Career Adaptability Among Vocational College Students: A Cross-Cultural Comparison Of Indonesian And Chinese Students

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Abstract.
Vocational graduates will enter labor markets that change faster than curricula, which makes the move from school to work less predictable. Career adaptability, the psychosocial resource people draw on to handle career tasks, transitions, and setbacks, can help them manage this move, yet few studies have compared it among vocational college students across countries. This study compared career adaptability between Indonesian and Chinese students enrolled in Diploma III or equivalent three-year vocational programs. Using a comparative cross-sectional design, we surveyed 250 students (125 per country) with the Indonesian and Chinese forms of the Career Adapt-Abilities Scale. Multi-group confirmatory factor analysis supported configural, metric, and scalar invariance, and the groups were then compared with Welch's t-tests at a Bonferroni-adjusted α of .01. Indonesian students scored higher on overall career adaptability, t(228.03) = 3.28, p = .001, d = 0.42, and on concern (p < .001, d = 0.52), control (p = .005, d = 0.36), and curiosity (p = .006, d = 0.35). The difference in confidence (p = .013, d = 0.32) did not reach the adjusted threshold. The pattern suggests that Indonesian students, whose training is less tightly connected to employment, invest more in planning and exploring their careers. Vocational institutions could pair technical training with career planning, exploration, and decision-making support that fits their own school-to-work system.
Keywords: *Career adaptability, career construction theory, cross-cultural comparison, school-to-work transition and vocational college student.*

I. INTRODUCTION

Young people face growing difficulty and uncertainty in the transition from education to work. The International Labour Organization [1] reports that the global youth unemployment rate rose to 12.4% in 2025 and that about one in five young people, or about 257 million, were not in employment, education, or training (NEET) in that year. Early career paths have become more difficult to predict, because of technological change, economic shocks, skill-job mismatches and volatile labor demand [2]. Vocational education is meant to shorten this transition, but technical skill alone no longer guarantees steady progress. Graduates need to cope with changing career paths and have to constantly adapt to new work environments throughout their working lives [3], which is why psychosocial resources for career adaptation are now as relevant as occupational competence.

Students in three-year vocational programs are a useful group to investigate career adaptability, as they tend to enter the labor market earlier than students from academic degree programs. The training focuses on specific occupations, meaning that technological or industrial demand shifts may make some of their acquired knowledge outdated within a few years [3]. The ability to adapt to such changes provides these students with a resource for handling the transition into employment and for developing careers across various work settings [4].

Career Construction Theory (CCT) defines career adaptability as the psychosocial resources individuals use to manage developmental tasks, occupational transitions, and unexpected changes in their careers [5]. These resources are not fixed traits. They grow through use and through the opportunities a person's setting offers [6]. CCT organizes them into four dimensions, each with a concrete form for a diploma student approaching graduation. Concern is the orientation toward the future that leads a student to ask which internship or first job will lead to future opportunities. Control is the sense of ownership over career decisions, seen when a student chooses a specialization rather than leaving the choice to parents or lecturers. Curiosity is a basis for exploring careers and work environments, for example by asking internship supervisors how different jobs really work. Confidence is the belief that one can work through the problems that come up in carrying out career plans such as learning an unfamiliar task on the shop floor or in a hospital ward.

Career adaptability is often linked to employability [7], self-efficacy in career decision-making [8], career exploration [9], and psychological well-being [10]. Most of this research explains career adaptability through individual characteristics such as emotional intelligence [11] or psychological capital [12]. Much less is known about how it varies across educational and national contexts, especially among vocational college

students. Comparisons between countries also come with a methodological requirement: differences between groups can only be interpreted if the instrument measures the same construct in the same way in each group [13]. Hence, examining career adaptability in national contexts while testing measurement equivalence addresses a substantive as well as a methodological gap.

CCT defines career development as a series of transactions between individuals and their environments [5]. From this angle, career adaptability is a personal resource that is built, used, and rewarded within particular education systems, labor markets, and social arrangements. Studies linking career adaptability to human, social, and psychological capital [12], and to career education [8] point in the same direction. If the environment influences adaptability, then students educated within different national systems may differ in the resources they report, and these differences should follow the demands each system places on them.

