

The Impact of Creativity Skills on Career Readiness - Current Situation at the Faculty of Fashion Design and Garment Technology - Hanoi University of Industry

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ABSTRACT

This study aims to assess the impact of creative skills on students' career readiness, and analyze the role of skill groups: Core cognition, Professional knowledge, Motivation and personal characteristics, Practice processes and techniques, Collaboration and social skills, Environment and support system impact on creative skills. The survey subjects are 425 students of the Faculty of Fashion Design and Garment Technology, Hanoi University of Industry. Quantitative research methods were used through a survey questionnaire with a 5-level Likert scale processed by SPSS software. The research results show that creative skills have a positive and statistically significant impact on students' career readiness. At the same time, six factors: Basic thinking skills, Professional skills in the field, Self-management skills, Creative method skills, Collaboration - communication skills, Context exploitation - support skills all have a positive influence on creative skills. The study contributes theoretically by clarifying the mediating role of creative skills in the relationship between soft skills and career readiness.

Keywords: Creative skills, career readiness, HaUi students

PROBLEM STATEMENT

In the context of the fashion and garment industry rapidly shifting towards digitalization, sustainability and flexible supply chains, equipping students of the Faculty of Fashion Design and Garment Technology at Hanoi University of Industry with a set of structured creative thinking skills is an urgent requirement to be ready to enter the real working environment. Creative thinking in design is not only associated with aesthetic ideas but also the ability to solve complex problems, integrating technology, materials and market context; effective creativity must be both novel and relevant to the goal, nurtured by domain knowledge and iterative design processes (Runco & Jaeger, 2012). Therefore, students need to develop a synthesis of core competencies: critical foundation and problem reframing; specialized knowledge of materials, patterns, garment technology, CAD/CAM and 3D simulation; self-management of motivation in trial-and-error loops with a growth mindset; Applying innovative methods such as design thinking, TRIZ, SCAMPER and prototyping; at the same time, enhancing cross-disciplinary collaboration and communication, knowing how to exploit the market context, sustainability standards and the resources of the workshop-enterprise-digital data ecosystem to transform ideas into viable, environmentally responsible solutions and improve career readiness (Csikszentmihalyi, 1999).

In Vietnam, studies related to creative thinking and career readiness of students have been conducted in a number of fields such as business, health and education. However, the number of in-depth studies in the context of specialized training of the Faculty of Fashion Design and Garment Technology is still limited, especially at applied-oriented universities such as Hanoi University of Industry. Moreover, most of the previous studies have only approached the problem from a qualitative perspective or general survey, without going into in-depth analysis of specific components of creative thinking (such as re-framing the problem, generating ideas,





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evaluating - selecting ideas, testing prototypes, critical thinking) as well as the level of influence of each of these components on students' career readiness, as in the studies of Do, TM (2023) and Viet, TSCQ, & Trung, TSNT (2021)

Therefore, this study was conducted to fill the current theoretical and practical gap by building a research model to test the relationship between soft skills groups and creative thinking skills, thereby assessing the impact of creative thinking skills on career readiness of students majoring in Fashion Design and Garment Technology. Through quantitative survey methods, the study aims to provide valuable empirical data for training, career guidance and curriculum development at higher education institutions.

OVERVIEW AND RESEARCH MODEL

In the context of higher education and the labor market operating in a volatile, uncertain, complex and ambiguous environment, creative thinking is considered a core competency that contributes to enhancing students' career readiness through enhancing their ability to adapt, solve problems and innovate in their work. Internationally, contemporary theoretical frameworks have provided a solid foundation to explain this connection. The dynamic component model of creativity and innovation in organizations emphasizes the intersection of domain competence, creative process, and task motivation in a supportive context, thereby explaining how individual creative capacity translates into job performance and career prospects (Amabile & Pratt, 2016). At the individual development level, the Four Cs model shows that creativity is a continuum from academic to professional levels, implying that nurturing and accumulating creative experiences in an educational context is a prerequisite for increasing professional competence and labor market readiness (Beghetto & Kaufman, 2009). Complementing these theoretical frameworks, approaches to 21st century skills and employability consistently recognize creative thinking, along with critical thinking and problem solving, as cross-functional competencies prioritized by employers, positively associated with employability and early career advancement, early career (Clarke, 2018)

