

Career anxiety in the age of AI: examining AI disruption as a risk factor and optimism as a protective factor among final year university students - a literature review

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Abstract. The rapid integration of artificial intelligence (AI) into the labor market has created new sources of career-related uncertainty among university students approaching graduation. At the same time, optimism may function as a psychological resource that supports adaptive responses to career challenges. This literature review examined career anxiety among university students through two complementary perspectives: AI disruption as a potential risk factor and optimism as a potential protective factor. A structured literature search was conducted using the Scopus database, resulting in 425 records. Following screening and eligibility assessment, 20 articles were included, comprising 16 primary empirical studies and 4 systematic literature reviews. The findings indicate that AI-related constructs, including AI anxiety, AI attitudes, AI acceptance, and perceived AI job threat, were generally associated with career anxiety and related outcomes such as career stress, job-seeking anxiety, and difficulties in career decision-making. In contrast, optimism and psychological capital were consistently associated with more favorable career-related outcomes and lower career-related distress. However, the reviewed studies rarely examined AI-related risks and optimism within the same empirical framework. Thus, whether optimism buffers AI-related career anxiety remains insufficiently established and warrants further investigation.

Keywords: *Career Anxiety, Artificial Intelligence, Optimism, Final-Year University Students, Protective Factor*

1. INTRODUCTION

Career anxiety is a well-documented psychological experience among university students approaching graduation. It involves negative emotional responses, physiological reactions, and maladaptive cognitive responses in career-related situations, particularly those concerning career decision-making, future employment, and perceived employability (Atikah et al., 2023). For students approaching graduation, entering the labor market constitutes a normal developmental transition while simultaneously presenting considerable psychological challenges. Evidence from a systematic review of 17 eligible studies indicates that students' career anxiety is associated with individual factors, including personality, attachment, career adaptability, and resilience, as well as environmental factors such as family relationships, parental expectations, and social support. Career anxiety also appears to become more salient during educational transitions, particularly as students approach graduation (Atikah et al., 2023). Lazarus and Folkman's (1984) transactional model of stress and coping provides a framework for understanding this pattern. The model proposes that psychological distress develops when individuals appraise situational demands as exceeding their available coping resources. From this perspective, entering the labor market may be perceived as threatening when students evaluate the demands of career transition as greater than their available psychological and career resources. From this perspective, impending entry into the labor market may be appraised as threatening when students perceive that the demands of career transition exceed their available psychological and career resources. For tourism and hospitality students, the Career Anxiety Scale consists of four dimensions: personal ability, irrational beliefs about employment, employment environment, and professional education and training. The scale demonstrated acceptable construct validity and internal consistency (Tsai et al., 2017).

The rapid adoption of artificial intelligence (AI) across industries has added a distinct source of uncertainty to this developmental transition. AI is transforming career development by changing skill requirements, increasing the importance of AI literacy, and altering career guidance processes, thereby creating both opportunities and potential threats to career sustainability across career stages (Bankins et al., 2024). These changes may be particularly consequential for students preparing to enter an increasingly technology-mediated labor market. Hobfoll's (1989) Conservation of Resources theory suggests that psychological strain can emerge when individuals perceive valued resources, such as employability, occupational competence, and career opportunities, to be vulnerable to loss. This perspective is reflected among nursing students, where negative AI attitudes were linked to reduced perceived future employability and increased career stress, with employability serving as a significant mediator (Hanci & Gok Metin, 2026). Among Chinese college students, AI anxiety was similarly associated with lower career decisions and career adaptability, while career adaptability accounted for a substantial part of the association between AI anxiety and career decisions (Duan et al., 2026). AI anxiety has also been positively associated with job search anxiety among health sciences students, indicating that concerns regarding AI may extend beyond general technological unease to students' perceptions of their future employment prospects (Dağ et al., 2026). Collectively, these findings suggest that AI-related perceptions and experiences may constitute an increasingly relevant source of career-related psychological strain during the transition from university to employment.

The relationship between AI disruption and career anxiety can also be interpreted through Social cognitive theory, particularly the role of self-efficacy in shaping individuals' expectations and behavioral responses to challenging environments (Bandura, 1997). When students perceive rapid technological change as threatening to their occupational competence or future employability, such perceptions may influence their confidence in managing career-related tasks and making career decisions. Evidence indicates that AI anxiety is associated

with lower career-related self-efficacy and that AI knowledge and digital literacy are positively related to career self-efficacy among university students (Joseph et al., 2026). Students with stronger career adaptability reported lower AI anxiety, indicating that psychosocial resources for managing vocational transitions may shape how students respond to perceived technological disruption (Wang, 2026). Career adaptability may therefore serve as an important psychological resource in addressing AI-related uncertainty. Accordingly, AI disruption may contribute to career anxiety through concerns about employment displacement as well as perceived threats to competence, employability, and the resources needed to manage career transitions.

Alongside these emerging career-related risks, optimism represents a potentially important psychological resource in coping with uncertainty and adversity. Scheier and Carver's (1985) dispositional model conceptualizes optimism as a generalized expectancy that desirable outcomes will occur, with such expectancies influencing how individuals approach challenges and respond to stressful circumstances. Within career psychology, career optimism has been associated with more favorable career-related attitudes and behaviors, including career self-efficacy, career adaptability, career decision-making self-efficacy, and career satisfaction, while showing negative associations with career barriers, negative affect, and career stress (Eva et al., 2020). These associations suggest that optimism may contribute to adaptive responses when individuals encounter uncertainty surrounding their vocational future. Career adaptability, which is theoretically grounded in Savickas's (2005) career construction theory, similarly represents psychosocial resources that enable individuals to manage vocational development tasks, occupational transitions, and changing work environments. The construct is commonly assessed using the Career Adapt-Abilities Scale (Savickas & Porfeli, 2012).

