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Career Maturity Assessment Among Indonesian Students With and Without Disabilities in Inclusive Schools

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Abstract

Career maturity is an important aspect of students' readiness to make decisions about further education and employment, particularly in inclusive school settings. This study examined the measurement properties of the Indonesian Career Maturity Scale to support the assessment of career development needs among students with and without disabilities. A cross-sectional quantitative design was employed involving 1,280 students in Grades 10–12 from inclusive senior high schools in West Java, Indonesia, including 58 students with disabilities. Data were collected online using a 40-item Career Maturity Scale with a four-point response format and analysed using the Rasch Rating Scale Model in Winsteps version 3.73. The analysis included item fit, rating-scale functioning, person and item reliability and separation, item difficulty, and differential item functioning (DIF) by disability status. Among the 1,270 non-extreme respondents included in the Rasch analysis, person reliability was .94 (separation = 3.90), while item reliability was .99 (separation = 11.01). Cronbach's alpha was .96. All 40 items demonstrated acceptable fit with the Rasch model, with Infit mean-square values ranging from 0.69 to 1.47 and Outfit mean-square values ranging from 0.67 to 1.46. The four-category rating scale functioned appropriately, and item difficulty ranged from − 1.44 to + 1.46 logits. However, 11 items showed statistically significant DIF by disability status, indicating potential differences in item functioning between the two groups. Overall, the findings provide favourable measurement evidence for using the scale to identify students' career development needs and inform differentiated career guidance in inclusive schools. Further qualitative and accessibility reviews of the DIF items are needed before direct score comparisons between students with and without disabilities are made.

1. Introduction

Career development is an important aspect of students' preparation for further education and employment, particularly for students with disabilities (Sinclair et al., 2026; Dipeolu et al., 2012; Taconet et al., 2024). In Indonesia, students with disabilities continue to face challenges in accessing and achieving successful careers, while their preparation for the transition from education to employment remains an important concern (Fatinah & Yoneda, 2025; Hamdan et al., 2026; Triyanto et al., 2023). Although career guidance and inclusive education have received increasing attention, approaches that specifically address career maturity and education-to-work transition readiness among students with disabilities remain limited (Sinclair et al., 2026; Ahmad & Khairuddin, 2025; Caslin, 2025). These conditions highlight the need for career development support that enables students to develop the readiness required to navigate future educational and occupational pathways. This perspective is consistent with the principle of "Education for All," which emphasizes equitable opportunities for all students, including students with disabilities, to develop their potential and participate in meaningful educational and career pathways.

Career maturity is a crucial aspect of students' career development and refers to their readiness and ability to manage career development tasks and make appropriate educational or occupational choices (Černja et al., 2017; Savickas & Porfeli, 2011). Super (1957) conceptualised career maturity in relation to

developmental career tasks, including career planning, exploration, decision-making, occupational information, and knowledge of preferred occupations (Giannantonio & Hurley-Hanson, 2006; Schultheiss & Stead, 2004; Watson, 2020). Crites (1969) emphasised the attitudes and competencies involved in career choice, while Savickas (1984) conceptualised career maturity as individuals' readiness to make informed career decisions and manage developmental career tasks. Career maturity therefore integrates these perspectives as complementary dimensions of a higher-order construct: Super's emphasis on developmental career tasks, Crites' emphasis on career-choice attitudes and competencies, and Savickas' emphasis on decision-making readiness together provide the conceptual basis for viewing career maturity as a multidimensional construct. Drawing on these perspectives, the present study conceptualises career maturity as the ability to make decisions regarding further education or employment through cognitive, affective, and psychomotor aspects. In this context, career maturity can serve as an important foundation for career navigation by helping students understand their capabilities, explore alternatives, and make informed decisions about their future educational and occupational pathways.

