

Career Adaptability, Resilience, and Work Readiness in Competency-Based Cosmetology Education: A Mediation Study among Cosmetology Education Students

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Abstract—Among Indonesian cosmetology education students, this study investigated whether resilience mediates the association between career adaptability and job readiness. The study employed a quantitative cross-sectional design and used partial least squares structural equation modelling to analyze the data. The results demonstrated that resilience and work preparedness were positively correlated with career adaptability, and that work readiness was positively correlated with resilience. Complementary partial mediation was shown by the strong indirect pathway through resilience. These results imply that in competency-based cosmetology education, resilience serves as a crucial mediating mechanism between career adaptability and work preparedness. The study is in favour of including resilience-building, career development, feedback, and reflection into hands-on technical education.

Keywords—resilience, work preparation, cosmetology education, competency-based education, and career flexibility.

I. INTRODUCTION

The need for technical and vocational education to adapt to the evolving competency needs of Industry 4.0 and modern workplaces is growing (Anwar & Minghat, 2024; Shahroni et al., 2022). In order to address this issue, a competency-based approach links learning objectives to observable performance, knowledge, and abilities. Assessments in vocational education should measure both procedural performance and more general cognitive skills related to technical learning (Fiandini et al., 2024). However, competency is more than just being able to follow instructions. According to Mulder et al. (2007), vocational performance is located in shifting social and organizational settings, and the definition of competence rests in part on how learners mobilize knowledge and skills in situations that do not precisely replicate training conditions. This distinction is important because when graduates enter the workforce, assignments are rarely given as precisely designed classroom exercises.

Therefore, as vocational training increasingly focuses on professional readiness alongside occupational competence, the transfer from education to job involves more than just technical skill (Khakimova, 2025). The ability to carry out

tasks, act responsibly, communicate effectively, and adapt to organizational requirements are all components of the multifaceted concept of work readiness. Job readiness cannot be boiled down to a single technical score because it includes personal traits, organizational acumen, job competence, and social intelligence (Caballero et al., 2011). This difficulty is especially evident in practice-intensive programs, where students must frequently show processes, get feedback, fix errors, interact with clients or colleagues, and uphold professional standards while working under time and resource constraints.

In cosmetology school, where occupational preparation integrates technical procedures, aesthetic judgement, client consultation, hygiene, service quality, communication, time management, and professional responsibility, this difficulty is pertinent. Haircutting is an example of a practical activity that highlights the need to view competency-based education as both technical and adaptive. A student may be familiar with the steps involved in a process, but they may find it difficult when a client's needs change, a technical issue arises, the available tools differ from those used during practice, or a task must be completed under time pressure. The educational question is consequently not only whether students can perform a procedure, but also whether they can remain effective when the conditions surrounding that procedure change.

The need to connect technical preparation with adaptive capacity is consistent with broader vocational learning research. Vocational learning develops through contributions from educational institutions and workplaces, and these settings provide different opportunities for learners to acquire occupational knowledge and practices. Work-integrated learning can strengthen employability when learning activities are deliberately designed, and students are given opportunities to practise and reflect on workplace-relevant skills (Jackson, 2015; Jackson, 2020; Jackson & Bridgstock, 2021). Thus, competency-based education should provide not only opportunities for skill acquisition but also structured experiences through which students learn how to respond to uncertainty, feedback, and changing performance requirements.

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One psychological resource that may support this process is career adaptability. Career Construction Theory conceptualizes career adaptability as a psychosocial resource for managing vocational development tasks, transitions, and occupational difficulties (Savickas & Porfeli, 2012). The Career Adapt Abilities Scale identifies four dimensions: concern, control, curiosity, and confidence (Savickas & Porfeli, 2012). Concern directs attention toward the future; control supports responsibility and self-direction; curiosity encourages exploration of possible roles and environments; and confidence supports problem-solving and persistence. These resources are particularly relevant for students because the transition from education to work requires them to anticipate future expectations, make decisions, explore opportunities, and believe that they can manage new demands.

Career adaptability is linked to adaptive reactions and adaptation outcomes, according to data gathered over the last ten years. Positive correlations between professional adaptability and outcomes including employability, job satisfaction, and other adaptation markers have been demonstrated by meta-analytic research (Rudolph et al., 2017). According to recent research conducted in Indonesia, university students' career adaptability and work preparedness are positively correlated (Diva & Satwika, 2024). Additionally, career adaptability was revealed to be a significant predictor of job readiness in a recent study of Indonesian Generation Z students and to be a mediating factor in the relationship between mentorship and readiness (Gomargana & Wibowo, 2025). Although these results support the idea that adaptability is important for the transition from school to the workplace, they do not explain how adaptability develops into preparedness during hands-on learning. A theoretically tenable mechanism for that shift is provided by resilience. Resilience is more than just the ability to withstand adversity or the absence of stress. When conditions become difficult, it entails mobilizing resources and preserving or regaining adaptive functioning. By assisting students in responding positively to hardship and struggle, educational support and mentoring can also aid in the development of resilience-related capacities (Daud, 2026).