Recent empirical evidence provides further support for the relevance of optimism and related psychological resources to career development. Among senior undergraduates, job search self-efficacy was positively associated with career optimism and negatively associated with employment anxiety, suggesting that stronger beliefs in one's capacity to perform job search activities may coincide with more positive expectations regarding future career outcomes and lower career-related distress (Carkit, 2025). Among final-year university students in Indonesia, optimism was associated with self-efficacy both directly and indirectly through career self-management, whereas career insecurity did not significantly predict self-efficacy (Umar et al., 2026). Psychological capital may provide an additional framework for understanding this protective function because it incorporates self-efficacy, hope, optimism, and resilience as interrelated psychological resources. Evidence linking psychological capital with lower employment anxiety further suggests that positive psychological resources may help students manage uncertainty surrounding the transition into employment (Liang et al., 2026). Nevertheless, compared with the growing body of research examining AI-related risks, direct empirical evidence concerning the relationship between optimism and career anxiety specifically remains limited.

The current literature therefore reveals an imbalance between two relevant strands of research. The first has increasingly examined AI-related constructs as potential risk factors, including AI anxiety, negative AI attitudes, perceived AI-related job displacement, and AI acceptance in relation to career anxiety and related outcomes such as career stress, employment anxiety, job search anxiety, career decisions, and career adaptability (Bankins et al., 2024; Dağ et al., 2026; Duan et al., 2026; Hanci & Gok Metin, 2026). The second has examined optimism and related psychological resources as potential protective factors, primarily through their associations with career self-efficacy, career adaptability, career aspirations, career satisfaction, and career-related anxiety (Carkit, 2025; Eva et al., 2020; Umar et al., 2026). However, these two strands have rarely been considered within an integrated framework. In particular, limited evidence is available regarding whether

optimism can mitigate the psychological consequences of perceived AI-driven career disruption among students approaching entry into the labor market.

This literature review therefore examines the existing evidence concerning career anxiety among university students, with particular attention to final-year students undergoing the transition from higher education to employment. The review focuses on two complementary dimensions: AI-related disruption as a potential risk factor and optimism as a potential protective factor. Specifically, the review aims to (1) examine how career anxiety is conceptualized and measured among university student populations, (2) synthesize empirical evidence concerning the relationship between AI-related constructs and career anxiety or related career outcomes, and (3) synthesize evidence concerning optimism and career anxiety or related career outcomes. By comparing these two strands of evidence, the review seeks to clarify the current state of knowledge and identify the extent to which the protective role of optimism has been examined within the context of AI-driven changes in the labor market.

2. MATERIALS AND METHODS

This study employed a literature review approach to identify, evaluate, and thematically synthesize relevant peer-reviewed journal articles addressing the guiding questions of the review. The methodological approach was informed by established guidance for literature reviews in the social sciences (Baumeister & Leary, 1997; Snyder, 2019). A literature review emphasizes the integration of existing knowledge through conceptual interpretation, argumentation, and thematic synthesis rather than an exhaustive aggregation of individual studies (Snyder, 2019). A coherent review also requires a transparent account of how relevant literature was identified and selected to support the development of an integrated conceptual narrative (Baumeister & Leary, 1997). Accordingly, the present review adopted a structured search and selection process, while the synthesis was organized thematically around three central constructs: career anxiety, AI disruption, and optimism.

The literature search was conducted using the Scopus database, producing an initial set of 425 records. Before the screening stage, 114 records were removed. These comprised 22 duplicate records, 67 records identified as ineligible by automated filtering based on the publication period of 2016 to 2026, 15 records excluded according to journal quartile criteria covering Q1 to Q4, and 10 records for which abstracts were unavailable for screening. Following these exclusions, 311 records remained for title and abstract screening.

The title and abstract screening resulted in the exclusion of 269 records because they did not adequately address the topic, population, variables, or outcomes specified in the review. The screening criteria focused on literature concerning career anxiety or related constructs, AI-related constructs, and optimism among university students or final-year students. Following the initial screening, 42 reports were considered for full-text retrieval. Of these, 10 reports were inaccessible and were subsequently excluded. The remaining 32 reports underwent full-text eligibility assessment. The remaining reports were assessed for eligibility through full-text review. Twelve reports were subsequently excluded for failing to satisfy the predefined criteria. Exclusions comprised studies that did not address career anxiety or related constructs ($n = 4$), did not examine artificial intelligence ($n = 3$), involved populations outside university or final-year students ($n = 2$), lacked empirical evidence as either empirical studies or empirically supported conceptual papers ($n = 2$), or provided insufficient data or unclear findings ($n = 1$).

The final selection comprised 20 articles for synthesis. These consisted of 16 primary empirical studies and 4 systematic literature reviews. The empirical studies provided evidence concerning relationships among career anxiety, AI-related constructs, optimism, and related psychological or career outcomes, whereas the systematic reviews contributed conceptual and theoretical foundations for understanding career anxiety, AI-related career

risks, and optimism as a potential psychological resource. The complete identification, screening, eligibility assessment, and inclusion process is presented in Figure 1.

