

Original Paper

The Role of Social Capital in Enhancing Career Adaptability among University Students in the AI Era

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Abstract

Artificial intelligence (AI) is reshaping labor markets and increasing the importance of career adaptability among university students. Despite growing research on AI literacy and employability, limited attention has been paid to the role of social capital in supporting students' adaptation to AI-driven career environments. This study examines the relationship between social capital and career adaptability among Vietnamese university students.

Using a mixed-methods approach, the study combines survey data from 256 students with semi-structured interviews involving students, lecturers, and recruitment specialists. Structural Equation Modeling (SEM) and thematic analysis were employed to examine the proposed relationships. The findings indicate that bonding, bridging, and linking social capital positively influence career adaptability, with bridging social capital demonstrating the strongest effect. AI literacy and academic performance partially mediate this relationship. Qualitative evidence further reveals that social capital facilitates access to career information, technological learning, emotional support, and professional opportunities.

The study contributes to the literature by integrating Social Capital Theory and Career Adaptability Theory within the context of artificial intelligence. The findings highlight that sustainable employability in the AI era depends on the interaction between social resources and technological competencies.

Keywords

social capital; career adaptability; AI literacy; artificial intelligence; employability; university students

1. Introduction

1.1 Research Background

The rapid advancement of Artificial Intelligence (AI) is fundamentally transforming economies, industries, and labor markets worldwide. Emerging AI technologies, particularly generative AI systems such as ChatGPT, Gemini, and Copilot, are reshaping the nature of work, altering skill requirements, and redefining career pathways across diverse sectors. According to recent reports by the World Economic Forum (2025), technological transformation and AI adoption are expected to create significant opportunities while simultaneously disrupting traditional employment patterns. Consequently, future workers are increasingly required to develop not only technical and digital competencies but also critical thinking, adaptability, lifelong learning capabilities, and resilience in uncertain labor market environments.

Within this context, university students represent a particularly important group because they are preparing to enter a labor market characterized by rapid technological change and increasing uncertainty. Beyond acquiring disciplinary knowledge and digital skills, students must develop the capacity to continuously adapt to evolving occupational demands. Career adaptability, therefore, has become a critical competency for navigating transitions between education and employment, responding to technological disruption, and sustaining long-term career development.

While considerable attention has been devoted to digital literacy and AI-related competencies, less attention has been paid to the social resources that enable students to effectively adapt to technological change. Among these resources, social capital has emerged as a particularly significant factor. Social capital, reflected in social networks, trust, norms of reciprocity, and access to institutional support, provides individuals with valuable information, emotional support, learning opportunities, and career-related resources. In an increasingly digitalized society, social capital may play an even more important role by facilitating access to AI-related knowledge, professional networks, internships, mentoring opportunities, and employment information.

Drawing on the theoretical perspectives of Bourdieu (1986), Coleman (1988), and Putnam (2000), social capital can be understood as a productive resource embedded within social relationships that enhances individuals' capacity to achieve desired outcomes. For university students, social capital may contribute not only to academic success but also to career preparation and adaptability in an AI-driven labor market.

1.2 Research Gap

Existing studies have extensively examined three major streams of research. First, a growing body of literature has investigated the impact of AI on higher education, focusing on teaching innovation, learning effectiveness, digital transformation, and the integration of AI-assisted learning tools. Second, numerous studies have explored students' digital competencies, AI literacy, and readiness for technology-enhanced learning environments. Third, social capital research has traditionally focused on its effects on educational achievement, employment outcomes, social mobility, and labor market integration.

Despite these important contributions, limited attention has been given to the intersection of these research domains. In particular, there remains a lack of empirical and theoretical studies examining how social capital influences students' ability to adapt to educational and occupational environments shaped by artificial intelligence. Existing research tends to emphasize technological competencies while overlooking the social mechanisms through which students access information, acquire AI-related knowledge, develop professional networks, and enhance their adaptive capacities.

Furthermore, evidence from developing and emerging economies, including Vietnam, remains relatively scarce. As Vietnam undergoes rapid digital transformation and seeks to improve the quality of its human resources in the knowledge economy, understanding the role of social capital in fostering career adaptability among university students becomes increasingly important.

This study seeks to address this gap by investigating the relationship between social capital and career adaptability in the context of AI-driven transformation.

1.3 Research Objectives

The study pursues three primary objectives:

- 1) To examine the current state and characteristics of social capital among Vietnamese university students.
- 2) To evaluate the impact of social capital on students' career adaptability in the context of artificial intelligence and digital transformation.
- 3) To propose policy and educational recommendations for strengthening social capital as a means of enhancing students' adaptability, employability, and career resilience in the AI era.

1.4 Research Contributions

This study contributes to the literature in three important ways. First, it extends social capital theory by applying it to the emerging context of artificial intelligence and technological disruption. Second, it integrates social capital theory with Career Adaptability Theory to develop a conceptual framework explaining how social relationships and networks support students' adaptation to AI-driven changes. Third, the study provides empirical and policy insights for higher education institutions seeking to prepare future graduates for increasingly dynamic and technology-intensive labor markets.

By highlighting the role of social capital as a strategic resource for career development, the study contributes to ongoing discussions concerning sustainable employability, digital transformation, and human capital development in the twenty-first century.

2. Theoretical Framework and Analytical Model

2.1 Social Capital in the AI Era

Social capital is widely recognized as a critical resource embedded in social relationships that facilitates access to information, support, and opportunities. Bourdieu (1986) conceptualized social capital as resources derived from durable social networks, while Coleman (1988) emphasized its functional role in

enabling cooperation and achieving desired outcomes. Putnam (2000) further highlighted the importance of trust, reciprocity, and social connectedness in generating both individual and collective benefits.

In higher education, social capital provides students with access to academic support, career information, professional guidance, and employment opportunities. As artificial intelligence (AI) increasingly transforms labor markets, social capital becomes even more important because access to technological knowledge, mentorship, and emerging career opportunities often depends on social networks rather than formal education alone. Students with stronger social capital are therefore more likely to acquire AI-related competencies and adapt successfully to changing occupational environments.