Career maturity has been examined as an important construct for understanding students' readiness to manage career development tasks and make appropriate educational and occupational choices (Forner & Dulu, 2012; Stiles-Clarke & MacLeod, 2018; Babarović & Šverko, 2011). In the context of inclusive education, these career development competencies are particularly relevant for students with disabilities, whose preparation for further education and employment may require more targeted career guidance and support. The transition from secondary education to further education or employment represents an important developmental phase in which students are expected to manage career-related tasks and make decisions about their future (Azizah, 2022; Gartland & Strosnider, 2023; Grünert et al., 2026). This phase requires students to understand their own characteristics, explore relevant educational and occupational opportunities, evaluate alternatives, and make appropriate career decisions, demands that may be more challenging for students with disabilities in inclusive schools. Strengthening career maturity during secondary education is therefore essential to support students' readiness to navigate further education and employment (Morningstar et al., 2017; Soika, 2014; de Vries et al., 2024; Broadbent et al., 2012; Rice & Hooley, 2024; Hearne & Neary, 2021).

Several instruments have been developed to assess career maturity and related career development competencies among students. The Career Maturity Inventory, for example, has been widely used to assess career choice readiness and related dimensions of career development (Savickas & Porfeli, 2011). Other instruments have examined career maturity among secondary and postsecondary students, including measures of career planning, exploration, decision-making, and knowledge of the world of work (Lestari & Tentama, 2020). Recent psychometric studies have extended career-related measurement to inclusive education and students with special educational needs (Atmoko et al., 2026; Gao et al., 2025). Such assessments can provide an important basis for identifying students' career development needs and informing more responsive career guidance within inclusive school settings.

Existing career maturity measures differ in their theoretical conceptualisations, dimensions, target populations, and measurement approaches, and relatively few have been developed specifically to assess career maturity within inclusive school contexts while accommodating students with and without disabilities. This gap is particularly relevant in Indonesia, where an instrument for assessing career maturity needs to be appropriate for the educational and cultural context of inclusive schools and capable of providing evidence on how items function across students with and without disabilities. Addressing this measurement gap is therefore important for ensuring that career development needs can be assessed appropriately within the diverse contexts of inclusive schools.

Conventional Classical Test Theory (CTT) approaches may provide information on overall reliability and validity but offer more limited information about item difficulty, respondent ability, response-category functioning, and differential item functioning at the item level (Rezaee et al., 2018; Park, 2019). Rasch measurement provides an opportunity to examine these properties simultaneously and to evaluate whether response categories and individual items function as intended (Ning, 2018; Mesbah & Kreiner, 2012; Hagquist & Andrich, 2017). To date, limited research has employed Rasch analysis to examine career maturity instruments in the Indonesian context, particularly among students in inclusive school settings.

The present career maturity scale integrates the perspectives of Super (1957), Crites (1969), and Savickas (1984) within a single instrument designed for use in Indonesian inclusive school settings, accommodating both students with and without disabilities. Its assessment framework is intended to capture students' readiness to understand career-related information, consider educational and occupational alternatives, and make decisions about their future pathways. The scale was examined using the Rasch model to provide evidence regarding item and person measurement and differential item functioning by disability status, supporting its use as an assessment resource in inclusive school settings.

The present study therefore aimed to examine the measurement evidence of an Indonesian Career Maturity Scale using the Rasch model as an assessment foundation for supporting career development and navigation in inclusive school settings. Specifically, the study examined item fit, item difficulty, rating scale functioning, person and item reliability and separation, and differential item functioning according to disability status.

2. Method

2.1 Research Design

This study used a cross-sectional quantitative design. Measurement properties of the Career Maturity Scale were examined using the Rasch measurement model (Rating Scale Model), a statistical approach based on Item Response Theory.

2.2 Participants/Sample

The target population comprised 880,441 students enrolled in senior high schools (SMA) across West Java, Indonesia, based on administrative education data provided by the West Java Provincial Education Office (Dinas Pendidikan Provinsi Jawa Barat, 2026). From this population, 1,280 students participated in the study. Participants were recruited from inclusive senior high schools in West Java using a non-probability sampling approach. The sample consisted of 808 female students (63.1%) and 472 male students (36.9%). In terms of grade level, 250 students (19.5%) were in Grade 10, 697 (54.5%) were in Grade 11, and 333 (26.0%) were in Grade 12. Regarding disability status, 58 students (4.5%) had disabilities, whereas 1,222 (95.5%) did not have disabilities. The demographic characteristics of the participants are presented in Table 1.