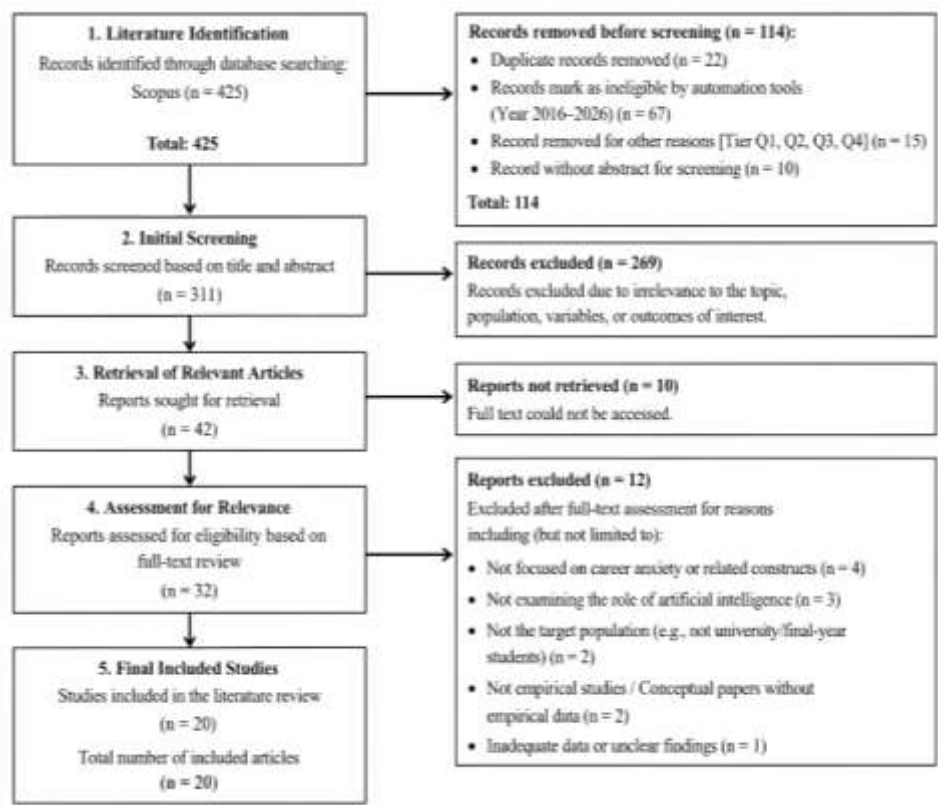


Fig 1. Literature search and selection process for the literature review

3. RESULTS

Table 1 presents a synthesis of the 20 articles included in this review, covering sample characteristics, analytical approaches, and key findings relevant to career anxiety, AI-related risk, and optimism as a potential protective factor. Among the selected articles, 14 articles (Nos. 2-7, 9-12, and 20) provide direct empirical evidence concerning AI-related constructs and their associations with career anxiety or related career outcomes. Five articles (Nos. 1, 8, 13, 14, and 15) provide empirical evidence concerning optimism, either as an independent psychological resource or as a component of psychological capital, in relation to career-related outcomes and psychological distress. The remaining four articles (Nos. 16-19) provide conceptual, measurement, or theoretical foundations for understanding career anxiety, AI-related career risks, and optimism within the context of university students' career development.

Table 1. Data Analysis: Career Anxiety, AI Disruption, and Optimism among University Students

No.	Author & Year	Variable	Methods & Participants	Research Purpose & Findings
1.	Carkit (2025)	Job search support (JSS); job search self-efficacy (JSSE); career optimism; employment anxiety	Quantitative, cross-sectional; N = 296 senior undergraduate students in Türkiye. Cross-sectional study using SEM	<p>Purpose: To examine the relationships among job search support, job search self-efficacy, career optimism, and employment anxiety among senior undergraduate students.</p> <p>Findings: Job search self-efficacy significantly and positively predicted career optimism ($\beta = 0.42, p < 0.001$) and significantly and negatively predicted employment anxiety ($\beta = -0.29, p < 0.001$). Job search self-efficacy also mediated the relationships between job search support and both career optimism and employment anxiety.</p> <p>Synthesis: Job search self-efficacy is associated with higher career optimism and lower employment anxiety, indicating its importance as a psychological resource during the school-to-work transition.</p>
2.	Hanci & Gok Metin (2026)	AI attitudes, perceived future employability, career stress	Descriptive-correlational study. 521 third- and fourth-year undergraduate nursing students from two universities in Türkiye. Structural equation modeling with bootstrapped mediation.	<p>Purpose: To examine the relationships between positive and negative attitudes toward AI, perceived future employability, and career stress among nursing students based on Conservation of Resources theory.</p> <p>Findings: Negative AI attitudes were associated with lower perceived future employability ($\beta = -0.43, p = 0.013$) and higher career stress ($\beta = 1.21, p = 0.002$). Perceived future employability significantly mediated the relationship between negative AI attitudes and career stress ($\beta = 0.05, p <$</p>

				0.001). Positive AI attitudes were associated with higher perceived future employability ($\beta = 0.88, p < 0.001$)
				Synthesis: AI-related attitudes are associated with career-related psychological outcomes, with perceived future employability functioning as a pathway linking AI attitudes to career stress.
3.	Wang & Gao (2026)	AI acceptance; Career decision-making anxiety	Quantitative, cross-sectional survey; N = 965 university students in China; convenience sampling; Latent Profile Analysis (LPA).	<p>Purpose: To identify latent profiles of AI acceptance and examine differences in career decision-making anxiety across profiles.</p> <p>Findings: Two profiles were identified: Moderately Accepting (78.34%) and Highly Accepting (21.66%). The Highly Accepting group reported significantly higher career decision-making anxiety across employment prospects, employment support, self-confidence, employment competition pressure, and overall anxiety ($p < 0.001; d = 0.85-0.95$).</p> <p>Synthesis: Higher AI acceptance was associated with greater career decision-making anxiety, suggesting that greater engagement with AI may heighten awareness of labor-market uncertainty, job automation, and changing skill demands.</p>
4.	Kural & Kayış (2026)	Cognitive distortions related to academic achievement; AI anxiety; Academic resilience; Career stress	Quantitative, cross-sectional survey; N = 345 university students in Türkiye; convenience sampling; mediation analysis using PROCESS	<p>Purpose: To examine the mediating roles of AI anxiety and academic resilience in the relationship between cognitive distortions related to academic achievement and career stress.</p> <p>Findings: Cognitive distortions positively predicted AI anxiety ($B = 0.25, p < 0.001$) and career stress ($B = 0.48, p < 0.001$),</p>

			Model 6 with 5,000 bootstrap samples	<p>while negatively predicting academic resilience ($B = -0.32, p < 0.001$). AI anxiety positively predicted career stress ($B = 0.19, p < 0.001$), whereas academic resilience negatively predicted career stress ($B = -0.13, p < 0.001$). AI anxiety and academic resilience significantly mediated the relationship between cognitive distortions and career stress, both independently and sequentially.</p> <p>Synthesis: Higher AI anxiety was associated with greater career stress, while academic resilience functioned as a protective factor against career stress.</p>
5.	Dağ et al. (2026)	AI anxiety; Job search anxiety	Quantitative, cross-sectional study; N = 821 health sciences students in Türkiye;; Pearson correlation and multiple linear regression.	<p>Purpose: To assess how AI anxiety affects job search anxiety among health sciences students.</p> <p>Findings: AI anxiety was positively correlated with job search anxiety ($r = 0.233, p < 0.001$) and significantly predicted job search anxiety after controlling for sociodemographic variables ($\beta = 0.234, p < 0.001$). AI anxiety accounted for an additional 5.3% of the variance in job search anxiety.</p> <p>Synthesis: Higher AI anxiety was associated with greater job search anxiety, indicating that concerns about AI may contribute to students' career-related uncertainty and anxiety during the transition to employment.</p>
6.	Duan et al. (2026)	AI anxiety; Career adaptability; Self-efficacy; Career decisions	Quantitative, cross-sectional questionnaire survey; N = 315 college students in China;	<p>Purpose: To assess the association between AI anxiety and college students' career decisions, with a focus on the mediating role of career adaptability and the</p>

