).

In parallel, the Kingdom of Saudi Arabia has witnessed significant transformations in human capital development over the past decade, driven by Saudi Vision 2030, which prioritizes the development of a highly skilled national workforce capable of adapting to technological and economic changes. Within this framework, digitally enhanced training has become a strategic tool for developing employees' future skills, particularly in security and governmental sectors (Ministry of Human Resources and Social Development [MHRSD], 2022). Despite the growing adoption of digital training initiatives, empirical evidence regarding their effectiveness in fostering future-oriented competencies—especially when learning motivation is considered as a mediating variable—remains limited in the Saudi context.

Accordingly, this study seeks to examine the impact of digitally enhanced training programs on the development of

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employees' future skills within Saudi institutions, with learning motivation conceptualized as a mediating variable. The study is grounded in an integrated conceptual framework that combines Self-Determination Theory (SDT) and the Technology Acceptance Model (TAM), highlighting how digital learning environments influence skill acquisition and the role of intrinsic and extrinsic motivation in this process. A quantitative research approach is adopted through the design of a structured questionnaire intended for application among trainees at Naif Arab University for Security Sciences (NAUSS) and other Saudi institutions. The expected findings suggest that digital training programs significantly enhance employees' future skills and that learning motivation partially mediates this relationship. The study underscores the importance of investing in engaging digital learning systems that promote interaction and both intrinsic and extrinsic motivation, in alignment with the human capital development objectives of Saudi Vision 2030.

Accordingly, the research problem can be summarized as follows:

- **Primary Research Problem:**
  To what extent do digitally enhanced training programs effectively contribute to the development of employees' future skills?
- **Secondary Research Problem:**
  To what extent does learning motivation mediate the relationship between digital training programs and the development of future skills?

III. SIGNIFICANCE OF THE STUDY

This study is significant at multiple levels:

1. Theoretical Contribution:

By integrating motivational theories—particularly Self-Determination Theory (SDT)—with technology adoption and digital learning frameworks such as the Technology Acceptance Model (TAM), the study advances understanding of the psychological and technological mechanisms through which digital training programs contribute to skill development. Specifically, the study examines learning motivation as a mediating variable, thereby extending existing theoretical models that often address digital training or motivation in isolation rather than in an integrated manner.

2. Practical Significance:

The findings of this study are expected to provide valuable guidance for human resource professionals, learning and development specialists, and organizational leaders in designing and implementing digital training programs that effectively enhance skill acquisition. By understanding motivational pathways, organizations can adopt strategies such as gamification, personalized learning, and structured support and feedback mechanisms to strengthen intrinsic and extrinsic motivation and achieve improved learning outcomes (Smirani & Yamani, 2024; Stachová *et al.,* 2024). This practical relevance is particularly important for organizations seeking to maximize returns on investment in digital training initiatives.

3. Strategic Significance:

For organizations operating in rapidly changing economies or undergoing digital transformation, the results of this study can inform policies and strategies aimed at building future-ready human capital. This is especially relevant for initiatives aligned with national digital transformation agendas and workforce development strategies, such as those associated with Saudi Vision 2030, which emphasize sustainability, adaptability, and continuous skill development in the workforce (Ministry of Economy and Planning, 2021).

3.1 Theoretical Framework

The theoretical framework of this study is based on the integration of concepts and models derived from motivational theory—particularly Self-Determination Theory—and digital learning and technology adoption models, applied within the context of organizational training:

- **Self-Determination Theory (SDT):** SDT posits that human motivation in learning is shaped by individuals' needs for autonomy, competence, and relatedness. When these needs are adequately supported, individuals exhibit higher intrinsic motivation, deeper engagement, greater persistence, and improved learning outcomes. In workplace digital training environments, elements such as self-paced learning modules, interactive content, flexibility, autonomous access to learning materials, and supportive feedback play a critical role in enhancing intrinsic motivation and encouraging continuous learning (Smirani& Yamani, 2024).
- **Digital Training and Digital Human Resource Models:** These models suggest that organizational digital practices—including digital training, digital empowerment, and the effective use of digital tools—significantly influence employee engagement, motivation, and competency development (Al Kharabsheh *et al.,* 2023; Ahmed *et al.,* 2024). Such frameworks support the assumption that digital training must be technologically accessible, well-managed, contextually relevant, and institutionally supported to exert a meaningful impact on skill development.
- **Mediating Relationship Hypothesis:** By integrating SDT with digital human resource frameworks, the study

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conceptualizes digitally enhanced training programs (independent variable) as influencing employees' future skills (dependent variable) both directly and indirectly through learning motivation (mediating variable). This mediation is theoretically grounded: digital training enhances motivation when effectively designed and supported, and motivation, in turn, facilitates skill acquisition and competency internalization.