2.2 Dimensions of Social Capital

Following Woolcock (1998, 2000) and Putnam (2000), this study adopts a three-dimensional framework of social capital: bonding, bridging, and linking.

Bonding social capital refers to strong ties within families, close friendships, and peer groups, providing emotional support, trust, and resilience. Bridging social capital involves broader connections across diverse social groups and communities, facilitating access to new information and opportunities. Linking social capital refers to relationships with individuals and institutions possessing authority, expertise, or resources, such as lecturers, employers, and professional organizations.

Among these dimensions, bridging and linking social capital are particularly important in the AI era because they provide access to technological knowledge, professional networks, and career opportunities beyond students' immediate social circles.

2.3 Career Adaptability Theory

This study draws upon Career Adaptability Theory (Savickas, 2013), which defines career adaptability as the psychosocial resources individuals use to manage career-related tasks, transitions, and uncertainties. Career adaptability consists of four dimensions: concern, control, curiosity, and confidence. In rapidly changing labor markets shaped by AI and digital transformation, career adaptability has become a key competency for sustainable employability. Students who demonstrate higher levels of adaptability are better prepared to respond to technological disruption, engage in continuous learning, and navigate evolving career pathways.

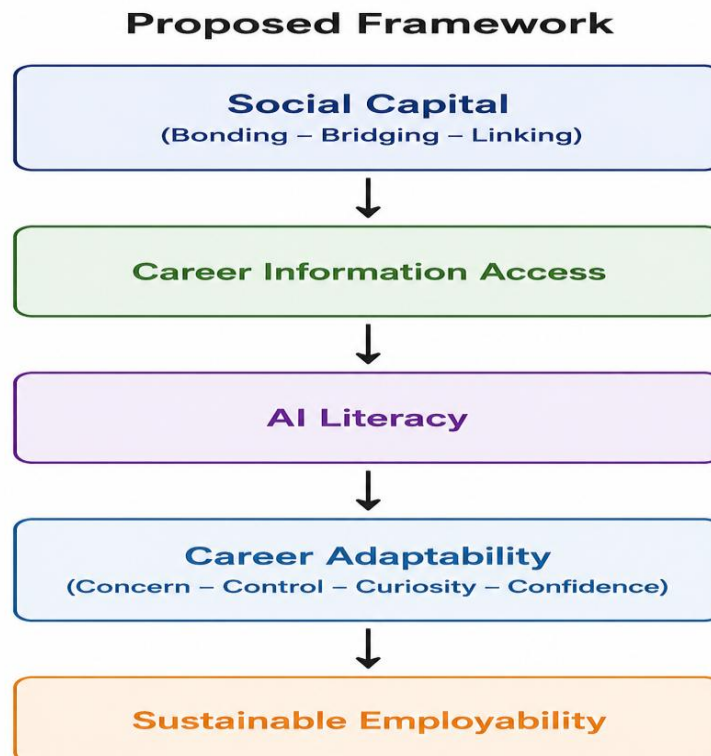
2.4 Social Capital, AI Literacy, and Career Adaptability

Existing research suggests that social capital enhances career adaptability by providing access to information, mentoring, emotional support, and learning opportunities. Students embedded in diverse and supportive networks are more likely to obtain labor market information, develop career-related competencies, and build confidence in managing uncertainty.

AI literacy represents an additional mechanism through which social capital may influence career outcomes. Through interactions with peers, lecturers, mentors, and professional communities, students gain exposure to AI-related knowledge and develop the competencies required to utilize AI effectively. Consequently, social capital is expected to influence career adaptability both directly and indirectly through AI literacy.

2.5 Research Analytical Framework

Drawing upon Social Capital Theory, the Strength of Weak Ties Theory (Granovetter, 1973), and Career Adaptability Theory, this study proposes an integrated framework in which bonding, bridging, and linking social capital enhance access to career information and AI-related knowledge. These resources strengthen AI literacy and subsequently improve career adaptability, ultimately contributing to sustainable employability.



This framework suggests that social capital serves as a foundational resource that supports technological adaptation and career development, enabling students to navigate increasingly dynamic and AI-driven labor markets more effectively.

3. Research Methodology

3.1 Research Design

This study employs a mixed-methods design that integrates quantitative and qualitative approaches to examine the relationship between social capital and career adaptability among university students in the AI era. The mixed-methods approach allows for a comprehensive understanding of both the statistical relationships among variables and the underlying experiences and perceptions of participants (Creswell & Plano Clark, 2018).

The quantitative component is based on a cross-sectional survey administered to second-, third-, and fourth-year university students in Vietnam. A sample of approximately 200-300 respondents was targeted to ensure adequate statistical power for structural equation modeling (SEM). The survey questionnaire included measures of social capital, AI literacy, academic performance, and career adaptability, using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

To complement the survey findings, semi-structured interviews were conducted with university lecturers, recruitment specialists, and students. A total of 20-30 interviews were carried out until theoretical saturation was reached. The interviews explored participants' perceptions of social networks, AI-related competencies, career preparation, and employability in an AI-driven labor market.

3.2 Research Variables and Measurement

The proposed model consists of independent, mediating, and dependent variables. Social capital serves as the independent variable and is conceptualized through three dimensions: bonding social capital (family, close friends, and peer support), bridging social capital (academic communities, student organizations, and broader social networks), and linking social capital (relationships with lecturers, employers, mentors, and professional institutions).

Two mediating variables are included in the model. The first is AI literacy, which refers to students' ability to understand, evaluate, and effectively utilize AI technologies in learning and career development. The second is academic performance, reflecting students' perceived learning effectiveness, engagement, and academic achievement.

The dependent variable is career adaptability, measured according to Savickas' (2013) Career Adaptability Theory, encompassing four dimensions: concern, control, curiosity, and confidence. Measurement items were adapted from established scales in the literature, particularly the Career Adapt-Abilities Scale (CAAS).