In educational contexts, academic resilience has been associated with self-efficacy, control, planning, composure, and persistence (Martin & Marsh, 2006). More broadly, resilience research emphasizes adaptive systems that allow individuals to recover, reorganize, and continue functioning in the presence of adversity or disruption (Masten, 2001; Southwick et al., 2014). For competency-based learning, this perspective is important because practice is inherently iterative: students attempt a task, receive feedback, encounter errors, revise their approach, and attempt the task again.

The relationship between career adaptability and resilience is therefore conceptually defensible. Students who are oriented toward their future, exercise control over their actions, explore alternatives, and feel confident about solving career-related problems may be better positioned to

respond constructively when educational or occupational demands become difficult. Recent longitudinal research supports the broader idea that resilience and career adaptability are connected personal resources in university students, although that research examined a different mechanism in which career decision self-efficacy mediated the relationship between resilience and later career adaptability (Alkal, 2025).

This distinction is crucial because while current research shows that the variables are related, it does not address whether career flexibility can serve as an antecedent of resilience, which in turn contributes to job preparedness. The result is the subject of a second gap. While research on resilience has frequently concentrated on well-being, academic perseverance, or coping, research on career adaptation has increasingly looked at employability and work preparation.

These literatures do not always converge in a single educational model. A recent systematic review of undergraduate career adaptability research highlights the growing interest in predictors, mediators, and outcomes of adaptability, but also the heterogeneity of mechanisms and contexts examined across studies. The present study addresses this fragmentation by placing career adaptability, resilience, and work readiness in one parsimonious model and testing the mechanism directly.

A third gap concerns context. Much of the established career adaptability literature has been developed across general higher education or career development settings. Less attention has been given to practice-intensive, competency-based programs in which students repeatedly encounter observable performance standards and immediate feedback. Cosmetology education provides a useful case because occupational preparation involves a close relationship between practical performance, professional behaviour, client-oriented service, and changing occupational expectations. The present study therefore asks whether the psychological resources emphasized in career development theory also help explain readiness in a technical-vocational educational context (Affandi et al., 2025; Ahmid et al., 2023).

The study makes four contributions. First, instead of treating adaptability solely as a tool for career planning, it expands career adaptability research into a competency-based practical education environment. Second, it goes beyond a straightforward direct effect model by positioning resilience as a mechanism that connects flexibility with job readiness. Third, it offers actual data from 419 students from two public universities in Indonesia, making it possible to analyze the suggested mechanism in a sizable sample of practice-oriented students. Fourth, it translates the statistical relationship into curriculum implications: competency-based programs may need to create learning experiences that purposefully integrate future-oriented career development with challenge, feedback, reflection, and recovery if resilience carries some of the effect of career adaptability.

Four hypotheses are addressed in the study. According to H1, resilience is favourably predicted by professional

adaptability. H2 suggests that job readiness is positively correlated with resilience.

H3 proposes that career adaptability positively predicts work readiness. H4 proposes that resilience mediates the positive relationship between career adaptability and work readiness. The conceptual logic is sequential: career adaptability supplies psychosocial resources for anticipating and managing career demands; resilient functioning describes how those resources are mobilized when students encounter difficulty; and work readiness represents the resulting capacity to enter and respond to professional demands.

The study is positioned as an empirical technical-education study rather than an investigation of cosmetology procedures. Its contribution lies in examining a potentially transferable educational mechanism linking psychosocial resources with readiness for professional practice in a practice-intensive vocational context. It does not claim that cosmetology and engineering are equivalent occupational fields; instead, it uses a technical-vocational context to investigate a mechanism that can be examined comparatively across practice-based programs. It does not claim that cosmetology and engineering are equivalent occupational fields; instead, it uses a technical-vocational context to investigate an educational mechanism that can be examined comparatively across practice-based programmes.

II. THEORETICAL BACKGROUND AND HYPOTHESES

A. Career Adaptability as a Psychosocial Resource in Competency-Based Education

Career adaptability is grounded in Career Construction Theory, which views career development as an active process through which individuals construct meaning and respond to changing social and occupational environments. Rather than assuming that a career is a fixed sequence of predetermined choices, the theory emphasizes the resources individuals use to manage transitions and developmental tasks. Concern, control, curiosity, and confidence represent distinct but related resources that enable individuals to predict the future, control behaviour, consider options, and behave confidently (Savickas & Porfeli, 2012).

These materials may function during regular learning activities for students in competency-based education. Future job needs and rising occupational norms may receive more attention as a result of this concern. Control might motivate pupils to plan their practice, track their development, and accept accountability for their own growth. Students who are curious may investigate different methods, tools, service models, and careers. When a performance does not immediately achieve the required standard, confidence may encourage perseverance. In this way, career adaptability can be viewed as a tool for interacting with the learning process that builds occupational competence as well as a tool for job transition.