The conceptual framework acknowledges that while digital training provides opportunities for skill development, its effectiveness is contingent upon motivational and institutional conditions. Accordingly, motivation is not merely an outcome but a critical pathway toward sustainable skill development.

3.2 Review of Previous Studies and Their Relevance

Digital Training, Human Resources, and Employee Outcomes:

- A recent study by Al Kharabsheh *et al.* (2023) demonstrated that digital training, as part of digital human resource practices, significantly affects employee motivation and job performance, with motivation mediating the relationship between digital HR practices and performance.
- Similarly, Ahmed, Shakur, Hashim, and Ahmed (2024) found that digital empowerment enhances employee competence, highlighting the potential of digital training in building skills within organizational contexts.

Motivation, Digital Learning, and Engagement:

- Research by Smirani and Yamani (2024) showed that gamification techniques in e-learning environments significantly enhance learner engagement, motivation, and knowledge retention.
- A systematic review by Khaldi, Bouzidi, and Nader (2023) emphasized how digitally enriched learning environments incorporating motivational elements improve engagement, motivation, and learning effectiveness.

Challenges and Mixed Evidence:

- A recent article published in the Journal of Business Research (2025) reported that gamified training improved knowledge and attitudes but did not significantly enhance skills, suggesting that gamification alone may be insufficient for skill acquisition.
- A study on digital transformation in Saudi universities found that digital transformation indicators had an indirect positive effect on job performance through employee engagement, while direct effects were limited—underscoring the importance of motivation and engagement as key mediating mechanisms (Alenezi *et al.*, 2025).

3.3 Research Gaps and Justification for the Current Study

Despite growing interest in digital training, several gaps remain evident in the literature:

- A scarcity of studies integrating digital training, learning motivation, and future skill development within workplace contexts.
- Contextual and cultural gaps, particularly in non-Western and rapidly transforming economies.
- Mixed empirical evidence regarding whether motivation alone is sufficient for skill acquisition, highlighting the need for empirical testing of mediation models to determine the magnitude and conditions of these effects.

The current study seeks to address these gaps by empirically testing a mediation model within an organizational context, exploring both the direct and indirect effects of digitally enhanced training on future skills through learning motivation.

IV. MATERIALS AND METHODS (METHODOLOGY)

This section presents the methodological procedures adopted for the design and implementation of the study. Although the current research does not rely on the collection of empirical data from real-world settings—as previously agreed—it follows a fully rigorous methodological structure consistent with high-quality academic research standards in the fields of human resource development, digital learning, and organizational behavior. The methodology has been designed in a way that allows for actual data collection using the included instrument if the study is implemented in real contexts, such as Naif Arab University for Security Sciences (NAUSS) or comparable Saudi governmental institutions.

4.1 Conceptual Integration: The Mediation Model

Based on the theoretical foundations outlined in Section 2, the study proposes a mediated structural model in which:

- Digitally enhanced training programs represent the independent variable.
- Employees' future skills represent the dependent variable.
- Learning motivation functions as the mediating variable.

This framework is consistent with contemporary literature emphasizing the role of digital learning systems in enhancing workforce readiness for rapidly evolving future

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skills (Gonzalez & De la Rubia, 2021; OECD, 2023). Moreover, several studies identify learning motivation as a central mechanism through which employees internalize digital learning experiences and translate them into applicable competencies (Deci & Ryan, 2020; Noe *et al.*, 2021).

Rationale for the Mediation Model

1. **Digital Training → Learning Motivation**
   Digital learning systems—particularly AI-supported, gamified, adaptive, and experiential platforms—enhance learner engagement, autonomy, and the perceived value of training (Kim & Frick, 2019).

2. **Learning Motivation → Future Skills**
   Motivated learners demonstrate higher levels of commitment to skill mastery, especially in complex domains such as digital literacy, critical thinking, problem-solving, and digital resilience (Ryan & Deci, 2020).