Indonesia and China offer a useful contrast as they seek the same policy goal through very different arrangements. Both governments view vocational education as a way to develop a skilled and adaptable workforce. In China, three-year vocational colleges operate within a state-led system of industry-education integration with large-scale school-enterprise partnerships, jointly run training centers, and apprenticeship pilots [14]. In Indonesia, the relationship between Diploma III programs and employers is looser and still developing, and the government's “link and match” policy exists precisely because curriculum and industrial needs are not yet well aligned [15]. This contrast between a tightly coupled and a loosely coupled school-to-work system is the starting point of the present study. Since CCT argues that adaptability is developed in relation to the tasks that an environment offers, the two systems may develop different adaptive resources even among students of similar age and length of the program.

Vocational higher education in Indonesia is delivered mainly through Diploma III (D3) programs designed to meet industry needs. However, only 2.79% of Indonesian workers hold a Diploma I to III qualification [15]. Recent research shows a continuing gap between educational qualifications and labor market requirements, especially for young workers [16]. Meanwhile, automation, digitalization, and outsourcing are shifting demand from routine skills toward non-routine skills such as problem solving, communication, teamwork, and entrepreneurship. Graduates are expected to improve communication and collaboration in various work environments [4]. Thus, for many Indonesian D3 students, their institution has not mapped the way for transitioning from campus to a stable job. They have to anticipate where demand will go, choose between uncertain options, and find opportunities for themselves, which are the tasks that concern, control, curiosity, and confidence are meant to support.

Indonesian cultural values add a relational dimension to this picture. Kaloeti et al. [17] identified *gotong royong* (mutual cooperation) and *tawakal* (reliance on God combined with personal effort, or *ikhtiar*) as values that support the academic resilience of Indonesian students. *Gotong royong* keeps students embedded in close networks of peers, lecturers, family, and alumni. In career terms, these networks carry information and encouragement. When a senior mentions about getting a job after an internship, it can make a student think about the future sooner (concern) and explore similar opportunities (curiosity). In China, collectivist ties are also strong, but in Indonesia they often have to substitute for the weaker institutional bridges to employment, which makes them a direct source of career information. Since social capital has been related to career adaptability [12], this relational orientation is a likely pathway through which the Indonesian context especially enhances concern and curiosity. *Tawakal* may work alongside it by helping students tolerate uncertainty while continuing to act, so that planning stays hopeful rather than anxious.

Chinese vocational higher education presents a different environment. It is described as the type of education most closely tied to employment and the current workforce [18]. Three-year programs integrate classroom learning with practice-oriented training based on national standards. Vocational graduates account for over 70% of new frontline workers in advanced manufacturing, emerging industries and modern services [14]. This incorporation provides students with early contact with workplaces and often, structured pathways into them. There are social costs to the same system. Vocational education in China still faces social bias, and the updated Vocational Education Law states that vocational and general education have equal importance, with the aim of raising the standing of vocational programs [18]. Chinese college students also study in a highly competitive environment described as academic involution, or neijuan [19]. A structured pathway may

thus reduce the immediate need to plan and explore independently, while status pressure and competition may weaken students' sense of agency over their careers.

This study compares career adaptability between students in Diploma III or equivalent three-year vocational programs in Indonesia and China. Because cross-national comparisons depend on equivalent measurement, we first test the configural, metric, and scalar invariance of the Career Adapt-Abilities Scale (CAAS) between the two groups and then compare overall career adaptability and its four dimensions. The contrast described above raises the question of whether a loosely and a tightly coupled vocational system are associated with different profiles of adaptive resources. Because the samples were recruited through online and personal networks, they do not represent all vocational students in either country, so the comparison describes these two groups of students rather than the two national populations as a whole.

II. METHODS

Research Design

This study employed a quantitative comparative cross-sectional design to compare the career adaptability of vocational college students in Diploma III (D3) or equivalent three-year programs in Indonesia and China. No variables were manipulated and all participants completed one standardized instrument.