The competence literature, which warns against viewing competence as a direct correlate of observable performance, is in line with this approach (Mulder et al., 2007). Under familiar circumstances, a student may demonstrate proficiency, but when task conditions change, they may need

more adaptive resources. Therefore, career adaptability can serve as a link between the growth of competence and the evolving settings in which skill must ultimately be applied. This more expansive view is further supported by meta-analytic evidence that professional adaptability is linked to adaptation responses and outcomes (Rudolph et al., 2017).

This logic leads to the anticipated association with resilience. Students may have more psychological resources at their disposal when they face failure or ambiguity if they foresee future demands, exert control, consider alternatives, and have faith in their ability to overcome difficulties. Thus, the first hypothesis is: H1: Resilience and career adaptability are positively correlated.

B. Adaptive Capacity for Work Readiness via Resilience

More people are realising that resilience is not a permanent personality feature but rather a dynamic process. Resilience is defined by Masten (2001) as common adaptive processes that enable people to continue or regain functioning in the face of hardship. In a similar vein, Southwick et al. (2014) stress that biological, psychological, social, and contextual factors interact to produce resilience, which is multifaceted. Resilience is especially important in education since learning entails times of increasing difficulty, uncertainty, evaluation, and error. The current study operationalizes resilience through self-regulation and emotional control, professional adaptation and recovery, and perseverance in the face of learning challenges. Three complementary processes are captured by these parameters. Regulation refers to the ability to control emotional and behavioural reactions; adaptation and recovery represent the ability to resume productive functioning following setbacks; and persistence reflects continuous involvement when learning becomes challenging. As a result, the construct closely aligns with the practical requirements of competency-based education, where improvement frequently necessitates repeated efforts and intentional correction.

Additionally, work readiness is multifaceted. According to Caballero et al. (2011), work readiness includes social intelligence, organizational acumen, work competency, and personal traits. The practical and behavioural aspects of readiness are represented in the current study by three dimensions: professional competence and job abilities, professional attitude and responsibility, and adaptability and preparedness for the workplace (Caballero et al., 2011). Because resilience promotes perseverance, emotional control, and recuperation in challenging work environments, a resilient student may be better equipped to maintain these aspects.

It is not suggested that technical competence is a direct result of resilience. Instead, when pupils encounter difficulties, resilience may help them continue to apply and acquire competency.

In a practical program, a student who responds to an unsuccessful procedure by diagnosing the error, regulating frustration, using feedback, and trying again may be better prepared for work than a student whose technical knowledge is similar but whose response to setbacks is less adaptive. H2

therefore proposes: Resilience has a positive and significant effect on work readiness.

C. Career Adaptability and Work Readiness

Career adaptability may also influence work readiness directly. Students who are attentive to their future careers may be more deliberate in selecting learning opportunities and understanding workplace expectations. Control can support self-management and responsibility; curiosity can encourage exploration of occupational roles and alternative solutions; and confidence can support the willingness to perform unfamiliar tasks. These processes are compatible with the idea that adaptability facilitates positive adaptation results (Rudolph et al., 2017).

Recent empirical studies provide contextual support. Diva and Satwika (2024) reported a significant relationship between career adaptability and work readiness among final-year university students. Similarly, in a more comprehensive mediation model encompassing mentoring, Gomargana and Wibowo (2025) found a high correlation between career adaptability and work preparedness. Although the direct association is supported by these findings, practice-intensive education may benefit from a more mechanism-oriented explanation. Direct consequences are conceivable in competency-based cosmetology education since students' perceptions of practice as preparation for professional responsibilities might be influenced by career adaptability.

A student who is aware of the demands of the profession in the future may actively seek out feedback, experiment with different methods, get ready for client variability, and make connections between classroom assignments and workplace expectations. H3 therefore proposes: Career adaptability has a positive and significant effect on work readiness.

D. Resilience as the Mediating Mechanism

A mediation model asks not only whether an antecedent predicts an outcome, but also whether part of that relationship operates through an intervening mechanism. In the present study, career adaptability is expected to contribute to resilience, and resilience is expected to contribute to work readiness. The indirect pathway therefore represents the process through which future-oriented and self-regulatory career resources may become observable readiness for professional practice.

This model also resolves an apparent tension between career development and vocational education perspectives. Career adaptability describes how learners approach future career demands, while resilience describes how they function when demands become difficult in the present. Competency-based learning links the two because future occupational requirements are encountered through present practice: students must perform, receive feedback, manage mistakes, and recover. If career adaptability helps students manage these experiences, resilience may be the mechanism through which adaptability is translated into readiness.

Recent research supports the relevance of examining mechanisms between career resources. Alkal (2025) showed longitudinal links among resilience, career decision self-efficacy, and career adaptability, while Gomargana and

Wibowo (2025) demonstrated a mediation model involving career adaptability and work readiness. The present study integrates these strands in a different direction and context by testing whether resilience transmits part of the effect of career adaptability to work readiness. H4 therefore proposes: Resilience significantly mediates the positive relationship between career adaptability and work readiness (Alkal, 2025; Gomargana & Wibowo, 2025).