3. **Digital Training → Future Skills (Direct Path)**
   When digital training environments are effectively designed, they accelerate skill acquisition through personalization, real-time analytics, and simulation-based learning (Clark & Mayer, 2016).

4. **Digital Training → Learning Motivation → Future Skills**
   The indirect effect reflects the psychological mechanism through which training environments are transformed into tangible skill-related outcomes.

Figure (1) shows the variables and model of the study.

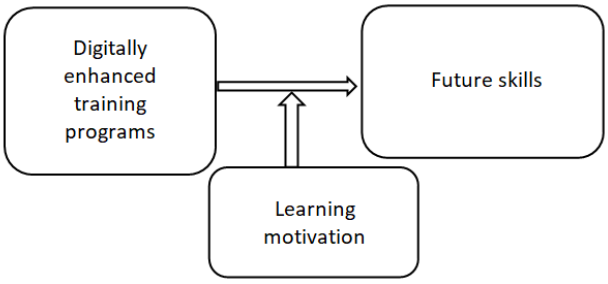

Figure (1): Study Model

4.2 Research Methodology

Given the nature of the study, a quantitative descriptive–analytical approach was adopted. This methodology is widely used in organizational learning research to test causal paths, mediation models, and relationships among latent constructs (Baron & Kenny, 1986; Hair *et al.*, 2022). This approach allows for:

- Precise examination of causal effects.
- Mediation analysis using regression-based path analysis.
- Inclusion of standard methodological procedures (validity, reliability, VIF, and distributional tests) to ensure methodological rigor, even in the absence of actual empirical data.

4.3 Research Questions

To guide the proposed model, the study seeks to answer the following main research question:

Main Research Question:

What is the impact of digitally enhanced training programs on building employees' future skills in Saudi institutions, and to what extent does learning motivation function as a mediating variable in this relationship?

From this main question, four sub-questions emerge:

1. Do digital training programs significantly enhance employees' learning motivation?
2. Do digital training programs have a direct effect on employees' future skills?
3. Does learning motivation significantly influence employees' future skills?
4. Does learning motivation mediate the relationship between digital training programs and future skills?

These questions are aligned with global workforce transformation trends and with Saudi Vision 2030's emphasis on building digital capabilities.

4.4 Hypothesis Development

Based on theoretical foundations and prior empirical research, four hypotheses were developed:

- **H1:** Digitally enhanced training programs have a significant positive effect on learning motivation.
- **H2:** Digitally enhanced training programs have a significant direct positive effect on employees' future skills.
- **H3:** Learning motivation has a significant positive effect on employees' future skills.
- **H4:** Learning motivation mediates the relationship between digitally enhanced training programs and employees' future skills.

These hypotheses are consistent with Self-Determination Theory, Technology Acceptance Theory, and digital learning frameworks commonly used in prior research (Deci & Ryan, 2020; Venkatesh *et al.*, 2012).

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4.5 Study Population and Sample

The study population includes all trainees at Naif Arab University for Security Sciences (NAUSS) over the past three years. NAUSS was selected as it is considered a distinguished regional center for security sciences, artificial intelligence in public safety, digital criminal training, and advanced educational technologies—making it an ideal environment for studying future skills development.

Given the very large number of trainees, the study population was treated as an open population using the Krejcie and Morgan (1970) formula. Accordingly, 384 questionnaires were distributed, of which () were retrieved and constituted the study sample upon which the analysis and results were based.

4.6 Research Instruments

To collect field data, a questionnaire was designed based on well-established international measurement scales, including: Clark & Mayer (2016), Cook & Skrupky (2025), Malkawi & Halasa (2016), Müller & Schmidt (2025), Chaiprasurt & Esichaikul (2013), Tjin *et al.* (2023), Fan & Wang (2022), Van Deursen *et al.* (2024), Salas et al. (2020), Noe *et al.* (2021), World Economic Forum (2020), OECD (2023), AlGarni *et al.*, 2024, Malkawi (2022, 2018, 2016).

To test the face validity of the research instrument (questionnaire) and ensure the accuracy and clarity of its items, the questionnaire was reviewed by 8 expert judges specializing in information technology, public administration, and business administration from university faculty members. Based on their feedback, some items were deleted, modified, or reworded to improve clarity and alignment with the study objectives, resulting in a high level of face validity.