3.3 Data Analysis

Quantitative data were analyzed using SPSS and AMOS (or SmartPLS). The analysis proceeded through several stages, including descriptive statistics, reliability testing using Cronbach's Alpha, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling (SEM). These procedures were employed to assess the reliability and validity of the measurement model and to test the hypothesized relationships among social capital, AI literacy, academic performance, and career adaptability.

Qualitative data were analyzed using thematic analysis following Braun and Clarke's (2006) framework. Interview transcripts were coded and organized into recurring themes related to social capital, AI adoption, career development, and employability. The qualitative findings were subsequently integrated with the quantitative results to provide richer interpretations and strengthen the overall validity of the study.

To ensure methodological rigor, reliability and validity were assessed through established statistical procedures, while the credibility of qualitative findings was enhanced through data triangulation,

participant verification, and systematic coding. The integration of quantitative and qualitative evidence contributed to the robustness and trustworthiness of the research findings.

4. Results and Discussion

4.1 Descriptive Statistics

This section presents the demographic characteristics of the respondents and descriptive statistics of the principal study variables. The sample consisted of 256 undergraduate students from Vietnamese universities, including second-, third-, and fourth-year students. These groups were selected because they represent different stages of academic development, career preparation, and exposure to artificial intelligence technologies.

Table 1. Demographic Characteristics of Respondents (N = 256)

Characteristics	Frequency	Percentage (%)
Gender		
Male	92	35.9
Female	164	64.1
Academic Year		
Second Year	78	30.5
Third Year	94	36.7
Fourth Year	84	32.8
Field of Study		
Social Sciences	98	38.3
Business and Economics	72	28.1
Languages and Humanities	50	19.5
Other Disciplines	36	14.1
Frequency of AI Use		
Rarely	18	7.0
Occasionally	54	21.1
Frequently	123	48.0
Very Frequently	61	23.9

As shown in Table 1, female students accounted for the majority of respondents (64.1%), while the distribution across academic years was relatively balanced. More than 70% of students reported using AI

tools frequently or very frequently, suggesting that artificial intelligence has become an integral component of students' academic activities and career preparation processes.

Table 2. Descriptive Statistics of Main Constructs

Variable	Mean	SD	Min	Max
Bonding Social Capital	4.18	0.58	1.75	5.00
Bridging Social Capital	3.79	0.64	1.50	5.00
Linking Social Capital	3.52	0.71	1.25	5.00
AI Literacy	3.87	0.67	1.40	5.00
Academic Performance	3.81	0.62	1.60	5.00
Career Adaptability	3.95	0.59	1.80	5.00

Table 2 indicates that students generally reported moderate to high levels of social capital, AI literacy, academic performance, and career adaptability. Among the three dimensions of social capital, bonding social capital recorded the highest mean score ($M = 4.18$, $SD = 0.58$), suggesting that family members, close friends, and peer networks remain the primary sources of support for students. This finding is consistent with previous studies emphasizing the importance of strong interpersonal ties in fostering emotional support, resilience, and academic engagement.

Bridging social capital demonstrated a moderate level ($M = 3.79$, $SD = 0.64$), indicating that students maintain some connections with broader academic and social communities. However, linking social capital exhibited the lowest mean score ($M = 3.52$, $SD = 0.71$), suggesting relatively limited interaction with employers, professional organizations, mentors, and institutional actors. This finding reveals a potential gap between students' existing social networks and the professional connections necessary for successful career transitions in an increasingly AI-driven labor market.

Students also reported relatively high levels of AI literacy ($M = 3.87$, $SD = 0.67$), reflecting widespread exposure to AI-powered tools for learning, information retrieval, and academic tasks. Nevertheless, interview data suggested substantial variation in students' ability to critically evaluate AI-generated content, highlighting the distinction between AI usage and AI literacy. While many students were proficient in using AI applications, fewer demonstrated advanced competencies related to critical evaluation, ethical use, and strategic integration of AI into career development.

Career adaptability achieved a relatively high mean score ($M = 3.95$, $SD = 0.59$), indicating that students generally perceived themselves as capable of preparing for future careers, exploring opportunities, and adapting to changing labor market conditions. This result is encouraging given the increasing uncertainty associated with technological disruption and labor market transformation. However, the comparatively lower level of linking social capital suggests that many students may still face challenges in accessing professional networks and institutional resources that support long-term employability.

Overall, the descriptive findings provide preliminary evidence that social capital, particularly bonding and bridging forms, remains an important resource for students in the AI era. At the same time, the relatively weaker presence of linking social capital highlights the need for universities to strengthen connections between students, employers, industry mentors, and professional communities. These descriptive patterns provide an important foundation for the subsequent reliability, validity, and structural model analyses.

4.2 Reliability and Validity Assessment

Before testing the structural relationships among the study variables, the reliability and validity of the measurement model were assessed using a series of established statistical procedures. Internal consistency reliability was evaluated through Cronbach's Alpha and Composite Reliability (CR), while convergent validity was examined using standardized factor loadings and Average Variance Extracted (AVE). Following Hair et al. (2022), Cronbach's Alpha and CR values above 0.70 and AVE values above 0.50 were considered indicative of acceptable reliability and convergent validity.

Table 3. Reliability and Convergent Validity Results

Construct	Cronbach's Alpha	CR	AVE
Bonding Social Capital	0.842	0.885	0.606
Bridging Social Capital	0.871	0.901	0.646
Linking Social Capital	0.853	0.894	0.629
AI Literacy	0.889	0.917	0.689
Academic Performance	0.821	0.872	0.578
Career Adaptability	0.913	0.931	0.629

As presented in Table 3, all constructs achieved Cronbach's Alpha values above the recommended threshold of 0.70, ranging from 0.821 to 0.913. Similarly, Composite Reliability values exceeded 0.80 for all constructs, indicating strong internal consistency. The AVE values ranged from 0.578 to 0.689, surpassing the minimum criterion of 0.50 and confirming satisfactory convergent validity. These findings suggest that the measurement items adequately capture their respective latent constructs and are suitable for subsequent structural analysis.