Table 1
Demographic Characteristics of Participants (N = 1,280)

Characteristics	**n**	**%**
Gender		
Female	808	63.1
Male	472	36.9
Grade level		
Grade 10	250	19.5
Grade 11	697	54.5
Grade 12	333	26.0
Disability status		
Without disabilities	1,222	95.5
With disabilities	58	4.5
Total	**1,280**	**100.0**

2.3 Research Setting and Procedure

Data were collected online from students in inclusive senior high schools in West Java, Indonesia. The questionnaire was administered through Google Forms, with the survey link distributed to eligible students by school counsellors. Students without disabilities completed the questionnaire independently, whereas students with disabilities received assistance from school staff when needed to access or respond to the questionnaire. The same questionnaire and response format were used for both groups.

2.4 Instrument/Measures

The Career Maturity Scale consisted of 40 items designed to measure three aspects of career maturity: cognitive, affective, and psychomotor. The scale was adapted from established career maturity instruments and informed by the perspectives of Super (1957), Crites (1969), and Savickas (1984). Super's perspective emphasises developmental career tasks, Crites focuses on the attitudes and competencies involved in career choice, and Savickas emphasises readiness to make informed career decisions and manage developmental career tasks. The adapted items were reviewed and refined through a focus group discussion (FGD) with experts to ensure their relevance and suitability for the Indonesian inclusive-school context. Drawing on these perspectives and the expert review, the items were formulated to assess students' ability to understand career-related information, consider and evaluate career alternatives, and make appropriate decisions regarding further education or employment. Each item was rated on a four-point Likert-type scale (1 to 4).

2.5 Data Analysis

The Rasch analysis was performed using Winsteps version 3.73, applying the Rating Scale Model (RSM) for the analysis of polytomous responses. The dataset comprised 1,280 respondents and 40 items, with four response categories scored from 1 to 4. Data were first screened for completeness and response validity.

Analyses proceeded in four stages. First, the functioning of the rating scale was examined based on category frequencies, observed average measures, and Andrich thresholds; category functioning was considered appropriate when categories were used in adequate frequencies, observed average measures increased monotonically, and Andrich thresholds were ordered. Second, item fit was evaluated using Infit MNSQ, Outfit MNSQ, ZSTD, and Point-Measure Correlation (PTMEA Corr.). Third, item difficulty and measurement precision were examined through person and item separation and reliability indices, together with Cronbach's alpha as a classical-theory reliability estimate. Finally, Differential Item Functioning (DIF) was examined according to disability status, with items showing DIF significance below $p < .05$ flagged for further review. Person and item measures, dimensionality evidence, and item hierarchy were interpreted with reference to Rasch measurement theory (Bond & Fox, 2015; Sumintono & Widhiarso, 2014; Fox & Jones, 1998).

3. Results

3.1 Descriptive/Summary Statistics

Table 2 presents the measurement characteristics of the respondents and items. Of the 1,280 respondents, 1,270 non-extreme respondents were included in the Rasch measurement analysis. The mean person measure was 1.57 logits (SD = 1.30). Person reliability was .94, with a separation index of 3.90, indicating that the scale could distinguish respondents across several levels of career maturity. The item measures had a mean of 0.00 logits (SD = 0.57). Item reliability was .99, with an item separation index of 11.01, indicating a stable hierarchy of item difficulty. The real RMSE was 0.33 for persons and 0.05 for items. The Cronbach's alpha coefficient was .96, indicating high overall internal consistency.

Overall, these findings provide evidence of adequate measurement precision for both respondents and items.

Table 2
Summary Statistics of Person and Item Measures

Measure	Person	Item
N	1,270	40
Mean measure (logit)	1.57	0.00
SD	1.30	0.57
Real RMSE	0.33	0.05
Separation	3.90	11.01
Reliability	.94	.99

3.2 Dimensionality

Dimensionality was considered in relation to the Rasch measurement structure of the Career Maturity Scale. The analysis yielded a person separation of 3.90 (reliability = .94) and an item separation of 11.01 (reliability = .99), indicating that the instrument provided adequate differentiation among respondents and a stable hierarchy of item difficulties. However, principal component analysis (PCA) of standardised residuals was not available in the current Winsteps output. Therefore, specific statistics for raw variance explained by the measures and unexplained variance in the first contrast are not reported. Accordingly, the present findings provide evidence of measurement precision and item hierarchy but do not, by themselves, establish unidimensionality. Further examination using PCA of standardised residuals would provide additional evidence regarding the dimensionality of the scale.