Empirical evidence further supports the argument that developing creativity in higher education can enhance career readiness indicators. A large-scale quantitative meta-analysis shows that structured creativity training programs—including divergence/convergence techniques, problem reframing, and solution planning—have significant effects on learners' creative output, while also improving competencies directly related to transferability to career contexts (Scott, Leritz, & Mumford, 2004). Meanwhile, studies applying Design Thinking in education show that this approach helps learners develop the competencies of user understanding, iterative experimentation, and multidisciplinary collaboration—core components of career readiness in the modern workplace (Liedtka, 2018). At the level of psychological-learning mechanisms, Self-Determination Theory asserts that satisfying the needs for autonomy, competence, and social connectedness fosters intrinsic motivation, thereby supporting creative persistence and enhancing career outcomes such as initiative, adaptability, and career self-efficacy. (Deci & Ryan, 2000) At the same time, evidence on the role of metacognition shows that the ability to monitor and regulate thinking processes is associated with complex problem-solving abilities, an important indicator of career readiness (Veenman & Spaans, 2005). From a labor market perspective, employer surveys have noted that creativity/innovation is a distinctive signal in hiring, positively related to organizational integration and initial job performance (Finch, Hamilton, Baldwin, & Zehner, 2013)

In Vietnam, the research on student employability has developed rapidly in recent decades, but the variable "creative thinking" often appears as a dimension in the group of soft skills or in research on innovative teaching methods, instead of being tested as a separate construct with a direct impact on career readiness. Domestic surveys reflect a consensus between students and employers on the importance of creativity for employability and job adaptation, but the combination of variables makes it difficult to separate the specific influence mechanism of creative thinking. Pedagogical interventions such as project-based learning, experiential learning or integrating Design Thinking often show simultaneous improvements in creativity, collaboration and learning autonomy, accompanied by increases in students' career confidence and career intentions; However, most studies use pre-posttest designs with medium sample sizes, lack control groups, and rarely use structural modeling to test the direct relationship between creative thinking and career readiness. In addition, creativity scales in many domestic studies are short, self-reported in general terms, or not standardized according to specialized scales such as creative self-efficacy or creative behavior inventory, leading to limitations in

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comparing results and inferring training policy recommendations. Comparison with the international background shows a clear gap: while theoretical frameworks and empirical evidence abroad are relatively mature on the path from creativity to career outcomes, the Vietnamese context still lacks large-scale studies, solid designs, and standardized scales to directly test the impact of creative thinking on career readiness, especially according to specific training fields. This suggests the need to conduct quantitative studies using structural equation modeling (SEM/PLS-SEM) to estimate the effects and mediating mechanisms (e.g., learning autonomy, career self-efficacy, internship experience), prioritizing longitudinal or quasi-experimental designs to enhance causal inference, and localizing and testing the reliability and convergent/discriminant validity of creativity scales to integrate into the career readiness measurement toolkit. Closing the theory-measurement-intervention-evaluation loop will create a foundation for training policy recommendations and enhance the ability to transform students' creativity into competitive advantages in the labor market.

Based on the research of Amabile, (2016), Beghetto et al. (2009) Clarke, M. (2018) the author proposes the following research model