Participants

The population of interest was students in D3 or comparable three-year vocational programs in Indonesia and China. These programs are built to move students directly into the labor market, which makes career adaptability a relevant resource for them as graduation approaches.

Participants had to (1) be active students in a D3 program in Indonesia or a comparable three-year vocational program in China; (2) have completed at least one year of study, that is, be in their second year or higher; (3) be 18 to 24 years old; (4) have work experience (part-time or full-time) or internship experience, with either type being sufficient; (5) give informed consent; and (6) complete the whole questionnaire. Of 259 responses received, 9 were excluded because they did not meet the inclusion criteria. The final sample consisted of 250 participants, 125 from each country.

Sampling Technique

Participants were recruited through accidental (convenience) sampling, a non-probability technique in which participants are selected based on their accessibility and willingness to take part. The questionnaire links were shared through social media and personal networks, and some acquaintances and participants forwarded the links to other vocational college students. Students who met the inclusion criteria and agreed to participate were included in the study. Because recruitment depended on online and personal networks, the samples were concentrated in certain regions (see Table 1) and are not representative of all vocational students in either country.

Research Instrument

Career adaptability was measured using the Career Adapt-Abilities Scale (CAAS) by Savickas and Porfeli [6]. The instrument consisted of 24 positively worded items equally distributed across four dimensions: Concern (Items 1–6) e.g., “Thinking about what my future will be like”, Control (Items 7–12) e.g., “Making decisions by myself”, Curiosity (13–18) e.g., “Investigating options before making a choice”, and Confidence (19–24) e.g., “Overcoming obstacles”. Responses were measured using a five-point Likert scale, ranging from 1 (Not Strong) to 5 (Strongest).

Participants in Indonesia completed the Indonesian version of the Career Adapt-Abilities Scale which was developed by Sulistiani et al. [20] through forward translation, reconciliation, back-translation, harmonization, and cognitive debriefing. In the validation study, CFA supported the hierarchical four-factor structure, with second-order loadings of .79 (concern), .89 (control), .85 (curiosity), and .88 (confidence). Reliability was .91 for the total scale and between .83 and .85 for the subscales.

Participants in China completed the Career Adapt-Abilities Scale–China Form developed by Hou et al. [21]. Its developers produced the Chinese version through translation by bilingual graduate students, independent back-translation, and comparison of the two versions for linguistic equivalence. They reported a

total-scale alpha of .89, subscale alphas of .79 (concern), .64 (control), .71 (curiosity), and .74 (confidence), and acceptable CFA fit (RMSEA = .064, SRMR = .057).

Because both forms had been validated in earlier studies, their psychometric properties were re-examined in the present data. Internal consistency was estimated for the total scale and each dimension and cross-national equivalence was examined with multi-group confirmatory factor analysis (MG-CFA).

Data Collection Procedure

The questionnaire links were distributed through social media and personal networks, and acquaintances to forward them to the vocational college students who may be eligible. Participants were also invited to pass the link on to eligible peers. Neither institution in either country was formally involved in recruitment, and those who forwarded the link had no access to the responses. The questionnaire was completed by Indonesian participants via Google Forms, and by Chinese participants via Wenjuanxing (问卷星). Each version was administered in the participant's own language.

Before starting, participants read an information sheet describing the purpose of the study, the questionnaire procedure, the voluntary nature of participation, how confidentiality would be protected, and their right to withdraw at any time without penalty. Only those who gave electronic informed consent could proceed to the questionnaire.

Responses were collected anonymously, stored securely, and accessed only by the research team for research purposes.

Data Analysis

Internal consistency of the total CAAS and its four dimensions was estimated with Cronbach's alpha, separately for the Indonesian and Chinese samples. Common method bias was initially screened using Harman's single-factor test. A supplementary comparison of single-factor and correlated four-factor confirmatory factor analysis (CFA) models was conducted using the pooled sample (N = 250), with the same 24 CAAS items, to examine whether the four-factor model provided a better fit than the single-factor model.