		stratified random sampling from three universities in Baise City; scales; SEM, mediation analysis with 5,000 bootstrap samples, and moderation analysis using PROCESS Model 5.	moderating role of self-efficacy. Findings: AI anxiety negatively predicted career decisions ($\beta = -0.275, p < 0.01$) and career adaptability ($\beta = -0.864, p < 0.001$), while career adaptability positively predicted career decisions ($\beta = 0.552, p < 0.001$). Career adaptability partially mediated the relationship between AI anxiety and career decisions, accounting for 63.35% of the total effect (indirect effect $\beta = -0.382, p < 0.01$). Self-efficacy did not significantly moderate the relationship between AI anxiety and career decisions ($\beta = 0.015, p = 0.596$). Synthesis: AI anxiety functions as a risk factor for adverse career decision-making by undermining students' career adaptability, whereas self-efficacy did not demonstrate a significant protective buffering effect against AI-related career disruption.
7.	Islam et al. (2026)	Career anxiety due to AI; AI knowledge; AI usage; Perception of AI; Perceived AI job threat	Quantitative correlational survey; N = 3,156 undergraduate students from five universities in Bangladesh; descriptive and distributional analysis. Purpose: To examine university students' career anxiety associated with AI and its variation across demographic characteristics, AI knowledge, career paths, and perceptions of AI-driven job replacement. Findings: Moderate career anxiety was reported by 51.77% of students, while 14.61% experienced high career anxiety. Differences in career anxiety were observed by age, gender, academic year, department, and AI knowledge level. The highest career anxiety was reported by students who expected AI to replace human jobs within 1 to 5 years, whereas the lowest

				<p>levels were found among those who did not expect AI to replace human jobs. Students in web development, data science, research, and software engineering reported comparatively higher levels of career anxiety.</p> <p>Synthesis: AI-related career anxiety is evident among university students and is associated with perceptions of AI as a potential threat to future employment. Greater perceived immediacy of AI-driven job replacement corresponds to higher career anxiety.</p>
8.	Thomas et al. (2026)	Belongingness; Perceived stress; Optimism; Career aspirations	Quantitative, cross-sectional study; N = 261 undergraduate students at a Hispanic Majority Institution in the United States; bivariate correlation and serial mediation analysis using Hayes' PROCESS Macro (Model 6) with 5,000 bootstrap samples.	<p>Purpose: To examine the relationships between belongingness, perceived stress, optimism, and career aspirations.</p> <p>Findings: Acceptance/inclusion was positively associated with career aspirations and optimism and negatively associated with perceived stress. Rejection/exclusion showed the opposite pattern. Serial mediation indicated that belongingness was associated with career aspirations through perceived stress and optimism. Higher acceptance was associated with lower stress, higher optimism, and stronger career aspirations, whereas rejection was associated with higher stress, lower optimism, and weaker career aspirations.</p> <p>Synthesis: Optimism functioned as a positive psychological mechanism linking students' social experiences to career aspirations, supporting its potential protective role in</p>

9.	AL-Nasa'h, Al-Tarawneh, & Alhwayan (2026)	AI anxiety; Digital well-being; Future career concerns	Quantitative, cross-sectional survey; N = 820 undergraduate engineering and IT students from four universities in Jordan; descriptive statistics, Pearson correlation, MANOVA, and confirmatory factor analysis (CFA).	<p>career development under stressful conditions.</p> <p>Purpose: To examine the levels and relationships among AI anxiety, digital well-being, and future career concerns among engineering and IT students.</p> <p>Findings: Students reported high AI anxiety ($M = 5.26$), low digital well-being ($M = 1.75$), and moderate-to-high future career concerns ($M = 4.07$). AI anxiety was positively associated with future career concerns ($r = 0.680$, $p < 0.001$) and negatively associated with digital well-being ($r = -0.849$, $p < 0.001$). Digital well-being was negatively associated with future career concerns ($r = -0.932$, $p < 0.001$). Female students and IT students reported significantly higher AI anxiety and future career concerns.</p> <p>Synthesis: AI anxiety is positively associated with future career concerns, indicating that perceived AI-related threats may contribute to students' career uncertainty. Digital well-being may function as a coping-related resource in the relationship between AI anxiety and career concerns.</p>
10.	Li, Ouyang, & Lin (2025)	Career self-efficacy (CSE); AI attitudes (AIA); AI literacy (AIL); Job-seeking anxiety (JSA)	Quantitative, cross-sectional survey; 455 Chinese university students; convenience sampling; questionnaire; SEM using AMOS and 10,000-times bootstrapping.	<p>Purpose: To examine the relationship between career self-efficacy and job-seeking anxiety and test the mediating roles of AI attitudes and AI literacy among university students in the AI era.</p> <p>Findings: Career self-efficacy negatively predicted job-seeking anxiety ($\beta = -0.192$, $p < 0.001$), while positively predicting AI attitudes ($\beta = 0.337$, $p < 0.001$) and AI</p>