Confirmatory Factor Analysis (CFA) further supported the adequacy of the measurement model. All standardized factor loadings exceeded 0.60 and were statistically significant ($p < 0.001$), indicating that the observed indicators were strongly associated with their underlying constructs. Moreover, the measurement model demonstrated acceptable goodness-of-fit indices ($\chi^2/df < 3.0$, CFI > 0.90 , TLI > 0.90 , RMSEA < 0.08), providing additional evidence of construct validity.

To assess discriminant validity, the Fornell-Larcker criterion was applied. According to this criterion, the square root of the AVE for each construct should exceed its correlations with other constructs.

Table 4. Discriminant Validity Assessment (Fornell-Larcker Criterion)

Construct	Bonding	Bridging	Linking	AI Literacy	Academic Performance	Career Adaptability
Bonding						
Social Capital	0.778					
Bridging						
Social Capital	0.491	0.804				
Linking						
Social Capital	0.437	0.582	0.793			
AI Literacy	0.402	0.548	0.519	0.830		
Academic Performance	0.446	0.471	0.438	0.587	0.760	
Career Adaptability	0.521	0.633	0.592	0.614	0.556	0.793

Note. Diagonal values (bold) represent the square roots of AVE.

As shown in Table 4, the square roots of AVE for all constructs were greater than their corresponding inter-construct correlations, satisfying the Fornell-Larcker criterion and confirming discriminant validity. This indicates that each construct captures a unique theoretical concept and is empirically distinguishable from the others.

Overall, the reliability and validity assessments provide strong evidence that the measurement model is psychometrically sound. The constructs demonstrate satisfactory internal consistency, convergent validity, and discriminant validity, thereby supporting the robustness of the proposed research framework.

Consequently, the measurement model is deemed appropriate for testing the hypothesized relationships among social capital, AI literacy, academic performance, and career adaptability through structural equation modeling.

4.3 Structural Model Results

Following the validation of the measurement model, Structural Equation Modeling (SEM) was employed to test the hypothesized relationships among social capital, AI literacy, academic performance, and career adaptability. The structural model demonstrated an acceptable fit to the observed data ($\chi^2/df = 2.14$; CFI = 0.942; TLI = 0.934; RMSEA = 0.067), indicating that the proposed theoretical framework adequately explains the mechanisms through which social capital influences career adaptability among university students in the AI era.

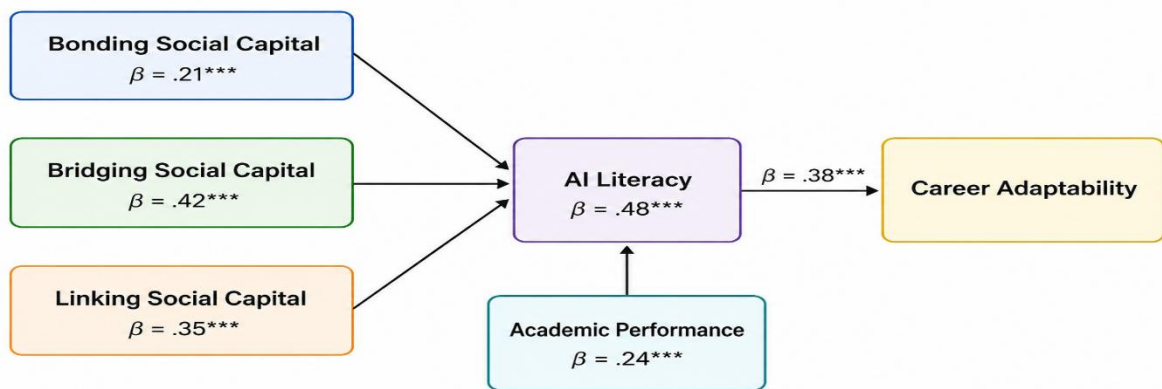


Figure 1. Structural Equation Model Results

Note. *** $p < .001$

The SEM results indicate that all three dimensions of social capital exert significant positive effects on AI literacy and career adaptability. Among the three dimensions, bridging social capital demonstrated the strongest influence ($\beta = .42$, $p < .001$), followed by linking social capital ($\beta = .35$, $p < .001$) and bonding social capital ($\beta = .21$, $p < .001$). This finding suggests that broader and more diverse social networks are particularly important for students seeking access to emerging knowledge, technological information, and career-related opportunities.

AI literacy emerged as a significant predictor of career adaptability ($\beta = .38$, $p < .001$), indicating that students who possess stronger AI-related competencies are better equipped to cope with career uncertainty, explore emerging opportunities, and manage transitions in the rapidly evolving labor market. Academic performance also demonstrated a positive effect on career adaptability ($\beta = .24$, $p < .01$), suggesting that successful learning experiences contribute to students' confidence and preparedness for future careers.

Table 5. Hypothesis Testing Results

Hypothesis	Structural Path	β	p-value	Result
H1	Bonding Social Capital → Career Adaptability	0.18	< .01	Supported
H2	Bridging Social Capital → Career Adaptability	0.31	< .001	Supported
H3	Linking Social Capital → Career Adaptability	0.29	< .001	Supported
H4	Social Capital → AI Literacy	0.48	< .001	Supported
H5	AI Literacy → Career Adaptability	0.38	< .001	Supported
H6	Academic Performance → Career Adaptability	0.24	< .01	Supported

As shown in Table 5, all hypothesized relationships were statistically significant and supported. Notably, bridging social capital exhibited the strongest direct effect on career adaptability, confirming the importance of diverse social networks in helping students access new information and career opportunities. Linking social capital also demonstrated a substantial influence, highlighting the value of institutional relationships with lecturers, employers, mentors, and professional organizations.