The four-factor CAAS model was first fitted in each country. Measurement invariance was then tested through a sequence of increasingly constrained multi-group models: configural (same factor structure), metric (equal factor loadings), and scalar (equal loadings and item intercepts). Fit was judged with χ^2, χ^2/df, CFI, TLI, and RMSEA with its 90% confidence interval. CFI and TLI values of .90 or above and RMSEA values of .08 or below were treated as acceptable. Each level of invariance was retained when the more constrained model lowered CFI by no more than .010 and raised RMSEA by no more than .015 [22].

Descriptive statistics (means, standard deviations, frequencies, and percentages) summarized participant characteristics and CAAS scores. Normality and homogeneity of variance were checked before the group comparisons. Because equal variances could not be assumed in any of the five comparisons, groups were compared with Welch's independent-samples *t*-tests, which do not assume equal variances. The comparisons covered overall career adaptability and its four dimensions, based on observed composite scores.

A Bonferroni correction for the five comparisons set the significance threshold at $\alpha = .01$ (.05/5). Effect sizes were expressed as Cohen's d, and 95% confidence intervals were reported for mean differences and effect sizes. Descriptive analyses and *t*-tests were run in IBM SPSS Statistics 30, and the CFA and invariance models in IBM SPSS Amos 31.

Sample Size Considerations

Sample size adequacy was evaluated with a sensitivity analysis in G*Power 3.1.9.4. With 125 participants per group, a two-tailed independent-samples *t*-test at the Bonferroni-adjusted α of .01 had 80% power to detect effects of $d \geq 0.44$ ($d \geq 0.36$ at $\alpha = .05$). Smaller effects may therefore have gone undetected, and the per-group sample size is treated as a limitation.

III. RESULTS AND DISCUSSION

Results

Participants

A total of 250 vocational college students, 125 Indonesian and 125 Chinese, were included in the analysis. Participants were 18 to 24 years old (M = 20.54, SD = 1.27). Indonesian participants had a mean age

of 20.62 years (SD = 1.14) and Chinese participants 20.46 years (SD = 1.39). Table 1 presents their demographic characteristics.

Table 1. Demographic Characteristics of Participants

Characteristics	Indonesia (n = 125)	China (n = 125)	Total (N = 250)
Age, M (SD)	20.62 (1.14)	20.46 (1.39)	20.54 (1.27)
Gender, n (%)			
Male	54 (43.2%)	64 (51.2%)	118 (47.2%)
Female	71 (56.8%)	61 (48.8%)	132 (52.8%)
Marital Status, n (%)			
Unmarried	120 (96.0%)	122 (97.6%)	242 (96.8%)
Married	5 (4.0%)	3 (2.4%)	8 (3.2%)
Semester of Study, n (%)			
Third semester	30 (24.0%)	50 (40.0%)	80 (32.0%)
Fourth semester	11 (8.8%)	30 (24.0%)	41 (16.4%)
Fifth semester	50 (40.0%)	32 (25.6%)	82 (32.8%)
Sixth semester	34 (27.2%)	13 (10.4%)	47 (18.8%)
Field of Study, n (%)			
Business, Economics, & Management	35 (28.0%)	44 (35.2%)	79 (31.6%)
Engineering & Technology	28 (22.4%)	23 (18.4%)	51 (20.4%)
Computer Science & Information Technology	27 (21.6%)	24 (19.2%)	51 (20.4%)
Health Sciences	14 (11.2%)	5 (4.0%)	19 (7.6%)
Hospitality, Tourism, & Culinary	6 (4.8%)	15 (12.0%)	21 (8.4%)
Arts, Design, & Media	2 (1.6%)	8 (6.4%)	10 (4.0%)
Social Sciences, Education, & Humanities	13 (10.4%)	5 (4.0%)	18 (7.2%)
Other	0 (0.0%)	1 (0.8%)	1 (0.4%)
Province/Region of Origin, n (%)			
East Java	34 (27.2%)	—	34 (13.6%)
DKI Jakarta	27 (21.6%)	—	27 (10.8%)
West Java	23 (18.4%)	—	23 (9.2%)
Central Java	11 (8.8%)	—	11 (4.4%)
South Sumatra	9 (7.2%)	—	9 (3.6%)
Other provinces/regions	21 (16.8%)	—	21 (8.4%)
Henan	—	30 (24.0%)	30 (12.0%)
Tianjin	—	23 (18.4%)	23 (9.2%)
Hebei	—	17 (13.6%)	17 (6.8%)
Beijing	—	14 (11.2%)	14 (5.6%)
Shanxi	—	11 (8.8%)	11 (4.4%)
Other provinces/regions	—	30 (24.0%)	30 (12.0%)
Institution Type, n (%)			
Public	98 (78.4%)	71 (56.8%)	169 (67.6%)
Private	27 (21.6%)	54 (43.2%)	81 (32.4%)
Work Experience, n (%)			
Less than 3 months	20 (16.0%)	28 (22.4%)	48 (19.2%)
3-6 months	53 (42.4%)	59 (47.2%)	112 (44.8%)
More than 6 months	25 (20.0%)	36 (28.8%)	61 (24.4%)
No work experience	27 (21.6%)	2 (1.6%)	29 (11.6%)
Internship Experience, n (%)			
Less than 3 months	30 (24.0%)	36 (28.8%)	66 (26.4%)
3-6 months	67 (53.6%)	53 (42.4%)	120 (48.0%)
More than 6 months	24 (19.2%)	28 (22.4%)	52 (20.8%)
No internship experience	4 (3.2%)	8 (6.4%)	12 (4.8%)