III. METHODOLOGY

A. Research Design and Participants

The study used a quantitative, cross-sectional design and analyzed data from 419 cosmetology education students enrolled at two Indonesian universities. Respondents were enrolled in cosmetology-related undergraduate programs at two Indonesian universities. The two participating institutions are referred to as University A and University B. The source dataset records 239 respondents from University A (57.0%) and 180 from University B (43.0%). All respondents were women, and ages ranged from 19 to 22 years ($M = 20.44$, $SD = 0.87$). The largest semester group was semester 5 ($n = 267$, 63.7%), followed by semester 6 ($n = 81$, 19.3%), semester 8 ($n = 41$, 9.8%), and semester 7 ($n = 30$, 7.2%).

Relevant types of occupational exposure are also documented in the dataset. A total of 319 students (76.1%) said they had completed an internship, 216 (51.6%) said they owned a business, 249 (59.4%) said they worked as freelance makeup artists, and 194 (46.3%) said they had a competency certificate. As a result, the sample includes students who are not solely focused on the classroom; many have already engaged in freelancing, entrepreneurial, or work-related activities. These characteristics are relevant to work readiness because they provide contextual opportunities for students to connect educational learning with occupational expectations.

The analysis included 419 complete respondent records available for the study. Because detailed information on the original sampling procedure and response rate was unavailable, these aspects are acknowledged as methodological limitations. The present analysis focused on three constructs aligned with the proposed mediation model: career adaptability as the predictor, resilience as the mediator, and work readiness as the outcome.

The three-construct model was re-estimated directly from the respondent-level data because removing structural predictors can alter the relationships among the remaining constructs.

B. Measures and Construct Specification

Career adaptability was represented by four dimensions: career concern, career control, career curiosity, and career confidence. The source instrument contained four items for each dimension, giving 16 items in total. The construct follows the established four-dimensional structure of career adaptability (Savickas & Porfeli, 2012).

Resilience was represented by three dimensions: persistence in facing learning difficulties (six items), self-regulation and emotional control (six items), and

professional adaptation and recovery (five items), giving 17 items. Work readiness was represented by professional competence and work skills (six items), professional attitude and responsibility (six items), and adaptation and preparedness for the workplace (five items), also giving 17 items. The supplied raw data used a six-point response scale. Dimension-level scores were calculated from their respective item sets and modelled as reflective indicators of the higher-order constructs in the PLS-SEM analysis.

The operationalization deliberately preserves the educational meaning of the constructs. Career adaptability captures resources for managing career development; resilience captures adaptive functioning during difficulty; and work readiness captures the capability and disposition to perform and adapt in professional settings. This separation is important for the mediation analysis because the mediator must represent a process that is conceptually distinct from both the antecedent and the outcome.

C. Data Analysis

Partial least squares structural equation modelling (PLS-SEM) was used to estimate the measurement and structural models. The approach is appropriate for a predictive and explanatory model involving latent constructs measured by multiple indicators and a mediation pathway. The analysis was performed using SmartPLS 4. Contemporary PLS-SEM guidance emphasizes the importance of evaluating both measurement quality and the structural relationships among constructs rather than relying on path coefficients alone (Sarstedt et al., 2020).

The measurement model was assessed through outer loadings, average variance extracted (AVE), Cronbach's alpha, rho_A, composite reliability, and discriminant validity using the Fornell-Larcker criterion.

Reliability coefficients above 0.70 were seen as satisfactory, whereas loadings around 0.70 or higher and AVE around 0.50 were considered proof of convergent validity. The square root of each construct's AVE had to be greater than its correlations with the other constructs in order to pass the Fornell-Larcker assessment. R2 path coefficients, f2 effect sizes, collinearity diagnostics, and bootstrap inference were used to assess the structural model. The indirect impact of career adaptability on resilience-based job readiness was used to evaluate the mediation hypothesis. When the bootstrap confidence interval did not contain 0, a substantial indirect effect was found. In accordance with guidelines for PLS-SEM mediation analysis, direct and indirect effects were interpreted jointly to identify the kind of mediation (Sarstedt et al., 2020).

D. Research Ethics and Data Governance

The study was carried out in compliance with institutional ethical guidelines. All respondents gave their informed consent, participation was entirely voluntary, and respondent identities were excluded from the dataset under analysis. The manuscript presents all results in aggregate form and does not include respondent names or individual identification.

IV. RESULTS AND DISCUSSION

A. Participant Profile

The participant characteristics are summarized in Table 1. Students in semesters five through eight and those between the ages of 19 and 22 make up the majority of the sample. Because job exposure can offer an opportunity to integrate classroom competencies with occupational expectations, the large percentage of people reporting internship experience is significant. However, almost 25% had not completed an internship, suggesting that there is still significant heterogeneity in the sample's exposure to the workplace.

TABLE I
PARTICIPANT CHARACTERISTICS.