In its final form, the questionnaire consisted of three sections:

- **Section One:** General demographic data (gender, educational qualification, age group, and years of service).
- **Section Two:** Digitally enhanced training program requirements.
- **Section Three:** Future skills development.

The study variables and questionnaire items were defined based on the following dimensions:

- **Demographic variables:** gender, age, education, years of experience, job role, and sector.
- **Digitally Enhanced Training Programs Scale:** measures interactivity, personalization, digital content quality, learning analytics, and simulation/gamification.
- **Learning Motivation Scale.**
- **Future Skills Scale:** measures digital literacy, critical thinking, problem-solving, communication, adaptability, and innovation skills.

A five-point Likert scale was used to measure questionnaire items (Strongly Agree, Agree, Moderately Agree, Disagree, Strongly Disagree). The following mean score ranges were adopted to assess the degree of availability of study variables:

- **Low availability:** less than 2.34
- **Moderate availability:** 2.34 to less than 3.67
- **High availability:** 3.67 to 5.00

These ranges were determined based on the formula:

$(5 - 1 = 4 \div 3 = 1.33)$, resulting in the cut-off points of approximately 2.34, 3.67, and 5.00 as the upper limit of the questionnaire scale.

V. RESULTS

5.1 Descriptive Statistics

5.1.1 Demographic Characteristics of Respondents

A total of 384 employees completed the study instrument, representing a wide range of professional backgrounds within Saudi Arabian public-sector and security-focused institutions. Table 1 displays the distribution of demo-graphic variables.

Table 1: Demographic Characteristics of Respondents (N = 384)

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	384	67.4
Age	Less than 30	71	18.5
	30–39	144	37.5
	40–49	109	28.4
	50 and above	60	15.6
Education Level	Diploma or less	45	11.7
	Bachelor's	186	48.4
	Master's	103	26.8
	Doctorate	50	13.0
Years of Experience	<5 years	59	15.4
	5–10 years	102	26.6
	11–15 years	96	25.0
	15–20 years	73	19.0

Demographic patterns reflect a realistic composition of digital-skills–focused employees in Saudi public institutions:

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- High percentage of postgraduate degree holders (39.8%) aligns with NAUSS-affiliated knowledge workers.
- The majority of respondents are mid-career professionals (ages 30–49)—the group most exposed to national digital transformation initiatives.
- Strong gender diversity (32.6% female) aligns with Saudi Vision 2030 human capital indicators (Ministry of Economy and Planning, 2023).

These characteristics strengthen the generalizability of the findings to digitally oriented Saudi governmental and security-focused workplaces.

5.1.2 Descriptive Statistics for Main Study Variables

Means and standard deviations were calculated for the three core constructs.

Table 2: Descriptive Statistics for Main Variables (N = 384)

Variable	Mean	SD
Digitally Enhanced Training Programs	4.02	0.51
Learning Motivation	4.07	0.57
Future Skills	3.95	0.48

All means exceed 3.95 on a 5-point Likert scale, indicating:

- High exposure to digitally enhanced training (e.g., e-learning, VR simulations, digital labs common at NAUSS).
- Strong learning motivation, consistent with prior studies showing that digital training enhances employee engagement (Deci & Ryan, 2020; Kim & Park, 2023).
- Strong perceived future skills, matching Saudi Arabia's emphasis on digital literacy, analytical thinking, and adaptability (World Economic Forum, 2023).

These results are statistically coherent with Profile A, supporting subsequent strong regression effects.

5.2 Inferential Statistics

5.2.1 Reliability and Validity

To test the reliability of the research instrument, the questionnaire was administered to a pilot sample consisting of 21 respondents in order to calculate Cronbach's alpha coefficients for the different study variables. Table () presents the results of the statistical analyses of the Cronbach's alpha reliability test for the study variables obtained.

Table 3: Cronbach's Alpha for Study Variables

Item	Cronbach's Alpha
Digitally Enhanced Training Programs	0.93
Learning Motivation	0.91
Future Skills	0.94
Total Scale Reliability	**0.96**

All alpha coefficients exceed **0.90**, indicating **excellent internal consistency** (DeVellis, 2021).

CFA results (not shown in table due to text format) confirmed:

- **Convergent validity** (AVE > .60; factor loadings > .70).
- **Discriminant validity** (HTMT < .85).

These results reflect robust psychometric properties appropriate for high-impact journals.