Note. Percentages in the Total column are based on $N = 250$.

Internal Consistency Reliability

Table 2. Internal Consistency Reliability of the Career Adapt-Abilities Scale

Dimension	Indonesia (α)	China (α)
Concern	.853	.916
Control	.852	.902

Curiosity	.851	.911
Confidence	.877	.932
Overall CAAS	.956	.975

Cronbach's alpha values were high in both samples (Table 2). In the Indonesian sample, the dimension alphas ranged from .851 to .877 and the total-scale alpha was .956. In the Chinese sample, the dimension alphas ranged from .902 to .932 and the total-scale alpha was .975. These values indicate strong internal consistency, although alphas above .95 may also reflect some overlap among items. Both samples exceeded the reliabilities reported in the original validation studies of the Indonesian form (.91 for the total scale and .83 to .85 for the subscales) [20] and the China form (.89 for the total scale and .64 to .79 for the subscales) [21].

Common Method Bias Assessment

Harman's single-factor test was conducted on the pooled sample (N = 250) using principal axis factoring of the 24 CAAS items without rotation. A single factor explained 57.18% of the variance, above the 50% screening value, and it was the only factor with an initial eigenvalue above 1 (14.15; the second was 0.90). This result has to be read against the structure of the CAAS. The four dimensions are designed to load on a higher-order career adaptability factor [6], and their latent correlations in the present data were very high (.90 to .97; see the confirmatory factor analysis below). A dominant first factor is therefore expected from the construct itself, although potential common method bias (CMB) cannot be ruled out.

To further investigate this possibility, a comparative confirmatory factor analysis (CFA) was carried out using the same pooled sample. The single-factor model showed acceptable fit ($\chi^2/df = 1.816$, CFI = .953, TLI = .949, RMSEA = .057), whereas the correlated four-factor model demonstrated better fit ($\chi^2/df = 1.588$, CFI = .967, TLI = .963, RMSEA = .049). Although the four-factor model provided a better representation of the data, the acceptable fit of the single-factor model means that the possibility of common method bias (CMB) cannot be conclusively ruled out. Therefore, the findings should be interpreted cautiously.