To further investigate the underlying mechanisms, mediation analysis was conducted using bootstrapping procedures with 5,000 resamples. The results revealed significant indirect effects of social capital on career adaptability through AI literacy and academic performance. Specifically, AI literacy partially mediated the relationship between social capital and career adaptability (indirect effect = 0.18, $p < .001$), while academic performance also showed a significant mediating effect (indirect effect = 0.11, $p < .01$).

Table 6. Mediation Analysis Results

Indirect Path	Indirect Effect	p-value	Result
Social Capital → AI Literacy → Career Adaptability	0.18	< .001	Significant
Social Capital → Academic Performance → Career Adaptability	0.11	< .01	Significant
Indirect Path	Indirect Effect	p-value	Result

These findings suggest that social capital contributes to career adaptability not only through direct pathways but also through its influence on students' technological competencies and learning outcomes.

Students embedded in stronger social networks are more likely to acquire AI-related knowledge, engage in collaborative learning, and access valuable career information, all of which strengthen their adaptive career resources.

A closer examination of the four dimensions of career adaptability revealed that AI literacy exhibited particularly strong effects on curiosity and confidence. Students who reported higher levels of AI competence were more willing to explore future career opportunities and demonstrated greater confidence in managing career-related uncertainty. This result reflects the growing importance of technological readiness as a component of employability in contemporary labor markets.

Overall, the structural model explains a substantial proportion of variance in career adaptability ($R^2 = 0.62$), indicating that social capital, AI literacy, and academic performance collectively constitute important predictors of students' adaptive career capacities. These findings provide strong empirical support for the proposed theoretical framework and reinforce the argument that social capital remains a critical resource for career development in the age of artificial intelligence.

4.4 Qualitative Findings

The qualitative findings provide deeper insights into the mechanisms through which social capital contributes to career adaptability in the context of artificial intelligence. Analysis of 24 semi-structured interviews with students, lecturers, and recruitment specialists revealed four interrelated themes: (1) access to career information, (2) AI-supported learning and skill development, (3) career confidence and psychological resilience, and (4) future employability in a technology-driven labor market.

The thematic structure derived from the qualitative analysis is presented in Figure 2.

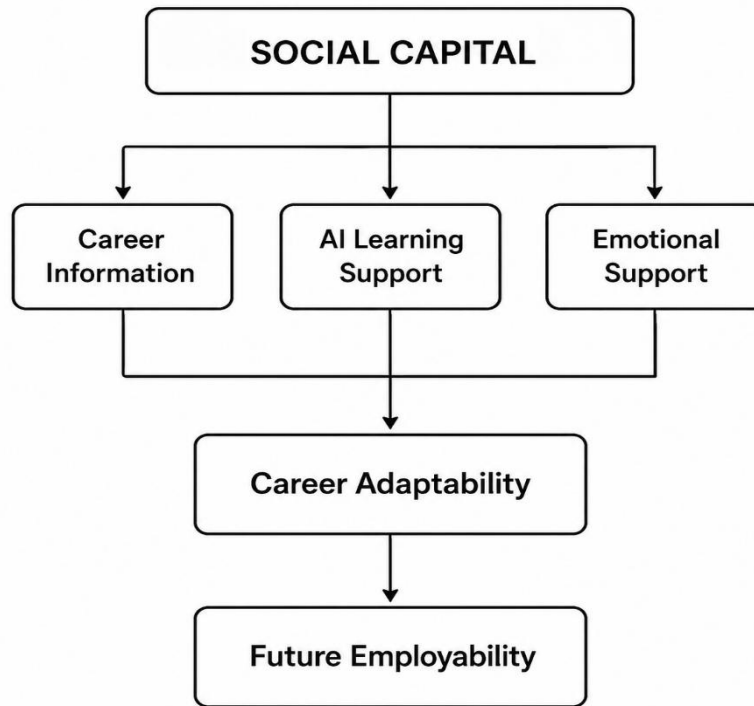


Figure 2. Thematic Map of Qualitative Findings

The thematic map suggests that social capital operates as a foundational resource that enhances students' access to information, learning opportunities, and emotional support. These resources collectively strengthen career adaptability and improve students' readiness for future employment.

Theme 1: Social Networks as Sources of Career Information

A recurring theme across interviews was the critical role of social networks in providing access to career-related information. Students frequently reported obtaining information about internships, scholarships, recruitment opportunities, and emerging occupations through family members, peers, lecturers, and professional contacts. Several participants noted that informal social networks often provided more timely and practical information than formal institutional channels.

One student explained: “*Most internship opportunities I applied for were introduced by my lecturers or senior students. Without those connections, I would not have known where to start.*”

Similarly, a recruitment specialist observed: “*Students who actively build professional networks usually have better awareness of labor market trends and are more prepared for recruitment processes.*”

These findings support the quantitative results indicating a significant positive relationship between social capital and career adaptability. Access to diverse information sources appears to enhance students' ability to anticipate labor market changes and identify emerging career opportunities.

Theme 2: Social Capital Facilitates AI Learning and Technological Adaptation

The second theme highlights the role of social relationships in fostering AI literacy and technological competence. Participants emphasized that much of their knowledge about AI tools was acquired through

peer interactions, online learning communities, academic mentors, and professional networks rather than through formal coursework alone.

A third-year student commented: *“I first learned how to use ChatGPT effectively from my classmates. Later, our lecturer introduced more advanced prompting techniques that significantly improved my learning.”*

Another participant stated: *“Online communities and professional forums helped me discover AI applications that I had never encountered in the classroom.”*

These accounts suggest that social capital facilitates the diffusion of technological knowledge and accelerates the acquisition of AI-related competencies. The findings provide qualitative support for the SEM results showing that AI literacy serves as an important mediating mechanism between social capital and career adaptability.

Theme 3: Career Confidence and Psychological Resilience

A third theme concerns the psychological benefits associated with strong social networks. Students repeatedly emphasized the importance of emotional support from family members, friends, and mentors in helping them cope with uncertainty regarding future employment and technological disruption.