				<p>literacy ($\beta = 0.243, p < 0.001$). AI attitudes positively predicted AI literacy ($\beta = 0.230, p < 0.001$), whereas both AI attitudes ($\beta = -0.268, p < 0.001$) and AI literacy ($\beta = -0.205, p < 0.001$) negatively predicted job-seeking anxiety. Bootstrapping confirmed significant indirect effects through AI attitudes, AI literacy, and the sequential pathway career self-efficacy $\rightarrow$ AI attitudes $\rightarrow$ AI literacy $\rightarrow$ job-seeking anxiety.</p> <p>Synthesis: Career self-efficacy is associated with lower job-seeking anxiety, partly through more positive AI attitudes and greater AI literacy. The findings suggest that AI-related psychological and competency factors are relevant to students' career anxiety in an AI-driven labor market.</p>
11.	Yaşar & Karagucuk (2025)	Artificial intelligence anxiety (AIA); Career decidedness (CD)	Sequential explanatory mixed-methods; 332 university students for the quantitative phase and 9 students for the qualitative phase from English-related departments (ELT, ELL, and ETI); quantitative, Pearson correlation, one-way ANOVA, and Scheffé post-hoc test; qualitative analysis using	<p>Purpose: To examine the relationship between AI anxiety and career decidedness among university students in English-related departments and explore the influence of AI anxiety on career planning and decision-making.</p> <p>Findings: No significant relationship was found between AI anxiety and career decidedness among ELT students ($r = -0.024, p > 0.05$) or ELL students ($r = -0.121, p > 0.05$). Among ETI students, AI anxiety was negatively associated with career decidedness ($r = -0.285, p < 0.01$), with AI learning anxiety showing the strongest association ($r = -0.447, p < 0.01$). Qualitative findings indicated greater concerns about AI-driven job</p>

		thematic analysis.	<p>replacement and the need to acquire new skills among ETI students, while ELT and ELL students emphasized the continuing importance of human creativity, emotional intelligence, and interpersonal skills. Students also perceived AI as both a potential threat to traditional job opportunities and a source of new career opportunities requiring advanced skills.</p> <p>Synthesis: The findings indicate that AI anxiety may undermine career certainty when students perceive AI as directly threatening their occupational relevance, although this relationship varies across academic disciplines. AI-related learning anxiety and perceived job disruption appear particularly important in shaping students' career decision-making.</p>
12.	Joseph et al. (2026)	AI knowledge; AI anxiety; Digital literacy; Career self-efficacy	<p>Quantitative, correlational design; 470 third- and fourth-year pre-service teachers from the Faculty of Education at a Nigerian public university; data analyzed using descriptive statistics, Pearson Product-Moment Correlation, regression analysis, and mediation analysis.</p> <p>Purpose: To examine the relationships among AI knowledge, AI anxiety, digital literacy, and career self-efficacy, and test the mediating role of digital literacy in the relationship between AI anxiety and career self-efficacy.</p> <p>Findings: AI knowledge was positively related to career self-efficacy ($r = 0.249$, $p < 0.001$), whereas AI anxiety was negatively related to career self-efficacy ($r = -0.476$, $p < 0.001$). Digital literacy was positively related to career self-efficacy ($r = 0.425$, $p < 0.001$). Digital literacy significantly mediated the relationship between AI anxiety and career self-efficacy, with a significant indirect effect ($\beta = 0.1023$).</p>

			<p>Synthesis: AI anxiety represents a psychological barrier to career self-efficacy, whereas AI knowledge and digital literacy are associated with stronger career confidence. Digital literacy may serve as a protective mechanism that reduces the adverse implications of AI anxiety for students' career-related self-efficacy.</p>
13.	Zhao (2023)	<p>Career expectation; Employment anxiety; Social support; Psychological capital</p>	<p>Quantitative, correlational design; final-year/graduating art students from five higher vocational colleges in Jiangsu, China; 619 valid participants from 634 distributed questionnaires; data analyzed using descriptive statistics, Pearson correlation, SEM, and PROCESS Model 6 for chain mediation.</p> <p>Purpose: To examine the effect of career expectations on employment anxiety and the mediating roles of social support and psychological capital.</p> <p>Findings: Higher career expectation was associated with higher employment anxiety ($\gamma = 0.54, p < 0.001$), whereas social support and psychological capital were negatively associated with employment anxiety. Significant indirect effects were observed through social support ($\gamma = -0.111, p < 0.001$), psychological capital ($\gamma = -0.105, p < 0.001$), and the sequential pathway of career expectation→social support → psychological capital → employment anxiety ($\gamma = -0.007, p < 0.001$).</p> <p>Synthesis: Higher career expectations were associated with greater employment anxiety, whereas social support and psychological capital reduced employment anxiety through independent and sequential mediating pathways. The findings highlight psychological and social resources as potential protective factors against career-related anxiety among graduating students.</p>

14.	Liang, Liu, & Liu (2026)	Teacher caring behavior; Employment anxiety; Career decision-making self-efficacy; Psychological capital	Quantitative, cross-sectional survey; 1,424 vocational college students from 10 colleges in Hunan, Jiangxi, and Henan, China; data analyzed using SPSS 26.0, Pearson correlation, SEM using AMOS, and PROCESS Model 6 with 5,000 bootstrap resamples.	<p>Purpose: To assess the relationship between teacher caring behavior and employment anxiety and examine the sequential mediating roles of career decision-making self-efficacy and psychological capital.</p> <p>Findings: Teacher caring behavior was negatively associated with employment anxiety ($\beta = -0.137, p < 0.01$) and positively associated with career decision-making self-efficacy ($\beta = 0.465, p < 0.001$) and psychological capital ($\beta = 0.304, p < 0.001$). Career decision-making self-efficacy was negatively associated with employment anxiety ($\beta = -0.199, p < 0.01$) and positively associated with psychological capital ($\beta = 0.584, p < 0.001$). Psychological capital was negatively associated with employment anxiety ($\beta = -0.276, p < 0.001$). Significant indirect effects were found through career decision-making self-efficacy ($\beta = -0.093$), psychological capital ($\beta = -0.084$), and the sequential pathway teacher caring behavior $\rightarrow$ career decision-making self-efficacy $\rightarrow$ psychological capital $\rightarrow$ employment anxiety ($\beta = -0.075$).</p> <p>Synthesis: Career decision-making self-efficacy and psychological capital function as protective psychological resources against employment anxiety. Notably, psychological capital includes optimism, hope, resilience, and self-confidence, supporting the relevance of optimism as a protective factor in students' career-related anxiety.</p>
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15.	Umar et al. (2026)	Career adaptability; Career insecurity; Career self-management; Optimism; Career self-efficacy	Quantitative, correlational multifactor model; 416 final-year undergraduate students from South Sulawesi, Central Sulawesi, and West Sulawesi, Indonesia; data analyzed using path analysis with JASP 0.18.3.	<p>Purpose: To examine the effects of career adaptability and career insecurity on career self-efficacy and the role of career self-management.</p> <p>Findings: Career adaptability positively predicted self-efficacy ($\beta = 0.448, p < 0.001$), whereas career insecurity did not significantly predict self-efficacy ($\beta = 0.069, p = 0.080$). Career adaptability also showed a significant indirect effect on self-efficacy through career self-management ($p < 0.001$), while career insecurity showed no significant indirect effect ($p = 0.186$). Optimism directly predicted self-efficacy and also indirectly enhanced self-efficacy through career self-management.</p> <p>Synthesis: Optimism and career adaptability emerged as positive individual resources associated with stronger career self-efficacy among final-year students, while career insecurity showed no significant negative association with self-efficacy. These findings highlight the potential protective role of optimism in supporting students' career development during the transition from university to work.</p>
16.	Atikah, Kurniawati, & Rifameutia (2023)	Students' career anxiety; Career decision-making; Career exploration; Employability; Individual, environmental, and psychological resources	Systematic literature review following PRISMA 2020; 17 eligible studies involving student populations; databases: SAGE Journals, Taylor &	<p>Purpose: To identify how students' career anxiety has been defined and measured and to identify factors associated with career anxiety.</p> <p>Findings: Students' career anxiety was generally characterized by negative feelings, physiological reactions, and maladaptive cognitive responses arising in career-related situations, particularly career decision-</p>