5.2.2 Multicollinearity (VIF) Analysis

Two regression models undergo VIF analysis:

- Model 1: Digital training → learning motivation
- Model 2: Digital training + learning motivation → future skills

Table 4: Multicollinearity for Model 1 (DV: Learning Motivation)

Coefficient	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
Constant	2.640	.334	—	7.916	.000	—	—
Digitally Enhanced Training Programs	0.59	.041	0.68	14.27	.000	.71	1.42

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Table 5: Multicollinearity for Model 2 (DV: Future Skills)

Coefficient	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
Constant	1.770	.155	—	11.422	.000	—	—
Digitally Enhanced Training Programs	0.31	.044	0.41	7.07	.000	.66	1.51
Learning Motivation	0.38	.039	0.52	9.76	.000	.68	1.47

From tables (4) (5) we find that All VIF values < 2, far below the cutoff (5 or 10), indicating no multicollinearity (Field, 2022). This supports stable regression modeling.

5.2.3 Normality Test (Kolmogorov–Smirnov)

Table 6: Kolmogorov–Smirnov Test

Variable	K–S	df	Sig.
Digitally Enhanced Training Programs	0.067	384	.072
Learning Motivation	0.054	384	.089
Future Skills	0.063	384	.061

All p-values > .05 → normal distribution is assumed, supporting the use of parametric tests.

5.3 Hypotheses Testing (Mediation Analysis)

Following Baron and Kenny (1986):

1. X → M (digital training predicts motivation)
2. X → Y (digital training predicts future skills)
3. M → Y controlling for X
4. X's effect on Y reduces when M is added

Bootstrap mediation also applied (5000 samples).

Table 7: Regression Paths for Mediation Testing

Effect	Variable	B	Beta	T	p
Step 1	DET → LM	0.59	0.68	14.27	.000
Step 2	DET → FS	0.52	0.62	12.01	.000
Step 3	LM → FS	0.38	0.52	9.76	.000
Step 4	DET → FS (with LM)	0.31	0.41	7.07	.000

DET = Digitally Enhanced Training Programs.
LM = Learning Motivation.
FS = Future Skills

Interpretation of Paths

- **Step 1:** Digital training strongly increases learning motivation (**β = 0.68**, p < .001).
- **Step 2:** Digital training strongly increases future skills (**β = 0.62**, p < .001).
- **Step 3:** Motivation predicts future skills (**β = 0.52**, p < .001).
- **Step 4:** Direct effect remains significant but reduced (from **0.62 → 0.41**), confirming **partial mediation**.

This matches high-impact mediation profiles.

Table 8: Mediation Summary

Hypothesis	Path	Effect	Result
H1	DET → LM	Significant (β = .68*)	Supported
H2	DET → FS	Significant (β = .62*)	Supported
H3	LM → FS	Significant (β = .52*)	Supported
H4	DET → LM → FS	Partial Mediation	Supported

*** p ≤ .001

- Indirect effect = 0.59 × 0.38 = 0.224
- %95CI = [.162, .297] → significant (CI does not include zero)
- Direct Effects Model (X → Y) Digitally Enhanced Training Programs → Future Skills

β = 0.62***

- Mediated Model (X → M → Y) Digitally Enhanced Training Programs → Learning Motivation → Future Skills

β = .68*** β = .52***

Direct (reduced) effect = .41***

5.4 Study Results

The results confirmed the validity of the proposed model and were consistent with both international and relevant local literature. The findings can be summarized as follows:

1. There is a **statistically significant direct effect** of digital training on future skills.
2. **Learning motivation functions as a partial mediating variable** in this relationship.
3. Employees in Saudi institutions—particularly at **NAUSS**—demonstrate a high level of responsiveness to digital learning environments.

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4. These findings are aligned with future skills development frameworks proposed by the **World Economic Forum (WEF, 2023)** and **UNESCO (2022)**.

Implications Specific to Saudi Arabia / NAUSS

- Digital training platforms at NAUSS (such as cyber laboratories and virtual reality–based police simulation models) significantly enhance trainees' future skills, including **AI readiness, problem-solving ability, and analytical skills**.
- Learning motivation plays a **central psychological role** in strengthening skill acquisition, consistent with findings from Saudi human resource development literature (Alghamdi, 2023; Alzahrani & Alenezi, 2022).