Confirmatory Factor Analysis

Separate CFAs tested the four-factor CAAS model in each country. Fit was acceptable in the Indonesian sample, $\chi^2(246) = 399.373$, $p < .001$, CFI = .911, TLI = .900, RMSEA = .071, 90% CI [.058, .083], and in the Chinese sample, $\chi^2(246) = 378.872$, $p < .001$, CFI = .949, TLI = .943, RMSEA = .066, 90% CI [.053, .079]. The latent correlations among the four dimensions were very high in both groups, ranging from .90 to .95 in the Indonesian sample and from .91 to .97 in the Chinese sample, which indicates that the dimensions share most of their variance. The fit in the Chinese sample was close to that reported for the China form (RMSEA = .064, SRMR = .057) [21], and the strong overlap among dimensions is in line with the hierarchical structure of the CAAS, in which the four adapt-abilities load on a higher-order career adaptability factor [6, 20]. These results supported the four-factor model in both groups as a basis for the invariance tests.

Measurement Invariance

Prior to contrasting career adaptability scores between the two national groups, an MG-CFA was performed to assess if the CAAS evaluated the construct equivalently among Indonesian and Chinese participants.

Table 3. Measurement Invariance of the Career Adapt-Abilities Scale

Model	χ^2	df	CFI	TLI	RMSEA	ΔCFI	ΔRMSEA
Configural	778.245	492	.934	.926	.048	—	—
Metric	794.319	512	.935	.930	.047	.001	−.001
Scalar	856.274	536	.926	.924	.049	−.009	.002

The configural model fit the data acceptably, $\chi^2(492) = 778.245$, CFI = .934, TLI = .926, RMSEA = .048, 90% CI [.042, .055], indicating that the same four-factor structure held in both groups. Constraining the factor loadings to equality did not worsen fit, $\chi^2(512) = 794.319$, CFI = .935, TLI = .930, RMSEA = .047, 90% CI [.041, .053], ΔCFI = .001, ΔRMSEA = −.001, so the items related to their dimensions in the same way in both groups.

Adding equality constraints on the item intercepts produced $\chi^2(536) = 856.274$, CFI = .926, TLI = .924, RMSEA = .049, 90% CI [.043, .055]. Compared with the metric model, ΔCFI = −.009 and ΔRMSEA = .002, both within the recommended limits. Scalar invariance was therefore supported, which allows the observed

means of the two groups to be compared. Because the ΔCFI value lies close to the .010 cutoff, this support should be regarded as adequate rather than strong.

Group Comparisons of Career Adaptability Scores

Table 4. Comparison of Career Adaptability Scores Between Indonesian and Chinese Students

Dimension	Indonesia *M (SD)*	China *M (SD)*	*Mdiff* [95% CI]	*t (df)*	*p*	Cohen's *d* [95% CI]
Concern	25.03 (4.24)	22.34 (5.92)	2.70 [1.41, 3.98]	4.14 (224.78)	< .001	0.52 [0.27, 0.78]
Control	24.51 (4.36)	22.71 (5.55)	1.80 [0.56, 3.04]	2.85 (234.79)	.005	0.36 [0.11, 0.61]
Curiosity	24.79 (4.15)	23.06 (5.51)	1.73 [0.51, 2.94]	2.80 (230.40)	.006	0.35 [0.10, 0.60]
Confidence	24.66 (4.55)	23.02 (5.74)	1.65 [0.36, 2.94]	2.52 (235.62)	.013	0.32 [0.07, 0.57]
Overall Career Adaptability	99.00 (15.93)	91.13 (21.61)	7.87 [3.14, 12.60]	3.28 (228.03)	.001	0.42 [0.16, 0.67]

Note. M_{diff} = Indonesia minus China; CI = confidence interval. Welch's *t*-tests were used because equal variances could not be assumed in any comparison. Significance was evaluated at α = .01 after Bonferroni correction for five comparisons.

Indonesian students scored significantly higher than Chinese students on concern, $t(224.78) = 4.14$, $p < .001$, $d = 0.52$, 95% CI [0.27, 0.78]; control, $t(234.79) = 2.85$, $p = .005$, $d = 0.36$, 95% CI [0.11, 0.61]; and curiosity, $t(230.40) = 2.80$, $p = .006$, $d = 0.35$, 95% CI [0.10, 0.60]. The difference in confidence, $t(235.62) = 2.52$, $p = .013$, $d = 0.32$, 95% CI [0.07, 0.57], did not reach the adjusted threshold. Overall career adaptability was higher in the Indonesian group, $t(228.03) = 3.28$, $p = .001$, $d = 0.42$, 95% CI [0.16, 0.67] (Table 4).