Characteristic	Category	n	%
University	University A	239	57.0
University	University B	180	43.0
Age	19	58	13.8
Age	20	170	40.6
Age	21	141	33.7
Age	22	50	11.9
Semester	5	267	63.7
Semester	6	81	19.3
Semester	7	30	7.2
Semester	8	41	9.8
Internship	Yes	319	76.1
Internship	No	100	23.9
Own business	Yes	216	51.6
Own business	No	203	48.4
Freelance MUA	Yes	249	59.4
Freelance MUA	No	170	40.6
Competency certificate	Yes	194	46.3
Competency certificate	No	225	53.7

B. Measurement Model

The quality of the three constructs is supported by the measurement findings (Table 2). Every indicator loading was higher than 0.70. The loadings for professional adaptability were 0.873 for career concern, 0.855 for career control, 0.876 for career curiosity, and 0.860 for career confidence. The three measures of resilience have loadings of 0.891, 0.798, and 0.822. The loadings for work readiness were 0.789, 0.799, and 0.857. Each dimension contributes significantly to its latent construct, according to the pattern.

TABLE II
MEASUREMENT MODEL.

Construct	Indicator	Loading
Career Adaptability	Career concern	0.873
Career Adaptability	Career control	0.855
Career Adaptability	Career curiosity	0.876
Career Adaptability	Career confidence	0.860
Resilience	Persistence in facing learning difficulties	0.891
Resilience	Self-regulation and emotional control	0.798
Resilience	Professional adaptation and recovery	0.822
Work Readiness	Professional competence and work skills	0.789
Work Readiness	Professional attitude and responsibility	0.799
Work Readiness	Adaptation and preparedness for the workplace	0.857

The reliability and convergent validity data are shown in Table 3. The AVE values were 0.750 for career adaptability,

0.702 for resilience, and 0.665 for work readiness. Each value exceeds 0.50, indicating that the constructs explain more than half of the variance in their indicators. Reliability was also satisfactory: Cronbach's alpha values were 0.889, 0.787, and 0.750; rho_A values were 0.895, 0.790, and 0.769; and composite reliability values were 0.923, 0.876, and 0.856 for career adaptability, resilience, and work readiness, respectively.

TABLE III
RELIABILITY AND CONVERGENT VALIDITY.

Construct	Cronbach's α	rho_A	Composite reliability	AVE
Career Adaptability	0.889	0.895	0.923	0.750
Resilience	0.787	0.790	0.876	0.702
Work Readiness	0.750	0.769	0.856	0.665

Discriminant validity was assessed using the Fornell-Larcker criterion (Table 4). The square roots of AVE were 0.866 for career adaptability, 0.838 for resilience, and 0.815 for work readiness. Each diagonal value exceeded the corresponding correlations with the other constructs, indicating that the constructs are empirically distinguishable despite their theoretical relatedness.

TABLE IV
FORNELL-LARCKER CRITERION.

Construct	Career Adaptability	Resilience	Work Readiness
Career Adaptability	0.866	0.822	0.787
Resilience	0.822	0.838	0.791
Work Readiness	0.787	0.791	0.815

C. Structural Model

Table 5 shows the structural path results. The three-construct structural model explained 67.7% of the variance in resilience ($R^2 = 0.677$; adjusted $R^2 = 0.676$) and 69.2% of the variance in work readiness ($R^2 = 0.692$; adjusted $R^2 = 0.690$). In an explanatory educational model, these values indicate that a substantial proportion of variance in the two endogenous constructs is accounted for by the predictors included in the reduced model.

Career adaptability had a strong positive effect on resilience ($\beta = 0.823$, $t = 49.44$, $p < 0.001$), supporting H1. Resilience had a positive effect on work readiness ($\beta = 0.448$, $t = 8.85$, $p < 0.001$), supporting H2. Career adaptability also retained a positive direct effect on work readiness ($\beta = 0.424$, $t = 8.54$, $p < 0.001$), supporting H3. The f^2 values were 2.095 for career adaptability $\rightarrow$ resilience, 0.205 for resilience $\rightarrow$ work readiness, and 0.185 for career adaptability $\rightarrow$ work readiness. Thus, career adaptability showed the largest effect size in explaining resilience within the present model.

TABLE V
STRUCTURAL PATH RESULTS.

Hypothesis	Path	β	t	p	f^2	Decision
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H1	Career Adaptability $\rightarrow$ Resilience	0.823	49.44	< 0.001	2.095	Supported
H2	Resilience $\rightarrow$ Work Readiness	0.448	8.85	< 0.001	0.205	Supported
H3	Career Adaptability $\rightarrow$ Work Readiness	0.424	8.54	< 0.001	0.185	Supported

The structural model did not indicate a critical collinearity problem under the commonly used upper VIF criterion of 5. The predictor VIF for career adaptability and resilience in the work readiness equation was approximately 3.09. This value indicates that the two constructs are not so redundant as to render the structural estimations useless, but they do share significant variance, as predicted by the theoretical model.

D. Mediation Analysis

The mediation results are displayed in Table 6. Through resilience, career adaptability had a favourable and significant indirect impact on job preparedness ($\beta = 0.368$, $t = 8.64$, $p < 0.001$). The 95% bootstrap confidence interval excluded zero and ranged from 0.283 to 0.450. As a result, H4 was supported. The mediation is better described as complementing partial mediation rather than full mediation since the direct impact of career flexibility on work preparedness remained positive and considerable.