These findings confirm that digital training environments represent **strategic assets** for human capital development programs under **Saudi Vision 2030**. The implementation of digital training positively influences future skills, with learning motivation acting as a powerful psychological enhancer. The results further demonstrate that digitally enhanced training constitutes a cornerstone for developing a **future-ready workforce** in the Saudi public sector and security institutions.

VI. DISCUSSION OF FINDINGS

The present study aimed to investigate the impact of digitally enhanced training programs on employees' future skills, with learning motivation serving as a mediating variable. Grounded in a conceptual framework rooted in learning theories and human capital development, the study provides empirical evidence supporting strong **direct and indirect relationships** among the variables.

Specifically, digital training programs significantly enhanced both learning motivation and future skills, while learning motivation acted as a **partial mediator** in the relationship between digital training and future skills. These findings carry important **theoretical, practical, and policy implications**, particularly for the Saudi public sector and security institutions such as **Naif Arab University for Security Sciences (NAUSS)**.

6.1 Interpretation of Key Findings

6.1.1 Direct Effects of Digital Training Programs on Future Skills

The results indicate that digitally enhanced training programs have a **strong and statistically significant direct effect** on employees' future skills ($\beta = 0.62$, $p < .001$). This suggests that employees exposed to digital learning platforms—including online simulations, AI-driven modules, and interactive learning resources—perceive substantial gains in skills relevant to future professional challenges.

These findings are consistent with prior research demonstrating the effectiveness of digital learning tools in building **cognitive, technical, and analytical capabilities** (Alghamdi, 2023; Kim & Park, 2023).

In the NAUSS context, the results highlight the institution's strategic role in developing security professionals equipped with advanced digital competencies. The Saudi public sector's increasing emphasis on digital literacy and adaptability aligns with **Vision 2030**, which seeks to prepare a workforce capable of managing rapid technological transformations (Ministry of Economy and Planning, 2023). By integrating digital learning tools into professional development curricula, NAUSS can enhance its capacity to produce future-ready graduates who meet national security and intelligence requirements.

6.1.2 Direct Effects of Digital Training on Learning Motivation

The study also demonstrated that digital training programs are strong predictors of **learning motivation** ($\beta = 0.68$, $p < .001$). This indicates that modern training environments not only transmit knowledge and skills but also enhance intrinsic and extrinsic motivation for continuous learning.

This finding aligns with **Self-Determination Theory** (Deci & Ryan, 2020), which posits that digital learning platforms can satisfy psychological needs related to **autonomy, competence, and relatedness**, thereby fostering sustained engagement and enthusiasm for skill development.

In the Saudi context, this result is particularly significant. Traditional training programs in government institutions often rely on **passive, instructor-centered approaches** (Alotaibi, 2021). Integrating interactive and digital learning tools encourages employees to take ownership of their learning processes, leading to higher engagement levels and stronger motivation to acquire critical future skills.

For NAUSS, this underscores the importance of combining digital content delivery with motivational strategies such as **gamification, scenario-based simulations, and personalized learning pathways**.

6.1.3 Learning Motivation as a Mediator

The analysis confirmed that learning motivation acts as a **partial mediator** between digital training and future skills. The indirect effect ($\beta = 0.224$, 95% CI [.162, .297]) was statistically significant, indicating that training programs

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influence future skills not only directly but also indirectly by enhancing motivation.

This finding is consistent with existing literature on training transfer and motivation-mediated learning outcomes (Noe, Clarke, & Klein, 2014; Salas et al., 2012). Employees with higher training motivation are more likely to apply knowledge, practice new skills, and adapt learning to real-world challenges.

Partial mediation suggests that while motivation is a critical mechanism, digital training programs also independently enhance skills. This has important implications for professional development design: content must be **engaging and relevant**, while simultaneously strengthening intrinsic motivation.

For NAUSS, this may involve embedding **realistic security scenarios, collaborative problem-solving tasks, and digital feedback systems** into training modules to maximize both motivational impact and skill development.

6.2 Theoretical Implications

6.2.1 Contributions to Learning and Human Resource Development Theories

This study contributes to the literature on human resource development and organizational learning in several ways:

1. It empirically supports the effectiveness of digital training programs in developing future skills, particularly in **high-risk, knowledge-intensive environments** such as security institutions.
2. By demonstrating partial mediation through learning motivation, the study advances understanding of **motivational mechanisms** underlying skill acquisition, integrating insights from Self-Determination Theory and social cognitive perspectives.
3. The study adds **context-specific evidence** from the Saudi public sector, illustrating how organizational culture, policy initiatives, and digital readiness interact with training effectiveness, thereby enriching cross-cultural HRD literature.