One participant remarked: *“Knowing that my family and lecturers support me gives me confidence to try new technologies and prepare for jobs that may not even exist today.”*

Another student explained: *“Whenever I feel uncertain about my career, I can talk to my mentors and friends. Their advice helps me stay motivated and optimistic.”*

These findings indicate that social capital contributes not only to informational resources but also to emotional resilience and self-efficacy. Such psychosocial support appears particularly important in the AI era, where students face increasing uncertainty regarding occupational change and automation.

Theme 4: Future Employability in an AI-Driven Labor Market

The final theme concerns students' perceptions of employability and future career prospects. While many interviewees expressed concerns about automation and changing skill requirements, they generally viewed AI as a tool that could enhance rather than replace human capabilities. Participants with stronger social networks appeared more proactive in preparing for future careers and more willing to engage in continuous learning.

One student stated: *“AI may change jobs, but people who keep learning and stay connected with professional communities will always find opportunities.”*

A lecturer similarly observed: *“The students who adapt most successfully are not necessarily those with the highest grades, but those who actively build networks, seek mentorship, and continuously update their skills.”*

These findings reinforce the argument that employability in the digital economy depends on the interaction between technological competencies and social resources. Students with stronger social capital appear better equipped to navigate uncertainty, access opportunities, and adapt to evolving labor market demands.

Integration of Qualitative and Quantitative Findings

Overall, the qualitative findings complement the SEM results by providing a richer understanding of the mechanisms linking social capital, AI literacy, and career adaptability. The interviews suggest that social capital enhances students' adaptive capacities through four interconnected pathways: information access, technological learning, emotional support, and employability development. These findings strengthen the argument that career adaptability is not solely an individual competency but is also socially embedded within networks of relationships and institutional support.

Table 7. Representative Quotes from Interviews

Theme	Representative Quote
Career Information	“Most internship opportunities I applied for were introduced by my lecturers or senior students.”
AI Learning Support	“I first learned how to use ChatGPT effectively from my classmates.”
Emotional Support and Confidence	“Knowing that my family and lecturers support me gives me confidence to try new technologies.”
Future Employability	“People who keep learning and stay connected with professional communities will always find opportunities.”

The qualitative evidence thus reinforces the central proposition of this study: social capital functions as a strategic resource that enables university students to acquire AI-related competencies, strengthen career adaptability, and improve their prospects for sustainable employability in the age of artificial intelligence.

4.5 Discussion of Findings

The findings of this study contribute to the growing body of literature on social capital, employability, and career development by demonstrating that social capital remains a critical resource for university students in the era of artificial intelligence. While previous studies have primarily examined the role of social capital in educational achievement, labor market outcomes, and social mobility, the present study extends this literature by revealing how social relationships facilitate technological adaptation, AI literacy, and career adaptability. The results suggest that students' capacity to navigate AI-driven labor market transformations depends not only on their individual competencies but also on the social resources embedded within their networks of relationships.

First, the findings provide strong support for Bourdieu's (1986) conceptualization of social capital as a strategic resource embedded within durable social networks. Consistent with Bourdieu's argument, students possessing stronger social connections were able to access valuable information, guidance, and opportunities that enhanced their academic and career development. However, the present study extends

Bourdieu's perspective by demonstrating that social capital also facilitates access to emerging technological knowledge and AI-related competencies. In the contemporary digital economy, social capital appears to function not only as a mechanism for social reproduction but also as a resource for technological adaptation and future-oriented career development.

Second, the findings reinforce Coleman's (1988) view of social capital as a productive asset that facilitates coordinated action and the achievement of desired outcomes. The positive effects of social capital on AI literacy and academic performance indicate that social relationships create supportive environments for learning, knowledge sharing, and skill acquisition. Students who were embedded in stronger networks benefited from informational support, mentoring relationships, and collaborative learning opportunities, which enhanced both their educational experiences and their adaptive career resources. These findings suggest that social capital continues to play an important functional role in reducing uncertainty and facilitating successful adaptation in rapidly changing environments.

Third, the results are consistent with Putnam's (2000) emphasis on trust, reciprocity, and social connectedness as foundations of collective well-being. Students who reported higher levels of social capital also demonstrated stronger career adaptability, greater confidence, and higher levels of engagement with AI-related learning activities. This finding suggests that trust-based relationships create conditions that encourage exploration, experimentation, and continuous learning. In the context of higher education, social capital may therefore be viewed as an enabling environment that supports both personal development and career preparedness.

A particularly important finding concerns the role of bridging social capital. Among the three dimensions of social capital, bridging social capital exhibited the strongest influence on AI literacy and career adaptability. This result strongly supports Granovetter's (1973) theory of the "strength of weak ties," which argues that diverse and heterogeneous social networks provide access to novel information and opportunities that are often unavailable through close personal relationships. Students who maintained connections beyond their immediate social circles, including academic communities, professional networks, online learning platforms, and interdisciplinary groups, were more likely to gain exposure to emerging technologies, innovative career pathways, and labor market information. In the AI era, such weak ties appear to be particularly valuable because they facilitate access to rapidly evolving knowledge and professional opportunities.

The findings also provide empirical support for Savickas' (2013) Career Adaptability Theory. Students with stronger social capital demonstrated higher levels of concern, control, curiosity, and confidence, the four core dimensions of career adaptability. These results suggest that social capital functions as an important contextual resource that strengthens individuals' capacity to anticipate future challenges, explore career possibilities, and manage uncertainty. In other words, career adaptability is not solely an individual psychological attribute but is also shaped by the social environments in which students are embedded. This finding contributes to the growing recognition that adaptive career behavior emerges through the interaction between individual agency and social context.

Perhaps the most significant contribution of this study lies in identifying AI literacy as a key mediating mechanism linking social capital to career adaptability. The results indicate that students with stronger social networks are more likely to acquire AI-related knowledge, develop technological competencies, and engage with digital learning environments. These competencies subsequently enhance their ability to adapt to changing occupational demands and uncertain career trajectories. This finding expands existing theoretical frameworks by demonstrating that technological competencies are socially embedded rather than purely individual resources. Access to AI knowledge, digital skills, and technological opportunities is strongly influenced by relationships with peers, lecturers, mentors, and professional communities.