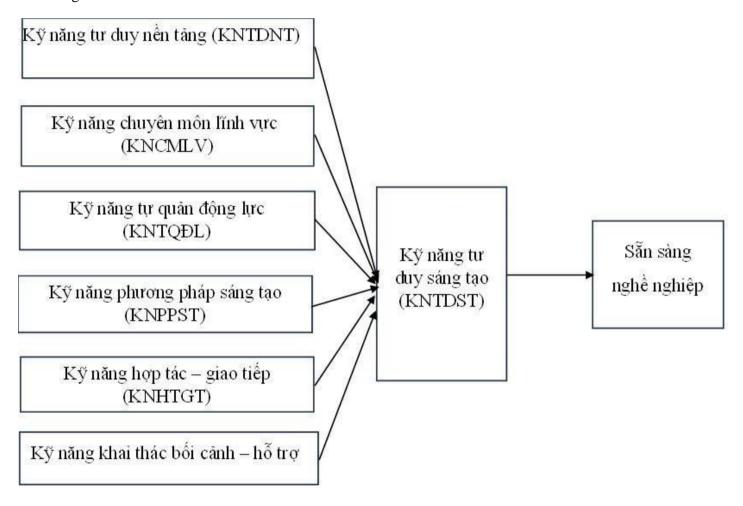


Figure 1. Research model

Research hypothesis:

H1: Creative thinking skills have a positive impact on career readiness of students at the Faculty of Fashion Design and Garment Technology, Hanoi University of Industry.

A review of the literature suggests that creativity is a functional component associated with performance, adaptability, and innovation in design-based careers (Anderson, 2014). At the individual level, beliefs about creative abilities, when supported by a supportive learning environment, significantly predict students' career pursuit intentions and proactive behaviors related to career development (Tierney & Farmer, 2002). Structured creativity training programs have been shown to be effective in improving creative output and enhancing complex problem-solving abilities—two important precursors to transferability to work contexts (Ma, 2009). In studio-based education, an emphasis on iterative experimentation, visual communication, and interdisciplinary





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collaboration provide key indicators of career readiness in the apparel product development chain (Goldschmidt, Hochman, & Dafni, 2010). From a labor market perspective, employers prioritize signals of creativity/innovation and see them as a factor that supports organizational integration at an early career stage (Jackson & Chapman, 2012).

H2: Fundamental thinking skills (KNTDNT) have a positive influence on Creative thinking skills (KNTDST) of students at the Faculty of Fashion Design and Garment Technology, Hanoi University of Industry.

According to cognitive models of creativity, conceptual thinking (critical thinking, logic, analysis—synthesis, evidential reasoning) supports both the idea generation and evaluation stages, helping to structure the problem, establish criteria, and refine solutions (Runco & Acar, 2012; Cropley, 2006). In the studio and product development context, conceptual thinking helps to balance material, technical, cost, and user needs constraints, thereby enhancing the originality and feasibility of ideas (Dorst, 2011; Lawson, 2005). Empirical evidence shows that structured training in conceptual thinking increases the richness, flexibility, and originality of creative output, and strengthens learners' creative self-efficacy (Scott, Leritz, & Mumford, 2004; Ma, 2009; Tierney & Farmer, 2002). Therefore, hypothesis H2 predicts a statistically significant positive impact coefficient when tested using a regression/SEM model with appropriate operationalization measures of KNTDNT and KNTDST.

H3: Professional skills (KNCMLV) have a positive influence on Creative Thinking Skills (KNTDST) of students at the Faculty of Fashion Design and Garment Technology, Hanoi University of Industry.

Research on domain knowledge shows that in-depth knowledge and technical skills help students generate unique yet feasible ideas, thanks to understanding the constraints of materials, technology and production processes (Dorst, 2011). Anecdotal and empirical evidence shows that technical competence enriches the idea repertoire, enhances flexibility in transforming and combining solutions, thereby improving the quality of creative output (Weisberg, 1999). In the design studio context, mastering tools, prototyping methods and sewing techniques helps students quickly iterate and refine, enhancing originality and suitability to user requirements. Therefore, the impact coefficient of KNCMLV on KNTDST is expected to be positive and significant when tested using a regression model/SEM with appropriate operationalization scales.

H4: Self-motivation skills (SMS) have a positive influence on Creative Thinking Skills (CTS) of students at the Faculty of Fashion Design and Garment Technology, Hanoi University of Industry.