			Francis, and ScienceDirect; data synthesized through narrative analysis and assessed using CASP.	making, uncertainty about future employment, and employability concerns. Career anxiety was associated with individual factors such as personality, attachment, career adaptability, resilience, and psychological resources, as well as environmental and situational factors including family relationships, parental expectations, social support, and perceived labor-market conditions. Career-related resources and competencies were generally associated with lower career anxiety. Career anxiety may become more prominent during educational transitions, particularly near graduation and entry into the labor market.
17.	Tsai, Hsu, & Hsu (2017)	Career anxiety	Quantitative, scale development and validation study; 479 fourth-year university students from tourism and hospitality departments at 10 universities in Taiwan; stratified sampling; data analyzed using	<p>Synthesis: Students' career anxiety is a multidimensional career-related psychological response shaped by both individual and contextual factors. The review highlights psychological resources and career-related competencies as potential protective factors, providing a conceptual basis for examining factors that may reduce career anxiety among final-year university students.</p> <p>Purpose: To establish and validate a career anxiety scale for tourism and hospitality university students preparing to enter the labor market.</p> <p>Findings: Career anxiety comprised four dimensions: personal ability, irrational beliefs about employment, employment environment, and professional education training. The final scale consisted of 25 items rated on a 4-point Likert scale and demonstrated acceptable construct validity and internal</p>

			<p>item analysis, independent-samples <i>t</i>-test, exploratory factor analysis (EFA) using SPSS 22, and confirmatory factor analysis (CFA) using AMOS 18.</p>	<p>consistency (Cronbach's α = 0.76 to 0.89). Career anxiety involved concerns regarding students' abilities, employment conditions, preparedness, career interests, and uncertainty about entering the workforce. Uncertainty regarding career choices, abilities, interests, and future employment was identified as a contributing factor to career anxiety among university students.</p> <p>Synthesis: Career anxiety among final-year students encompasses concerns about personal competence, preparedness, employment conditions, and uncertainty about future work. The validated scale provides a useful conceptual and measurement foundation for examining career anxiety during the transition from university to employment.</p>
18.	Bankins et al. (2024)	AI use, career stages, career competencies, barriers and enablers of AI use, career outcomes	<p>Systematic literature review of 104 empirical articles retrieved from Scopus. Analysis used bibliographic coupling with VOSviewer and manual thematic coding.</p>	<p>Purpose: To examine how AI influences careers across career stages and identify barriers, enablers, and implications for career development.</p> <p>Findings: AI affects career development through changing skill requirements, AI literacy, career guidance, and career prediction. AI creates both opportunities and risks for career development, career sustainability, and employee well-being.</p> <p>Synthesis: AI-driven changes in work can function as both career opportunities and sources of career-related risk, particularly through changing skill requirements and uncertainty across career stages. The findings provide a broader conceptual foundation</p>

				for examining AI disruption as a potential risk factor for career anxiety among students preparing to enter the labor market.
19.	Eva et al. (2020)	Career optimism;	Systematic literature review of 31 quantitative empirical studies published between 1998-2017. Studies were identified from 10 databases and reference-list searches. Articles were independently screened by two authors and synthesized thematically.	<p>Purpose: To systematically review the antecedents, outcomes, theoretical foundations, measurement, and research gaps related to career optimism.</p> <p>Findings: Career optimism is positively associated with career self-efficacy, career adaptability, career aspirations, social support, career decisiveness, career decision-making self-efficacy, career satisfaction, life satisfaction, and career-related behaviors. Conversely, it was negatively associated with career barriers, negative affect, neuroticism, and career stress. Career optimism may operate as both a trait-like and state-like construct and may be influenced by contextual resources. The review also identified inconsistencies in its conceptualization and a predominance of cross-sectional research designs.</p> <p>Synthesis: Career optimism represents a protective career resource associated with more positive career attitudes, greater adaptability, and better career-related outcomes, while contextual barriers may undermine it. These findings support examining optimism as a protective factor against career anxiety, particularly among university students facing uncertainty during the transition to employment.</p>
20.	Wang (2026)	Career adapt-abilities; Core self-evaluations; AI anxiety	Cross-sectional survey; 444 English-major students from	<p>Purpose: To examine the relationship between career adapt-abilities and AI anxiety, including the mediating role of</p>