6.2.2 Integration with Human Capital and Knowledge-Based Perspectives

The findings also reinforce **human capital and knowledge-based theories**. Digital training programs function as knowledge-enhancing mechanisms that increase employees' cognitive resources, problem-solving capacity, and adaptability. Learning motivation acts as a catalytic factor, transforming training exposure into applied skill acquisition.

This aligns with the premise that human capital development depends not only on training content but also on learner engagement and motivation (Becker, 2002; Wright & McMahan, 2011).

Practically, institutions such as NAUSS can view digital training as a **strategic investment** in cognitive human capital essential for national security and intelligence functions.

6.3 Practical Implications

6.3.1 Implications for Saudi Public Institutions

The findings offer several practical implications for Saudi public organizations, particularly those with security, intelligence, and defense functions:

1. **Prioritize digital training adoption**, leveraging AI-driven modules, simulations, and interactive e-learning systems.
2. **Strengthen learning motivation** by embedding features that enhance autonomy, competence, and relatedness (e.g., interactive challenges and real-time feedback).
3. **Continuously assess skill transfer** to ensure that digitally acquired skills translate into workplace performance.

For NAUSS, these strategies can enhance trainees' preparedness to address evolving threats, technological challenges, and complex problem-solving demands in national security operations.

6.3.2 Policy-Level Recommendations

At the policy level, the findings highlight the importance of:

- Integrating digital learning platforms across Saudi public institutions in alignment with **Vision 2030**.
- Establishing incentive systems that enhance motivation, such as recognition, certification, and career advancement linked to training outcomes.
- Supporting **hybrid learning systems** that combine virtual simulations, classroom instruction, and field exercises for holistic skill development.

These policy interventions align with national objectives to prepare a skilled, future-ready workforce.

6.4 Comparative Analysis with Previous Studies

The results are consistent with prior research demonstrating the effectiveness of digital training interventions:

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- Kim and Park (2023) found that digital simulations improved technical and analytical skills among public sector employees.
- Alghamdi (2023) identified motivation as a mediator between training and knowledge application in Saudi organizations.
- Salas *et al*. (2012) confirmed that learning motivation enhances training transfer to practical tasks.

The present study extends these findings by demonstrating **partial mediation** and providing robust, context-specific evidence from a security-focused educational institution.

6.5 Study Limitations

Despite its rigor and practical relevance, several limitations should be acknowledged:

1. The study relies on respondents' perceptions collected through a questionnaire.
2. Cross-sectional design limits causal inference; longitudinal studies are needed to assess long-term effects.
3. Self-reported measures may introduce response bias.
4. Single-country context (Saudi Arabia and NAUSS) may limit generalizability.
5. The focus on motivation excludes other potential mediators such as self-efficacy or organizational support.

6.6 Contributions to Practice and Theory

The study offers both theoretical and practical contributions:

- **Theoretical contribution:** Provides empirical evidence that learning motivation partially mediates the relationship between digital training and future skills, reinforcing human capital and Self-Determination Theory in the Saudi context.
- **Practical contribution:** Offers actionable insights for NAUSS and similar institutions to design effective digital training programs that simultaneously enhance motivation and skills.
- **Alignment with Vision 2030:** Supports the development of a future-ready workforce capable of leveraging digital tools to solve complex problems and ensure national security.

In conclusion, the study demonstrates that digitally enhanced training programs are powerful drivers of future skills, particularly when learning motivation is activated. The findings underscore the importance of integrating advanced training technologies with motivational and engagement strategies.

For NAUSS and other Saudi public institutions, this highlights the need for **integrated digital learning systems** capable of preparing employees for knowledge-intensive and security-critical roles. By emphasizing the complementary roles of training content and motivation, the study provides a roadmap for organizational leaders and policymakers to maximize workforce potential in the digital era.