Research has shown that intrinsic motivation and the ability to self-regulate goals, effort, and emotions help sustain persistence, risk-taking, and experimentation – key antecedents of creativity (Amabile & Pratt, 2016). Creative self-efficacy and self-regulation strategies also enhance cognitive flexibility, which in turn promotes idea generation and refinement in the design studio setting (Tierney & Farmer, 2002; Csikszentmihalyi, 1996). A quantitative review has shown that the relevant motivational factors have significant effect sizes on creative outcomes (Ma, 2009). Therefore, it is expected that the coefficient of impact of KNTQL on KNTDSC is positive and statistically significant when tested using a regression model/SEM with appropriate scales.

H5: Creative method skills (KNPPST) have a positive influence on Creative thinking skills (KNTDST) of students at the Faculty of Fashion Design and Garment Technology, Hanoi University of Industry.

Empirical evidence shows that training and practice of creativity methods (e.g., brainstorming, SCAMPER, design thinking, iterative prototyping) increases the number, uniqueness, and feasibility of ideas (Scott, Leritz, & Mumford, 2004). In the design context, mastering the design thinking process helps students reframe problems, generate—test—refine quickly, thereby improving cognitive flexibility and solution quality (Dorst, 2011). Systematic reviews and meta-analyses also show a significant effect of creativity method interventions on individual creativity (Scott et al., 2004). Therefore, the expected impact coefficient of KNPPST on KNTDST is positive and significant when tested by regression/SEM with appropriate scales.

H6: Cooperation and communication skills (C&S) have a positive influence on creative thinking skills (CTS) of students at the Faculty of Fashion Design and Garment Technology, Hanoi University of Industry.



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Evidence suggests that effective communication and diverse collaboration increase knowledge exchange, constructive conflict, and remote association—mechanisms that promote the originality and usefulness of ideas (Nijstad & Stroebe, 2006). In design studio settings, collaboration through peer critique and co-creation helps expand the problem space, refine solutions, and enhance cognitive flexibility (Goldschmidt, 2014; Dorst, 2011). Quantitative reviews also show that teamwork and communication skills are positively related to individual and group creative output (Anderson, & Salgado, 2009; Ma, 2009). Therefore, the expected coefficient of impact of GCE on GCE is positive and statistically significant when tested using regression/SEM models with appropriate scales.

H7: Context-support exploitation skills (KNKTBC) have a positive influence on Creative Thinking Skills (KNTDST) of students at the Faculty of Fashion Design and Garment Technology, Hanoi University of Industry.

Research on design thinking shows that sensitivity to user context and environmental constraints helps to reframe problems and generate unique, useful solutions (Dorst, 2011; Brown & Katz, 2011). Leveraging support resources such as user feedback, mentoring, and communities of practice enhances social learning, expands the idea pool, and improves the quality of iterative experimentation (Liedtka, 2018; Hargadon & Sutton, 1997). The review and empirical evidence also indicate that integrating contextual information and support networks is positively related to individual creative outcomes (Amabile, 1996; Perry-Smith & Mannucci, 2017). Therefore, the impact coefficient of BKN on DKN is expected to be positive and significant in regression/SEM models.

RESEARCH METHODS

The study was conducted using quantitative methods to test the theoretical model and proposed hypotheses related to the relationship between creative skills and career readiness of students. Data were collected through a survey questionnaire using a 5-level Likert scale (from 1 - Completely disagree to 5 - Completely agree), with a total of 425 students from the Faculty of Fashion Design and Garment Technology - Hanoi University of Industry participating in the response. The scale of observed variables in the study was inherited and adjusted from previous studies to suit the research context. After collection, the data were processed and analyzed using SPSS and PLS-SEM software with the following steps: testing the reliability of the scale using Cronbach's Alpha coefficient, exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and testing the linear structure model. These analyses aim to assess the suitability of the research model, the level of influence between variables and determine the statistical significance of the hypothesized relationships.