four comprehensive universities in Sichuan, China; data analyzed using descriptive statistics, Pearson correlation, CFA, PROCESS Model 4 mediation analysis with 5,000 bootstrap samples, and Latent Profile Analysis (LPA).	core self-evaluations and distinct career adapt-abilities profiles. Findings: Career adapt-abilities negatively predicted AI anxiety, with core self-evaluations partially mediating this relationship. Latent profile analysis identified three career adapt-abilities profiles: low, moderate, and high. The low career adapt-abilities group reported the highest AI anxiety, whereas the high career adapt-abilities group reported the lowest. Synthesis: Career adapt-abilities may function as a protective career resource against AI anxiety, with core self-evaluations partially explaining this relationship. Students with stronger career adapt-abilities tend to experience lower AI anxiety, suggesting that greater psychological and career resources may help students cope with perceived AI-related career disruption.
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Across the 20 articles reviewed, 13 of the 14 studies examining AI-related factors reported statistically significant associations between AI-related anxiety, attitudes, or acceptance and greater career anxiety or related outcomes, including job-seeking anxiety, career stress, difficulties in career decision-making, and future career concerns. The reported effects ranged from small to moderate associations, such as the correlation between AI anxiety and job search anxiety ($r = .233$; Dağ et al., 2026), to stronger structural relationships, including the association between AI anxiety and career adaptability ($\beta = -.864$; Duan et al., 2026). Career adaptability, perceived employability, self-efficacy, and digital literacy repeatedly emerged as relevant mediating or explanatory mechanisms within these relationships. However, associations between AI anxiety and career-related outcomes differed across academic disciplines. Among Translation and Interpreting students, AI anxiety was significantly associated with career decidedness, whereas no significant association was observed among students in English Language Teaching or English Language and Literature programs (Yaşar & Karagucuk, 2025). These findings indicate that the psychological impact of AI may vary according to students' perceptions of the vulnerability of their field of study to technological substitution.

In contrast, the five articles examining optimism or psychological capital incorporating optimism consistently reported significant associations with more favorable career-related outcomes or lower career-related distress. The indirect effects reported across these studies

were generally small to moderate in magnitude, ranging from $\beta = -.075$ to $\beta = -.105$, and showed a consistent protective direction across student populations in Türkiye, China, Indonesia, and the United States. These findings suggest that optimism may represent a relatively stable psychological resource that supports more adaptive responses to career uncertainty, although the existing evidence remains less extensive than research examining AI-related career risks.

4. DISCUSSION

The findings of this review support its central objective of examining career anxiety among final-year university students through two complementary perspectives: AI disruption as a potential risk factor and optimism as a potential protective factor. Across the reviewed literature, AI-related constructs were consistently associated with greater career-related distress and adverse career outcomes. In contrast, evidence concerning optimism was less extensive but showed a consistent association with more adaptive career-related outcomes and lower career-related distress. This pattern indicates that the current literature provides stronger empirical evidence for the adverse implications of AI-related disruption than for the psychological resources that may protect students from these effects.

Evidence on AI-related risks indicates that changes in students' psychological and career resources may underlie the association between AI anxiety and career outcomes. In the study by Duan et al. (2026), AI anxiety was strongly and negatively associated with career adaptability, which accounted for 63.35% of its total effect on career decisions. This result indicates that AI anxiety may affect career decision-making largely by reducing students' capacity to adapt to vocational changes. A comparable resource-based pathway was identified for negative AI attitudes, which were linked to lower perceived future employability and greater career stress, with perceived future employability serving as a significant mediating pathway (Hanci & Gok Metin, 2026). These findings align with Conservation of Resources theory, which proposes that psychological stress arises when valued resources are threatened, lost, or insufficiently replenished (Hobfoll, 1989). Accordingly, AI disruption may contribute to career anxiety when students perceive threats to resources essential for successful labor-market entry, including employability, occupational competence, and the relevance of their existing skills.

The relationship between AI-related perceptions and career anxiety, however, does not appear to be uniformly negative across all students. A latent profile analysis identified a group of students with high levels of AI acceptance who reported greater career decision-making anxiety than students with moderate AI acceptance, with moderate to large effect sizes across the anxiety dimensions (Wang & Gao, 2025). This pattern suggests that greater engagement with or acceptance of AI does not necessarily reduce career-related anxiety. Students who are more attentive to AI development may simultaneously possess greater awareness of its potential implications for employment and occupational change. Career anxiety may therefore arise not only from unfamiliarity with AI but also from increased awareness of its potential consequences for one's professional future. This interpretation is supported by findings indicating that students who expected AI-driven job replacement within one to five years experienced higher levels of career anxiety (Islam et al., 2026).

The risk associated with AI disruption also appears to vary according to the perceived vulnerability of particular occupational fields. AI anxiety was significantly associated with lower career decidedness among Translation and Interpreting students, whereas comparable relationships were not observed among students in English Language Teaching or English Language and Literature (Yaşar & Karagucuk, 2025). This discipline-specific pattern suggests that the psychological consequences of AI may depend partly on students' perceptions of how directly their prospective occupations are exposed to technological

substitution. Where AI is perceived as capable of performing a substantial proportion of occupational tasks, technological change may be appraised as a more immediate threat to future employment. Thus, the extent to which AI functions as a career-related risk factor may depend not only on individual anxiety toward technology but also on the perceived proximity and magnitude of automation within a student's intended occupational field.

Research on optimism offers an additional perspective on career-related psychological resources. Career optimism has been linked to favorable career-related outcomes, including career self-efficacy, career adaptability, career decision-making self-efficacy, and career satisfaction, while demonstrating negative associations with career barriers and career stress (Eva et al., 2020). Among final-year students, higher job search self-efficacy was associated with greater career optimism and lower employment anxiety (Carkit, 2025). This pattern indicates that psychological resources that strengthen confidence in career-related actions may coexist with positive expectations regarding future career outcomes. Findings involving psychological capital, which includes optimism together with self-efficacy, hope, and resilience, provide further support for the association between positive psychological resources and lower employment anxiety. Psychological capital was associated with reduced employment anxiety among graduating art students (Zhao, 2023), while a sequential pathway involving teacher caring behavior, career decision-making self-efficacy, psychological capital, and employment anxiety was identified among vocational college students (Liang et al., 2026).