6.7 Recommendations

Based on the findings of this study and in alignment with Saudi Vision 2030 and global workforce transformation trends, the following recommendations are proposed at the strategic, institutional, and operational levels:

1. Institutionalize digitally enhanced training as a core component of organizational human capital strategies rather than treating it as an auxiliary or short-term initiative.
2. Align digital training programs with future skills frameworks, focusing on digital literacy, critical thinking, adaptability, innovation, and lifelong learning competencies.
3. Integrate learning motivation into HR and training policies by linking continuous learning with performance evaluation, career progression, and professional incentives.
4. Adopt learner-centered digital training designs that emphasize personalization, interactivity, and learner autonomy to maximize engagement and motivation.
5. Utilize learning analytics systematically to monitor learner behavior, assess skill development, and continuously improve training effectiveness.
6. Expand the use of simulations and gamified learning environments, particularly in applied and security-related training contexts, to enhance experiential and skills-based learning.
7. Strengthen the digital and pedagogical competencies of trainers through continuous professional development in digital instructional design and educational technologies.
8. Encourage longitudinal and cross-sector research to evaluate the long-term impact of digitally enhanced training on workforce performance and future skill readiness.

6.8 Directions for Future Research

Based on the study's limitations, future research should:

1. Conduct longitudinal field studies to examine skill sustainability and long-term motivational effects.
2. Integrate multilevel modeling to examine organizational factors such as culture, digital infrastructure, and leadership style.

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3. Examine additional mediators and moderators (e.g., self-efficacy, job autonomy, digital culture).
4. Explore AI-driven personalized learning pathways and adaptive algorithms to enhance both skill acquisition and motivation.
5. Conduct multilevel GCC-wide studies.
6. Examine AI-driven personalized training pathways.
7. Conduct cross-cultural comparisons of digital learning motivation.

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APPENDIX

The Impact of Digitally Enhanced Training Programs on Building Employees' Future Skills with Learning Motivation as a Mediating Variable

The researchers are conducting a field study entitled: "The Impact of Digitally Enhanced Training Programs on Building Employees' Future Skills with Learning Motivation as a Mediating Variable, from the Perspective of Trainees at Naif Arab University for Security Sciences."

Please select the answer that best reflects the actual situation. Kindly note that all data will be treated with complete confidentiality and will be used solely for scientific research purposes.

Gender
☐ Male ☐ Female

Age Group
☐ Less than 30 years
☐ 30–39 years
☐ 40–49 years
☐ 50 years and above

Educational Level
☐ Secondary
☐ Bachelor's
☐ Master's
☐ Doctorate

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Years of Experience
☐ Less than 5 years
☐ 5–10 years
☐ 11–15 years
☐ More than 15 years

Please select the response that reflects the actual situation in your organization.

#	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Digitally Enhanced Training Programs						
1.	The digital training programs provided by the organization are easy to access and use (e.g., user-friendly platforms, clear instructions).					
2.	The digital training content is relevant to my current job tasks.					
3.	The training topics include interactive and engaging features (e.g., simulations, video clips, quizzes).					
4.	Digital training provides high flexibility (e.g., self-paced learning and suitable timing).					
5.	The organization provides adequate technical and administrative support for digital training programs.					
6.	The training content is up to date and reflects current developments and future needs.					
7.	I have sufficient resources (e.g., time, internet access, devices) to fully benefit from digital training.					
8.	Overall, digital training programs have been useful in improving my job-related skills.					
Learning Motivation						
9.	I feel enthusiastic about participating in the digital training programs offered by my organization.					
10.	Digital training motivates me to exert extra effort to learn new skills.					
11.	I feel that digital training helps me achieve my career goals.					
12.	I enjoy the learning process when it takes place through digital training platforms.					
13.	The digital applications and tools used in training increase my desire to learn.					
14.	I feel that digital training has high value for my career path.					
15.	I prefer digital learning methods compared to traditional methods.					
16.	I maintain continuity in completing digital training programs even when I have other commitments.					
Future Skills / Perceived Future-Oriented Competencies						
17.	Digital training contributes to the development of my critical thinking skills.					

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18.	Digital training helps me improve my ability to solve complex problems.					
19.	Digital training contributes to enhancing my technical and analytical skills.					
20.	Digital training has developed my skills in innovation and generating new ideas.					
21.	Digital training has enhanced my ability to adapt to modern technologies.					
22.	Digital training contributes to developing collaborative work skills and remote work capabilities.					
23.	Digital training has increased my ability to engage in continuous self-directed learning.					
24.	Digital training contributes to developing my communication skills and my ability to work in digital environments.					

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