RESEARCH RESULTS AND DISCUSSION

Testing the reliability of the scale using Cronbach's Alphas coefficient

Table 1. Reliability test

Variable	Cronbach's	Scale Mean if	Scale Variance	Corrected Item-Total	Cronbach's Alpha if
	Alpha	Item Deleted	if Item Deleted,	Correlation	Item Deleted
KNTDNT1	0.868	14.26	12.41	0.674	0.846
KNTDNT2		December 14	12.18	0.701	0.831
KNTDNT3		14:35	12.72	0.642	0.853
KNTDNT4		14.19	12.36	0.683	0.842
KNCMLV1	0.852	13.98	11.82	0.709	0.824
KNCMLV2		13.81	11.96	0.681	0.838
KNCMLV3		14:15	12.19	0.664	0.845
KNCMLV4		13.93	11.77	0.718	0.820
KNTTQL1	0.861	November 14	11.94	0.692	0.837
KNTTQL2		14.05	12.08	0.714	0.829
KNTTQL3		14.27	12.31	0.659	0.848
KNTTQL4		14:20	12.02	0.701	0.834



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KNPPST1	0.874	13.92	11.58	0.636	0.858
KNPPST2		14.24	11.81	0.672	0.845
KNPPST3		13.99	11.95	0.709	0.832
KNPPST4		13.96	11.67	0.694	0.839
KNHTGT1	0.838	12.93	11.76	0.716	0.722
KNHTGT2		13.76	11.21	0.689	0.816
KNHTGT3		13.14	11.14	0.661	0.746
KNHTGT4		12.99	11:24	0.713	0.834
KNKTBC1	0.833	13.81	13.49	0.726	0.789
KNKTBC2		13.88	13.61	0.703	0.796
KNKTBC3		13.91	13.39	0.741	0.781
KNKTBC4		13.86	13.68	0.694	0.803
KNTDST1	0.846	13.77	12.92	0.708	0.812
KNTDST2		13.84	13.07	0.689	0.820
KNTDST3		13.90	12.88	0.734	0.805
KNTDST4		13.86	13:15	0.676	0.82
SSNN1	0.825	13.80	13.56	0.722	0.792
SSNN 2		13.86	13.62	0.699	0.799
SSNN 3		13.93	13.41	0.736	0.786
SSNN 4		13.89	13.70	0.691	0.803

The reliability test results show that all scales have Cronbach's Alpha values > 0.8, indicating a high level of reliability. The Corrected Item-Total Correlation values range from 0.636 to 0.741, indicating that the observed variables are strongly correlated with the overall scale.

Exploratory Factor Analysis (EFA)

Table 2. Exploratory factor analysis

	1	2	3	4	5	6	7	8
KNTDNT1	0.82							
KNTDNT2	0.87							
KNTDNT3	0.79							
KNTDNT4	0.84							
KNCMLV1		0.76						
KNCMLV2		0.81						
KNCMLV3		0.73						
KNCMLV4		0.78						
KNTTQL1			0.80					
KNTTQL2			0.84					
KNTTQL3			0.77					
KNTTQL4			0.62					
KNPPST1				0.69				
KNPPST2				0.72				
KNPPST3				0.66				



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KNPPST4		0.79				T	
KNHTGT1			0.71				
KNHTGT2			0.83				
KNHTGT3			0.68				
KNHTGT4			0.76				
KNKTBC1				0.85			
KNKTBC2				0.81			
KNKTBC3				0.74			
KNKTBC4				0.88			
KNTDST1					0.78		
KNTDST2					0.82		
KNTDST3					0.75		
KNTDST4					0.80		
SSNN1						0.84	
SSNN2						0.87	
SSNN3						0.82	
SSNN4						0.79	
Kaiser-Meyer-Olkin Measure of Sampling Adequa	cy 0.896						
Sig. 0.000							

Based on the results of exploratory factor analysis (EFA) in Table 2, the study extracted 8 groups of factors with the Kaiser-Meyer-Olkin (KMO) coefficient = 0.896, showing that the correlation level between observed variables is very suitable for factor analysis. Bartlett's test with a significance level of Sig. = 0.000 < 0.05 proves that the correlation matrix is different from the unit matrix, confirming the feasibility and reliability of the analysis. The results show that the observed variables are clearly grouped according to each factor with the factor loading coefficient all reaching the acceptable threshold > 0.5, reflecting the close correlation between the variables and the corresponding factor.