Further support for the protective role of optimism comes from research involving final-year university students in Indonesia. Optimism was positively associated with career self-efficacy, both directly and indirectly through career self-management, while career insecurity did not significantly predict career self-efficacy (Umar et al., 2026). This pattern highlights a potentially important distinction between risk reduction and resource enhancement. Reducing career insecurity may not necessarily strengthen students' career self-efficacy, whereas developing positive psychological resources may contribute more directly to students' perceived capacity to manage career-related demands. From an intervention perspective, this suggests that supporting students' optimism, career self-management, and related psychological resources may complement approaches that focus primarily on reducing career-related fears and uncertainty.

The protective role of optimism can also be explained by the broaden-and-build theory, which suggests that positive psychological states expand individuals' momentary thought-action repertoires and support the development of lasting personal resources (Fredrickson, 2001). Within career development, positive expectations may therefore support broader consideration of career alternatives, greater engagement with career exploration, and the accumulation of psychological and social resources. This perspective complements Conservation of Resources theory by suggesting that optimism may contribute to the preservation and acquisition of resources when students encounter career-related uncertainty. Whereas AI disruption may threaten valued resources such as employability and skill relevance, optimism may support more constructive appraisal and sustained engagement with career development activities.

The two theoretical perspectives can therefore be integrated into a broader account of career anxiety in the age of AI. Conservation of Resources theory explains how perceived AI disruption may threaten career-related resources and generate psychological strain, whereas dispositional optimism provides a framework for understanding how positive expectations may influence individuals' responses to such threats (Hobfoll, 1989; Scheier & Carver, 1985). Under conditions of substantial perceived AI-related threat, students with greater optimism may be more likely to maintain positive expectations about their career future, identify alternative career pathways, and engage in adaptive career behaviors. This theoretical proposition is supported indirectly by evidence that career adaptability is negatively

associated with AI anxiety, with students characterized by lower career adaptability reporting higher AI anxiety (Wang, 2026). However, none of the 20 reviewed articles directly tested whether optimism moderates or buffers the relationship between AI-related disruption and career anxiety within a single empirical model. Consequently, the proposed protective function of optimism in the specific context of AI-driven career disruption remains a theoretical proposition rather than an established causal relationship.

A further finding of this review concerns the imbalance in the empirical literature. Fourteen of the 20 reviewed articles addressed AI-related risks, with several studies involving relatively large samples, whereas only five examined optimism or psychological capital incorporating optimism as a protective resource. This imbalance indicates that research attention has been directed predominantly toward identifying and quantifying the psychological risks associated with AI disruption. Although documenting these risks is important, a comprehensive understanding of students' career anxiety also requires attention to the resources that may enable them to cope with technological uncertainty. Literature reviews can contribute to theory development by identifying such patterns and gaps rather than merely accumulating findings from individual studies (Snyder, 2019).

The limited integration of AI-related risk and optimism is particularly important given the rapid development of AI within contemporary labor markets. Existing studies have increasingly examined AI anxiety, AI attitudes, perceived job displacement, and AI acceptance in relation to career stress, employment anxiety, job-seeking anxiety, career decisions, and career adaptability. In comparison, career optimism has more frequently been examined in relation to career adaptability, employability, self-efficacy, career aspirations, and career satisfaction than in relation to anxiety arising from technological disruption (Eva et al., 2020). The current evidence therefore supports a clear research gap: the protective role of optimism has not yet been sufficiently examined under conditions of perceived AI-related career threat.

This gap has implications for both research and practice. Future research should move beyond examining AI-related risk and protective psychological resources separately and test their relationships within integrated models. In particular, longitudinal and moderated mediation designs could examine whether optimism reduces the extent to which perceived AI disruption contributes to career anxiety and whether this effect operates through career adaptability, career self-efficacy, or perceived employability. Such research could offer stronger evidence regarding the psychological mechanisms underlying students' responses to AI-related career uncertainty. From a practical perspective, career development interventions could integrate AI literacy and realistic information about occupational change with strategies aimed at strengthening career optimism, career adaptability, career self-efficacy, and career self-management. This approach would address both sides of the psychological process by reducing uncertainty associated with AI disruption while simultaneously strengthening the resources students can draw upon when navigating an evolving labor market.

5. CONCLUSIONS

The synthesis of 20 scientific articles identified through a structured literature search and screening process indicates that AI disruption represents an important career-related risk factor for university students, particularly those approaching the transition from higher education to employment. Across different national and educational contexts, AI-related constructs such as AI anxiety, AI attitudes, AI acceptance, and perceived AI-driven job displacement were associated with career anxiety and related outcomes, including career stress, job-seeking anxiety, career decision-making difficulties, and concerns about future employment. In contrast, optimism emerged as a potential protective psychological resource,

either as an independent construct or as a component of psychological capital, and was consistently associated with more adaptive career-related outcomes and lower career-related distress. These findings are consistent with the objective of this review to examine the respective roles of AI disruption and optimism in understanding career anxiety among final-year university students.

Despite the relatively consistent evidence supporting both perspectives, the literature remains unevenly distributed. Research has focused substantially more on identifying the psychological risks associated with AI disruption than on examining psychological resources that may mitigate these risks. Moreover, the reviewed studies rarely examined AI-related risk and optimism within the same empirical framework. Although Wang (2026) provides indirect evidence that career-related psychological resources may be associated with lower AI anxiety, the study did not directly examine whether optimism attenuates the relationship between AI disruption and career anxiety. Therefore, whether and how optimism functions as a protective factor under conditions of AI-related career threat remains insufficiently established.

Future research should integrate these two strands within longitudinal and theoretically informed research designs, particularly by examining optimism as a moderator or mediator of the relationship between AI-related disruption and career anxiety among final-year university students. Further systematic reviews and meta-analyses may also help establish the strength and consistency of these relationships across populations and contexts. Such evidence would contribute to the development of career counseling and higher education interventions that address not only students' exposure to AI-related career uncertainty but also the psychological resources required to adapt effectively to an increasingly AI-mediated labor market.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge the Faculty of Psychology, Universitas Negeri Jakarta, for its support throughout the preparation of this article. Appreciation is also extended to the supervisors for their guidance and constructive feedback during the development of this literature review, as well as to the lecturer of the Positive Psychology course for the valuable guidance and support provided throughout the preparation of the article.

DECLARATION OF AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work, the authors used ChatGPT to assist with language refinement, translation, paraphrasing, and structuring of the manuscript. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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