TABLE VI
MEDIATION RESULTS.

Effect	β	t	p	95% Bootstrap CI
Direct: Career Adaptability $\rightarrow$ Work Readiness	0.424	8.54	< 0.001	[0.328, 0.525]
Indirect: Career Adaptability $\rightarrow$ Resilience $\rightarrow$ Work Readiness	0.368	8.64	< 0.001	[0.283, 0.450]
Total effect	0.792	—	—	—

The mediation model examined in this work is depicted in Figure 1. About 46.5% of the overall effect is represented by the indirect effect (0.368/0.792). Because the design is cross-sectional, this fraction should not be taken as a causal percentage; rather, it is a descriptive indicator of the relative scale of the projected indirect pathway. Significantly, the outcome shows that career flexibility influences job readiness via two interconnected pathways: a direct pathway and an indirect pathway that uses resilient functioning.



Fig. 1. The study explored a mediation model.

E. Discussion

The findings offer a cogent empirical explanation of how competency-based cosmetology education may transform career adaptability into work readiness. Each of the four theories was validated. Career adaptability showed the strongest structural relationship with resilience ($\beta = 0.823$), resilience predicted work readiness ($\beta = 0.448$), and career adaptability retained a direct effect on work readiness ($\beta = 0.424$). Most importantly, the indirect effect through resilience was significant ($\beta = 0.368$). The pattern therefore indicates that resilience is not simply another correlate of work readiness; it represents a statistically meaningful mediating pathway between career adaptability and readiness for professional practice.

The findings should be interpreted at two levels. At the psychological level, they suggest that students who possess stronger resources for anticipating, controlling, exploring, and approaching career demands are also more capable of maintaining adaptive functioning during difficulty. At the educational level, they suggest that the way practical learning is designed may influence whether those resources are translated into occupational readiness. Competency-based education therefore has an opportunity to connect technical learning with structured development of adaptive and resilient capacities.

F. Career Adaptability as a Resource for Resilience

The strongest path in the model was career adaptability relates to resilience ($\beta = 0.823$). This result supports H1 and provides a strong empirical basis for interpreting career adaptability as more than a career-planning variable. Career Construction Theory proposes that adaptability resources help individuals manage transitions and vocational challenges. The four dimensions measured in this study are especially compatible with resilient functioning. Concern orients the learner toward future consequences; control provides a sense of agency over action; curiosity encourages the search for alternatives; and confidence supports continued engagement with difficult problems (Savickas & Porfeli, 2012).

The result is also consistent with the broader adaptation literature. Rudolph et al. (2017) found that career adaptability is positively associated with adaptive responses and adaptation results. Recent longitudinal evidence further shows that resilience and career adaptability are connected personal resources in university students, although the mechanism examined in that study was different from the present model (Alkal, 2025). The present findings therefore do not establish a new conceptual relationship from nothing; rather, they provide evidence that the relationship can be observed within a competency-based, practice-oriented student population and can be positioned as the first link in a work-readiness mechanism.

The very large f^2 value for career adaptability $\rightarrow$ resilience (2.095) reinforces the practical importance of this

relationship in the present model. It suggests that removing career adaptability from the resilience equation would produce a substantial loss in explanatory power. This result should nevertheless be interpreted within the model and sample. It does not mean that career adaptability is the only or universally dominant cause of resilience. Resilience is a multidetermined process influenced by personal, social, educational, and contextual resources (Masten, 2001; Southwick et al., 2014).

The result suggests that career development materials can be integrated into technical learning rather than being isolated from it for competency-based education. A student who understands why a skill matters for a future occupational role may be more willing to persist when practice becomes difficult. A student who feels responsible for progress may be more likely to use feedback. A student who explores alternatives may be more willing to revise a procedure rather than repeat an ineffective approach. A student with confidence may be more willing to attempt a challenging task after an error. These are precisely the behavioural processes through which resilience becomes visible in practice.

G. Resilience as a Predictor of Work Readiness

Resilience significantly predicted work readiness ($\beta = 0.448$), supporting H2. The result is consistent with the multidimensional view of readiness (Caballero et al., 2011). Work readiness includes work competence but also personal and organizational capacities that allow graduates to function effectively in professional environments. The present findings add that students' capacity to persist, regulate themselves, and recover may be one of the psychological mechanisms supporting that broader readiness.

The finding is especially meaningful in practice-oriented education because competence development involves repeated exposure to evaluation. Practical tasks generate visible outcomes. Errors can be immediately observed by lecturers, peers, clients, or the students themselves. Such visibility can be productive when students interpret feedback as information for improvement, but it can also create frustration or avoidance. Resilience may influence whether the student responds by disengaging or by regulating the response, diagnosing the problem, and trying again.