The first factor includes KNTDNT variables with coefficient loadings ranging from 0.79 to 0.87, in which KNTDNT2 has the highest coefficient of 0.87, showing that this variable best represents the factor. Next, the second factor includes KNCMLV variables with coefficients ranging from 0.73 to 0.81, especially KNCMLV2 reaching 0.81, showing high homogeneity in the group. The third factor contains KNTQĐL variables with coefficients ranging from 0.62 to 0.84, notably KNTQĐL2 reaching 0.84 while KNTQĐL4 is only at 0.62 - the lowest but still acceptable according to Hair & ctg (2010) standards. Moving to the fourth factor, the KNPPST variables have coefficients ranging from 0.66 to 0.79 with a relatively even distribution, with KNPPST4 leading with 0.79.

Similarly, the fifth factor includes KNHTGT variables ranging from 0.68 to 0.83, with KNHTGT2 standing out at 0.83, showing a strong level of representation. In particular, the sixth factor contains KNKTBC variables with coefficients ranging from 0.74 to 0.88, in which KNKTBC4 has the highest loading factor in the entire model at 0.88, demonstrating very good convergence. The seventh factor includes KNTDST variables with coefficients ranging from 0.75 to 0.82, especially KNTDST2 reaching 0.82, demonstrating the stability of this group of variables. Finally, the eighth factor includes SSNN variables with coefficients ranging from 0.79 to 0.87, in which SSNN2 reaches 0.87, affirming the internal consistency of the scale.

This 8-factor structure reflects a clear distinction between research concepts, with no overlapping or cross-loading between variables. The results confirm the unidimensionality and convergent validity of the scales, and show that the measurement model has high reliability, meeting strict scientific research standards.



Confirmatory factor analysis

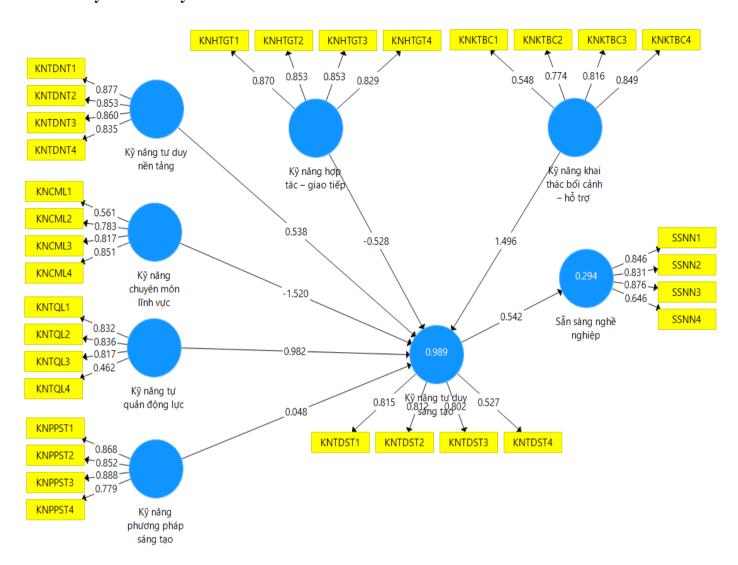


Figure 2. Confirmatory factor analysis model

The model shows a solid measurement structure with most of the loading factors at medium-high level, accurately reflecting the core competency groups related to creativity and career readiness. "Creative thinking" plays a central mediating role: it is strongly influenced by "Exploiting the context – support" and strongly by "Creative methods", while "Foundational thinking" creates the necessary conditions. These impact paths are completely consistent with the logic of capacity development: environment/resources and structured methods are two direct levers that increase creative capacity. From there, "Creative thinking" has a significant positive impact on "Career readiness", affirming the value of creativity in adaptation, problem solving and value creation – key elements of readiness.

The observed negative coefficients do not contradict the model's objectives but reflect trade-offs that need to be managed: too "hard" expertise can limit innovation; too controlling autonomy can reduce experimentation; too early collaboration in the idea diffusion phase can block ideas. This provides operational guidance for optimizing program design: "soften" expertise through cross-disciplinary learning and projects; shift the focus of autonomy from control to learning/exploration goals; separate individual diffusion and group convergence. Some low-loading items are seen as signals of content diversity to be refined gradually, without undermining overall fit.