The integration of quantitative and qualitative findings further strengthens this conclusion. Interview participants consistently emphasized that social networks served as important channels for obtaining information about AI tools, internships, employment opportunities, and emerging skill requirements. Social relationships not only facilitated knowledge acquisition but also provided emotional support and confidence during periods of uncertainty. These qualitative insights help explain why social capital exerts both direct and indirect effects on career adaptability.

Taken together, the findings suggest that career success in the age of artificial intelligence requires a combination of technological competencies and social resources. While AI literacy enables students to respond effectively to technological change, social capital provides the networks, support systems, and opportunities necessary for acquiring and applying these competencies. Consequently, the study proposes a broader perspective on employability in which social capital, AI literacy, and career adaptability function as interconnected components of sustainable career development.

Overall, the findings advance existing theory by integrating Social Capital Theory and Career Adaptability Theory within the context of artificial intelligence and digital transformation. The study demonstrates that social capital influences career adaptability not only directly but also indirectly through AI literacy and academic performance. This integrated perspective contributes to a deeper understanding of how university students can successfully prepare for increasingly dynamic, technology-intensive, and uncertain labor markets.

4.6 Theoretical and Practical Implications

The findings of this study generate important implications for theory, educational practice, and public policy. By integrating Social Capital Theory, Career Adaptability Theory, and the emerging literature on artificial intelligence, the study offers a more comprehensive understanding of how university students develop adaptive career resources in increasingly technology-driven labor markets.

4.6.1 Theoretical Implications

From a theoretical perspective, this study extends the existing literature in several important ways. First, it advances Social Capital Theory by demonstrating that social capital remains a valuable resource not only for educational attainment and employment outcomes but also for technological adaptation in the era of artificial intelligence. While previous studies have primarily focused on the role of social networks

in facilitating access to information, opportunities, and social support, the present study reveals that social capital also contributes significantly to the development of AI literacy and digital competencies.

Second, the study enriches Career Adaptability Theory by highlighting the social foundations of adaptive career behavior. Existing research has often conceptualized career adaptability as an individual-level psychological resource. However, the present findings suggest that adaptability is also shaped by students' social environments and network-based resources. Bonding, bridging, and linking social capital provide informational, emotional, and institutional support that strengthens students' capacity to anticipate, manage, and respond to labor market uncertainty.

Third, the study contributes to the growing literature on employability in the digital economy by identifying AI literacy as a critical mediating mechanism linking social capital to career adaptability. This finding suggests that technological competencies should not be viewed solely as individual attributes but rather as socially embedded resources that are developed through interactions with peers, lecturers, mentors, and professional communities.

Most importantly, the study proposes an integrated framework that combines social resources and technological competencies as complementary drivers of sustainable employability. This framework extends previous theoretical models by explaining how social capital is transformed into adaptive career capacities through information access and AI-related learning processes.

4.6.2 Practical Implications for Higher Education Institutions

The findings have significant implications for universities seeking to prepare graduates for rapidly changing labor markets. First, higher education institutions should recognize that employability development requires more than technical training alone. Universities should actively foster social capital by creating opportunities for networking, mentoring, peer learning, and industry engagement.

Second, academic programs should integrate AI literacy into curricula across disciplines rather than restricting AI education to technology-related fields. Students should be equipped not only with technical knowledge of AI tools but also with critical evaluation skills, ethical awareness, and the ability to apply AI effectively in professional contexts.

Third, universities should strengthen bridging and linking social capital through partnerships with employers, professional associations, alumni networks, and community organizations. Internship programs, career mentoring initiatives, industry projects, and networking events can provide students with valuable opportunities to expand their professional connections and gain exposure to emerging labor market demands.

Finally, educators should encourage collaborative and network-based learning environments that facilitate knowledge sharing, peer support, and technological adaptation. Such environments can simultaneously strengthen social capital and enhance students' readiness for lifelong learning.

4.6.3 Practical Implications for Employers and Industry

The findings also have implications for employers and industry stakeholders. Organizations should recognize that graduates' employability depends not only on technical competencies but also on their

ability to build and utilize professional networks. Employers may therefore benefit from developing mentoring programs, internship opportunities, and university-industry partnerships that support students' career development and technological readiness.

Furthermore, organizations should encourage continuous learning and social knowledge exchange within workplaces. As AI technologies continue to evolve, employees' capacity to adapt will increasingly depend on collaborative learning and access to professional support networks.

4.6.4 Policy Implications

From a policy perspective, the results suggest that strategies aimed at improving graduate employability should address both technological and social dimensions of human capital development. Investments in AI education and digital infrastructure, while essential, may be insufficient unless accompanied by initiatives that strengthen students' access to social networks, mentorship opportunities, and institutional support.

Policymakers should therefore promote collaborative ecosystems involving universities, employers, government agencies, and professional organizations. Such ecosystems can facilitate knowledge transfer, career guidance, internship opportunities, and workforce development programs that support students' successful transition from education to employment.

In addition, national higher education policies should encourage universities to incorporate employability, AI literacy, and social capital development into curriculum design and student support services. These measures are particularly important in developing economies where unequal access to professional networks may exacerbate existing educational and labor market inequalities.