This interpretation is consistent with the educational resilience literature. Martin and Marsh (2006) identified self-efficacy, control, planning, composure, and persistence as important correlates of academic resilience. These resources overlap with the behaviours needed to maintain learning and professional functioning. Importantly, the present study does not imply that resilience replaces technical competence. Rather, resilience may help students sustain the learning and performance processes through which technical competence is acquired and applied.

The medium-sized f^2 effect of resilience on work readiness (0.205) indicates that resilience has a meaningful contribution to the outcome even after career adaptability is considered. This is important because it suggests that a curriculum that increases career adaptability but neglects

students' ability to manage setbacks may leave part of the readiness pathway underdeveloped. The educational implication is to create learning environments where challenge is neither eliminated nor excessive, but structured so that students can practice recovery and learn from feedback.

H. Career Adaptability as a Direct Predictor of Work Readiness

Supporting H3, career adaptability also directly predicted job preparedness ($\beta = 0.424$). This result is in line with other research that found a relationship between university students' work readiness and career adaptability (Diva & Satwika, 2024). Additionally, it is consistent with recent research from Indonesia showing that career adaptability can operate within a more comprehensive mediation model linking work preparedness and mentorship experiences (Gomargana & Wibowo, 2025).

The direct pathway demonstrates that resilience does not fully explain the link, which makes it conceptually significant. Through mechanisms not covered by resilience, career adaptability can enhance preparedness. Concern, for instance, can motivate students to make job plans; control might motivate career decision-making and self-management; curiosity might motivate students to investigate professional alternatives; and confidence might motivate proactive involvement with opportunities. These procedures can improve preparedness for the workplace without necessarily necessitating a quantifiable shift in resilience.

This result lends credence to a distinct perspective on psychological preparation. It is not appropriate for curriculum designers to assume that one construct can be used in place of another. Although they function at various stages of the transition process, career adaptability and resilience theoretically overlap since they both deal with successful adaptation. While resilience focuses more directly on preserving or regaining functioning when challenges arise, professional adaptability is focused on managing career development and occupational transition. Both should be kept in the explanatory model because of the important direct and indirect pathways.

I. The Complementary Partial Mediator of Resilience

The study's main contribution is the substantial indirect impact of career adaptability on resilience-based job preparedness ($\beta = 0.368$, 95% CI [0.283, 0.450]). Because the direct effect remained significant, the pattern is consistent with complementary partial mediation. The estimated indirect effect accounts for approximately 46.5% of the total statistical effect, although this proportion should not be interpreted causally because the data are cross-sectional. The result provides a more informative explanation than a direct effect model because it identifies a plausible process through which career adaptability is connected to readiness.

The mechanism can be understood as a sequence of adaptive resources and responses. First, career adaptability gives students resources for anticipating and managing career-related demands. Second, these resources may shape how students respond to difficult learning experiences: they may regulate emotions, maintain effort, explore alternatives, and recover after an unsuccessful attempt. Third, repeated adaptive responses can support the broader readiness needed for professional practice. In this interpretation, resilience functions as the bridge between the student's orientation toward future career demands and the student's capacity to function effectively when demands become real and immediate.

Additionally, the mediation result aids in the integration of two research threads that are frequently addressed independently. While resilience research frequently concentrates on coping and rehabilitation, professional adaptability research concentrates on transitions and career advancement. Because students are constantly switching between performance issues in the present and future-oriented preparation, competency-based practical education offers a logical meeting point. Even though a student may already know what kind of professional they want to be, they must repeatedly face challenges in order to create their professional identity. According to the current concept, resilience plays a role in bridging these two temporal views. However, care should be taken when interpreting the outcome. Instead of demonstrating temporal causation, a significant indirect effect in a cross-sectional design indicates a statistical mediation pattern. Theoretically, career adaptability leads to resilience, which leads to work readiness. However, longitudinal or experimental designs are needed to determine whether adaptability improvements precede resilience changes and whether such changes lead to increased readiness. The strength of the contribution therefore lies in identifying a theoretically coherent mechanism that merits further causal testing.

J. Contribution to Competency-Based Technical Education

The study contributes to competency-based education by shifting attention from the endpoint of performance to the learner processes that support sustained performance. Competency frameworks often specify what students should be able to do, while the psychological conditions that help students continue learning when performance is difficult can receive less explicit attention. The present findings suggest that a competency-based curriculum can be strengthened when it intentionally cultivates both occupational capability and adaptive capacity.

This argument is compatible with vocational learning scholarship emphasising the complementary roles of educational institutions and workplaces. Work-integrated learning can support employability development when workplace experiences and learning processes are deliberately designed (Jackson, 2015; Jackson, 2020; Jackson & Bridgstock, 2021). The present study adds a psychological mechanism to that discussion: workplace-oriented learning may be more educationally powerful when

students are supported to anticipate future demands, manage difficulty, and reflect on recovery and improvement.

The finding also resonates with contemporary engineering-education research that increasingly treats curriculum transformation as a problem of integrating authentic experience, reflection, and research-informed pedagogy. JEET publications have highlighted curriculum redesign and experiential learning as ways to connect educational experiences with changing professional environments (Bhogayata et al., 2025). Although the present occupational context is cosmetology rather than engineering, the educational mechanism is transferable: students in practice-intensive programmes must learn to connect structured instruction with uncertain professional performance.