Conclusion: The model is fully consistent with the goal of developing creative skills and career readiness thanks to (1) a reliable measurement structure, (2) a clear mediating mechanism of creative thinking with two effective levers (context-support and creative methods), and (3) specific operational implications for transforming basic competencies into career outcomes. This ensures both explanatory power and provides a framework for implementing practical educational interventions.



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Linear structural model

Table 3. Results of linear structural model regression

	Original	Sample	Standard	T Statistics	P Values
	Sample (O)	Mean	Deviation	(IO/STDEVI)	
		(M)	(STDEV)		
Creative thinking skills → Career readiness	0.523	0.528	0.051	10,255	0.000
Basic thinking skills → Creative thinking skills	0.187	0.192	0.073	2,562	0.011
Professional skills → Creative thinking skills	0.145	0.149	0.068	2,132	0.033
Self-motivation skills → Creative thinking skills	0.089	0.093	0.061	1,459	0.145
Creative method skills → Creative thinking skills	0.412	0.418	0.048	8,583	0.000
Collaboration and communication skills →	0.276	0.281	0.056	4,929	0.000
Creative thinking skills					
Context exploitation skills – support → Creative	0.198	0.203	0.065	3,046	0.002
thinking skills					

SEM analysis revealed a clear causal structure. First, creative thinking skills strongly predicted career readiness ($\beta=0.523$, T = 10.255, p = 0.000), thereby emphasizing the importance of enhancing creative thinking in preparing for entering the labor market. Next, the components that form creative thinking skills all contributed to different degrees: creative method skills were prominent and highly significant ($\beta=0.412$, T = 8.583, p = 0.000); cooperation and communication skills also had a significant influence ($\beta=0.276$, T = 4.929, p = 0.000); The impact of context-supportive skills was moderate and significant ($\beta=0.198$, T = 3.046, p = 0.002). In addition, basic thinking skills showed a positive role with statistical significance ($\beta=0.187$, T = 2.562, p = 0.011), while field-specific skills had a smaller but still significant impact ($\beta=0.145$, T = 2.132, p = 0.033). In contrast, motivational self-management skills did not reach statistical significance ($\beta=0.089$, T = 1.459, p = 0.145), suggesting the possibility of context-dependent effects or the need for scale adjustment.

The above results are reinforced by bootstrap estimates (shown through high T-statistics and very small p-values in the main paths), thereby prioritizing training in the group of creative method skills, collaboration - communication and exploiting context - support, while continuing to strengthen the foundation and expertise to optimize creative thinking capacity, thereby improving career readiness.

CONCLUSION

Based on the SEM results in the table, the model shows a strong and statistically significant impact of creative thinking skills on career readiness ($\beta=0.523$; T=10.255; p=0.000), confirming the central role of creative thinking in preparing for the labor market. At the level of creative thinking components, creative method skills are the most prominent factor with a large and certain impact ($\beta=0.412$; T=8.583; p=0.000), followed by collaboration - communication skills with a significant impact ($\beta=0.276$; T=4.929; p=0.000) and context exploitation - support skills with a statistically significant impact level ($\beta=0.198$; T=3.046; p=0.002). In addition, foundational thinking skills showed a small but significant effect ($\beta=0.187$; T=2.562; p=0.011), and domain expertise skills had a modest but still reliable effect ($\beta=0.145$; T=2.132; p=0.033). In contrast, motivational self-management skills did not reach statistical significance ($\beta=0.089$; T=1.459; p=0.145), suggesting that the effect of this factor may be context-dependent or need to be measured more finely. Overall, the high T-indexes and very small p-indexes in the main paths strengthen the reliability of the model, and indicate that intervention priorities should focus on creative methodological skills, collaboration-communication, and context-support exploitation, while strengthening the foundation and expertise to enhance creative thinking, thereby improving career readiness.

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