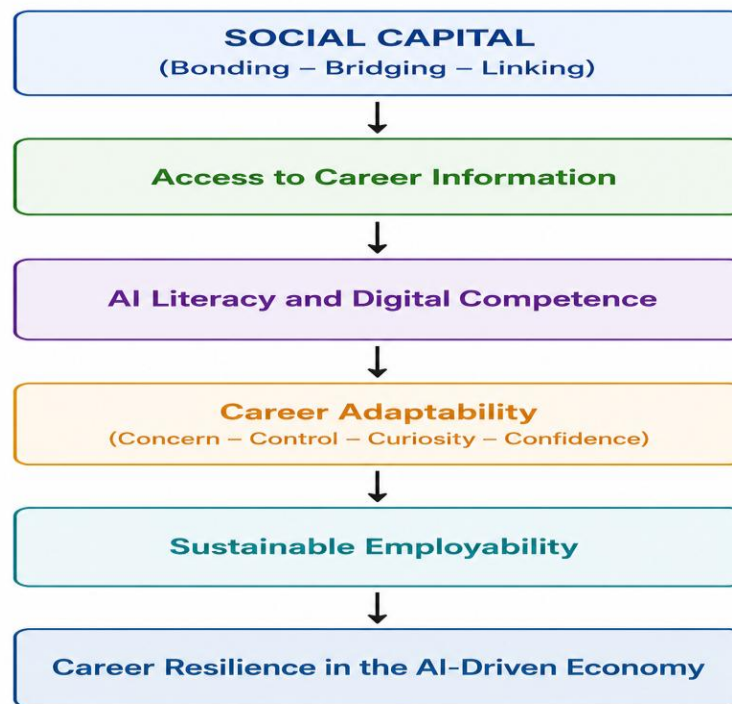


Figure 3. Integrated Framework for Enhancing Career Adaptability in the AI Era

The framework presented in Figure 3 represents the principal theoretical contribution of this study. It illustrates how social capital functions as a foundational resource that facilitates access to career-related information and AI-related knowledge, which subsequently strengthen career adaptability and promote sustainable employability. The model suggests that success in the AI era depends not only on what students know but also on whom they know and how effectively they mobilize social relationships to acquire knowledge, adapt to change, and navigate increasingly complex career environments.

Taken together, these implications reinforce the argument that sustainable employability in the twenty-first century is shaped by the interaction between social capital, technological competence, and adaptive career resources. Universities, employers, and policymakers therefore share a collective responsibility for creating environments that support both social connectedness and technological readiness among future graduates.

5. Conclusion

This study examined the role of social capital in enhancing career adaptability among university students in the age of artificial intelligence. Drawing upon Social Capital Theory, Career Adaptability Theory, and the emerging literature on AI literacy, the study proposed and tested an integrated framework linking social capital, AI literacy, academic performance, and career adaptability.

The findings demonstrate that social capital remains a critical resource for students navigating increasingly complex and technology-driven labor markets. The results indicate that bonding, bridging, and linking social capital all contribute positively to career adaptability, although their effects vary in magnitude. Among these dimensions, bridging social capital emerged as the strongest predictor, highlighting the importance of diverse social networks in facilitating access to information, technological knowledge, and career opportunities.

The study further reveals that AI literacy functions as an important mediating mechanism through which social capital influences career adaptability. Students embedded in stronger social networks are more likely to acquire AI-related competencies, engage in collaborative learning, and develop the adaptive capacities necessary for responding to labor market uncertainty. Academic performance also contributes to this process by strengthening students' confidence and preparedness for future career challenges.

These findings provide a direct answer to the study's research questions. First, social capital significantly influences university students' career adaptability in the context of artificial intelligence. Second, this relationship operates through both direct and indirect pathways, particularly through AI literacy and academic performance. Third, the findings suggest that sustainable employability in the digital economy depends on the interaction between social resources and technological competencies rather than on technical skills alone.

The study makes three principal contributions to the literature. First, it extends Social Capital Theory by demonstrating the relevance of social networks in facilitating technological adaptation and AI-related learning. Second, it enriches Career Adaptability Theory by highlighting the social foundations of adaptive career behavior. Third, it proposes and empirically supports a novel conceptual pathway in which social capital enhances AI literacy, which subsequently strengthens career adaptability and sustainable employability.

In an era characterized by rapid technological transformation, the findings underscore that career success depends not only on what students know but also on whom they know and how effectively they mobilize social relationships to acquire knowledge, adapt to change, and seize emerging opportunities. Consequently, universities, employers, and policymakers should view social capital and AI literacy as complementary resources for preparing future graduates to thrive in increasingly dynamic and uncertain labor markets.

6. Limitations and Future Research

Despite its contributions, this study has several limitations that should be acknowledged.

First, the study was conducted within the Vietnamese higher education context. Although Vietnam represents an important emerging economy undergoing rapid digital transformation, the findings may not be fully generalizable to other national, cultural, or institutional settings. Future studies should therefore examine the proposed framework in different countries and regions to assess its cross-cultural applicability and robustness.

Second, the study employed a cross-sectional research design, which limits the ability to establish causal relationships and capture changes over time. Career adaptability, AI literacy, and social capital are dynamic constructs that may evolve throughout students' educational and professional trajectories. Longitudinal studies would provide a deeper understanding of how these variables interact over time and influence long-term career outcomes.

Third, while AI literacy was included as a key mediating variable, the study did not directly measure the long-term impact of AI adoption on career development, employability, and workplace adaptation. Given the rapid pace of technological change, future research should explore how sustained engagement with AI technologies influences career trajectories, skill development, and professional identity formation.

Fourth, the present study focused primarily on university students. Future research may extend the framework to other populations, including recent graduates, early-career professionals, vocational education students, and employees undergoing digital transformation in the workplace. Such comparisons would provide a more comprehensive understanding of the role of social capital across different career stages.

Future research could also examine additional mediating and moderating variables, such as career self-efficacy, digital resilience, learning motivation, entrepreneurial orientation, and institutional support. These factors may further clarify the mechanisms through which social capital contributes to career adaptability and employability in the digital economy.

Finally, comparative cross-national studies and longitudinal research designs are particularly recommended. Such approaches would enable researchers to investigate how cultural contexts, educational systems, and technological environments shape the relationships among social capital, AI literacy, career adaptability, and sustainable employability.

By addressing these limitations, future studies can further advance understanding of how social and technological resources interact to influence career development in the age of artificial intelligence and contribute to the development of more inclusive and sustainable workforce strategies worldwide.

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