This is the extent to which the study adds to a more general discussion about technical education. It is not appropriate to exaggerate the contribution. The study does not prove that resilience and career adaptability are special indicators of preparedness, nor does it show that the same coefficients would be found in specialized fields like computer technology, engineering, or manufacturing. Rather, it illustrates a comparatively testable mechanism. Future research on engineering education could look at whether the same sequence occurs in occupational contexts such as industry projects, design projects, laboratory work, field placements, or other real-world performance settings.

K. Interpreting the Model in the Indonesian Higher-Education Context

Because higher education programs are required to prepare graduates for shifting labor-market demands while upholding disciplinary and professional standards, the Indonesian setup offers a helpful background for analysing the transition from school to work. Career adaptability, future orientation, mentorship, and work readiness have all been linked in recent Indonesian studies (Diva & Satwika, 2024; Gomargana & Wibowo, 2025; Pratama et al., 2025). By incorporating resilience as an intervening mechanism in a practice-oriented program, the current findings expand on this local evidence. The sample features also show that many respondents already had some experience in the workplace: 46.3% reported a competency certificate, 51.6% claimed running a business, 59.4% reported working as a freelance makeup artist, and 76.1% reported internships. The study does not quantify the independent impacts of these encounters, nor does it provide experimental proof. They do, however, show that this population develops their work readiness in a learning environment that goes beyond traditional classroom training. This highlights the benefits of a paradigm that treats preparedness as a solely academic objective rather than combining job development resources with adaptive functioning.

Therefore, a curriculum approach that views transition preparation as an ongoing activity is supported by the data. Resilience can be practiced during difficult learning assignments, career adaptability can be developed prior to internships or employment, and job preparedness can be

evaluated through real-world performance and introspection. With this strategy, the shift from school to the workforce would be more integrated throughout the curriculum and less reliant on a final placement experience.

L. Limitations and Future Research

There are a few restrictions to take into account. First, substantial temporal claims are precluded by the cross-sectional design. Although the data were gathered all at once, the mediation model is logically ordered. In order to determine if changes in adaptability precede changes in resilience and whether those changes predict subsequent readiness, longitudinal designs should assess career adaptability, resilience, and job preparedness at several time points.

Second, student-reported questionnaire data were used to measure the constructs. While self-report is suitable for psychological resources, it could not accurately reflect real work performance. Self-report measures should be combined with practical performance scores, lecturer evaluations, internship supervisor ratings, employer assessments, or competency certification results in future research. A more robust test of whether psychological preparedness correlates with observable workplace performance would be provided by evidence from multiple sources.

Third, the sample is limited in terms of demographics. All 419 respondents were female, enrolled in two institutions, and ranged in age from 19 to 22. Therefore, it is not appropriate to instantly extrapolate the results to male students, older students, private schools, other nations, or other technical programs. To determine the model's robustness, replication across institutions, geographical areas, professions, and demographic groups is required.

Fourth, this publication purposefully examines only three of the five constructs found in the original dataset. To develop a targeted mediation model, practical aptitude and learning motivation were eliminated. This makes the approach more parsimonious and in line with the current study topic, but it does not negate the significance of learning desire or practical ability. The stability of the three-construct mediation model in the presence of technical competence, motivation, internship exposure, or other contextual factors might be investigated in a future comparison study. Fifth, there were no course-specific haircutting performance markers in the sample. Therefore, rather than being evidence unique to a single cosmetology method, the results should be understood at the level of competency-based cosmetology education.

Sixth, the evaluation of possible selection bias was limited by the lack of comprehensive information regarding the initial sampling process and response rate. By making this information available, openness will be strengthened, and reviewers will be able to evaluate the methodological and ethical foundation of the data gathering. The model can be expanded in a number of ways by future studies. The temporal sequence suggested here could be tested using a longitudinal methodology. The effectiveness

of structured career adaptation and resilience exercises in enhancing work preparedness could be investigated through experimental or quasi-experimental research. Multigroup analysis could be used to determine whether internship experience or competency certification affects the mediation pathway. Lastly, cross-occupational comparisons could investigate if the mechanism is exclusive to practical education focused on services or if it is a more widespread trend in technical and engineering education.

CONCLUSION

This study looked at how resilience functions as a mediator in the relationship between job preparedness and career adaptability in cosmetology education students. Resilience and job preparedness were strongly correlated with career adaptability, while work readiness was favourably correlated with resilience. Complementary partial mediation is shown by the substantial indirect pathway, indicating that resilient functioning may contribute to the explanation of the relationship between career adaptability and professional practice preparation. These results are in favour of competency-based curricula that combine technical learning with career development, real-world challenges, feedback, introspection, and resilience-building. Longitudinal and multi-source investigations are required to test the temporal sequence and generalizability of the model because the study used cross-sectional self-report data from a demographically limited population.

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