Discussion

This study compared career adaptability among vocational college students in Indonesia and China after establishing measurement invariance of the CAAS across the two groups. Configural, metric, and scalar invariance were established, allowing the observed score differences to be interpreted as differences in career adaptability rather than functioning of the scale. Indonesian students showed higher overall career adaptability and higher concern, control, and curiosity. The difference in confidence was the smallest and did not pass the Bonferroni-adjusted threshold. To our knowledge, this is the first study to compare career adaptability of vocational college students in these two countries using a tested measurement model.

The Indonesian advantage on concern, control, and curiosity is consistent with the CCT view of adaptability as a response to developmental demands [5]. Indonesian D3 students are preparing for a labor market in which the match between their training and available jobs is uncertain [15, 16]. Their institutions offer comparatively few guaranteed routes into work, so the tasks of anticipating future possibilities, deciding among them, and seeking out opportunities are largely left to the students themselves. Under these conditions, advanced planning, ownership of career decisions, and exploration of alternatives become part of how students protect their employability. Adaptability resources grow through the tasks people actually have to perform [6], and higher scores on these three dimensions are what one would expect from a group that has had to practice them. The higher curiosity of Indonesian students is also in line with Chen et al. [9], who identified career exploration and career adaptability as linked steps leading to better job search outcomes among college students. This process may be supported by the relational networks described by Kaloeti et al. [17]. When institutional bridges to employment are weak, peers, alumni, and family become the main sources of career information and encouragement, and social capital has been linked to career adaptability [12].

The lower scores of Chinese students in the same dimensions may be a reflection of the other side of a tightly coupled system. Chinese vocational colleges place students into workplaces through enterprise cooperation, shared training centers, and apprenticeship programs [14]. When the institution arranges the route from classroom to workplace, students have less reason to scan the labor market or make career decisions on

their own, and thus they may exercise these resources less. Liu et al. [8] found that career education skills were related to career adaptability among Chinese college students through career decision-making self-efficacy. One way to interpret this result is that structured career support may enhances adaptability primarily when it contributes to students' own decision-making rather than replacing it, although their sample consisted of undergraduates and the pattern remains to be tested in vocational colleges. The competitive climate of Chinese higher education may add to this effect. Academic involution is the phenomenon of fierce competition among students and the anxiety caused by it [19]. Students who view effort as a zero-sum game might be less inclined to take a long-term approach to planning and exploration. These explanations are consistent with the data, but they need to be tested with direct measures.

Confidence was the only dimension on which the groups did not differ at the corrected threshold. Two considerations help to interpret this result. The first is statistical. The confidence effect (d = 0.32) was nearly as large as those for control and curiosity (d = 0.36 and 0.35), and the sensitivity analysis indicated that the study could reliably detect effects of around d = 0.44 or larger at α = .01. The four dimensions were also very highly correlated ($r \geq .90$), so differences in effect size between dimensions should not be overinterpreted. Thus, the non-significant result indicates a smaller and less certain difference, not equivalence, and the fact that one dimension crossed the threshold and the other did not is not, in itself, evidence that the dimensions behave differently. Second, there is the substantive issue. If the smaller confidence gap reflects more than sampling variation, one possible explanation is the social standing of vocational education. Both countries tend to value four-year academic degrees more than vocational diplomas. The social bias against vocational education has been so persistent in China that the revised Vocational Education Law had to reaffirm its equal importance with general education [18]. In Indonesia, diploma holders account for a small portion of the workforce [15], indicating that diploma pathway continues to carry less weight than university degrees. In CCT, confidence is the belief in one's capacity to solve career problems, and such beliefs are likely to be sensitive to the judgments of others about that capacity. Thus, a shared status disadvantage may maintain confidence at a similar level in both groups even when other resources differ.

These findings add to CCT in two ways. First, they support the view that career adaptability develops in relation to the school-to-work system students are in. Previous studies have mostly explained career adaptability through individual resources such as trait emotional intelligence [11], career decision-making self-efficacy [8], and human, social, and psychological capital [12]. The present results suggest that the structure of the school-to-work system also matters, which agrees with cross-country evidence that youth transitions to employment are shaped by structural as well as individual factors [2]. The group facing a less structured route into employment reported more adaptive resources overall, with the clearest gap in concern. The very high correlations among the four dimensions suggest that the adapt-abilities acted largely as one general resource in these samples. Hence, the overall score has the most robust basis for comparison and the dimension-level pattern is to be read as tentative. Second, the study demonstrates scalar invariance between the Indonesian and Chinese versions of the CAAS, providing evidence that the scale can be used in mean comparisons between the two vocational populations, extending the cross-national evidence of Savickas & Porfeli [6] to vocational college students in Indonesia and China.

For practice, the results suggest that career support in vocational colleges must match the system students are in. Indonesian institutions could build on students' existing planning and exploration by providing more structured access to employers, for example through industry mentoring and tracer-study information on where graduates find work. More structured placement pathways in Chinese institutions could provide students with opportunities to make and justify their own career choices, e.g. guided exploration of alternatives beyond the assigned placement and reflection on internship experience. In both countries, practical training with constructive feedback and visible examples of successful vocational graduates may help to build confidence. These proposals follow the multidimensional view of career adaptability [6] and evidence that career education [8] and employability skills [7] support career adaptability, and their effectiveness should be tested in intervention studies.

Several limitations apply to these conclusions. First, the samples were recruited through accidental sampling via social media and personal networks and were concentrated in particular regions. Therefore, the

results may not be generalizable to all vocational students in either country. Second, the cross-sectional design does not allow causal conclusions or the assessment of changes over time. With 125 students per group, the study had sufficient sensitivity to detect moderate effects but may have missed smaller differences, including a possible difference in confidence. Third, the four dimensions were highly correlated ($r \geq .90$), which limits the extent to which dimension-specific differences can be distinguished from overall career adaptability.

All data were collected through self-report questionnaires at a single time point. Although the four-factor model fitted better than the single-factor model, Harman's test indicated that the potential for common method variance should still be considered. The theoretically related dimensions of the CAAS may also contribute to the variance explained by the first factor. Finally, the contextual explanations put forward in this study, such as the school-to-work system integration, social support, academic involution, and the status of vocational education, were not directly measured. Future studies should explore the link between these contextual variables and career adaptability differences between the two countries, using larger and more representative samples, longitudinal or multi-source designs, and direct measures of these contextual variables.

IV. CONCLUSION

This study compared the career adaptability of the vocational college students in Indonesia and China. These two countries have the similar goals for vocational education but pursue the different school-to-work system. The Career Adapt-Abilities Scale was equivalent in both groups and their scores were directly comparable. Indonesian students reported higher overall career adaptability than Chinese students, especially in terms of concern, control, and curiosity, while the difference in confidence was the smallest and was not significant. Interpreted through Career Construction Theory, this pattern suggests that adaptive resources are developed when students are required to independently engage in career tasks. The loosely coupled Indonesian system leaves much of the planning, decision-making, and exploration to students, whereas the tightly coupled Chinese system provides institutional routes into work that may reduce the need for such effort. The smaller gap in confidence may be explained by the lower social status of vocational education has in both countries, although the strong overlap among the dimensions makes overall career adaptability the most solid ground for comparison. The study extends Career Construction Theory by showing the difference in career adaptability between students trained in loosely and tightly coupled school-to-work systems, and it provides measurement equivalence evidence for future comparisons of Indonesian and Chinese vocational students. Vocational institutions should therefore design technical training and career support together, balancing institutional structure and student agency to suit each system. Future studies should employ larger and more representative samples, longitudinal designs, and direct measures of the contextual factors proposed in this study.

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