3.3 Rating Scale Functioning

Figure 1 shows that all four response categories were used by respondents. Category 1 was selected 1,415 times (2.76%), category 2 was selected 6,543 times (12.78%), category 3 was selected 27,007 times (52.75%), and category 4 was selected 16,235 times (31.71%). The observed average measures increased monotonically across the response categories, from − 1.08 logits for category 1 to 2.74 logits for category 4. The Andrich thresholds were also ordered, with values of − 1.95, − 0.55, and 2.50 across the successive category transitions. These results indicate that the

four-category rating scale functioned appropriately and did not require category collapsing.

Figure 1. Rating Scale Analysis.

3.4 Item Fit

Based on the item analysis (Table 3), all 40 items demonstrated acceptable fit with the Rasch model. The Infit MNSQ values ranged from 0.69 to 1.47, the Outfit MNSQ values ranged from 0.67 to 1.46, and the PTMEA Corr. values ranged from .46 to .69, with all items showing positive correlations with the measured construct. These findings indicate that all 40 items demonstrated acceptable fit and contributed to the measurement of career maturity; none of the items required removal on the basis of item fit.

Table 3
Item Fit Statistics of the Career Maturity Scale

Item	Logit	Infit MNSQ	Outfit MNSQ	ZSTD	PTMEA Corr.
1	0.30	1.06	1.20	4.3	.49
2	0.57	0.98	1.04	0.9	.55
3	0.08	1.12	1.11	2.3	.57
4	0.17	1.26	1.33	6.9	.49
5	−0.25	1.14	1.15	3.1	.56
6	−0.60	1.47	1.46	8.5	.52
7	−0.75	0.91	0.89	−2.3	.61
8	−0.03	0.90	0.91	−2.2	.61
9	0.74	1.01	1.08	1.8	.56
10	−0.03	0.95	0.93	−1.5	.63
11	0.45	1.03	1.02	0.6	.58
12	−0.55	0.92	0.92	−1.7	.60
13	0.02	1.19	1.21	4.4	.51
14	0.73	1.23	1.26	5.7	.55
15	−1.44	1.22	1.24	3.7	.53
16	−0.65	0.82	0.78	−5.0	.65
17	−0.58	0.94	0.93	−1.5	.60
18	−0.07	0.93	0.91	−2.0	.60
19	0.06	0.78	0.77	−5.6	.65
20	−0.35	0.82	0.82	−4.1	.62
21	1.46	1.19	1.34	7.4	.51
22	−0.20	0.84	0.84	−3.7	.65
23	0.30	0.93	0.93	−1.6	.61
24	0.50	1.34	1.40	8.2	.46
25	0.41	0.86	0.84	−3.8	.62
26	0.79	1.25	1.31	6.6	.53
27	−0.26	0.69	0.67	−8.1	.68

Item	Logit	Infit MNSQ	Outfit MNSQ	ZSTD	PTMEA Corr.
28	−0.63	0.92	0.91	−1.9	.64
29	−0.65	0.82	0.82	−4.0	.64
30	1.03	1.16	1.26	5.7	.53
31	0.14	1.14	1.15	3.3	.61
32	−0.56	0.73	0.70	−7.2	.67
33	−0.36	0.74	0.70	−7.2	.68
34	−0.17	0.71	0.68	−7.9	.69
35	0.03	0.90	0.89	−2.6	.63
36	0.67	1.22	1.26	5.7	.50
37	0.73	1.08	1.13	2.8	.54
38	−0.60	0.82	0.79	−4.7	.65
39	−0.28	1.06	1.02	0.4	.62
40	−0.17	0.92	0.89	−2.6	.66

3.5 Item Difficulty and Person–Item Targeting

Item difficulty estimates ranged from − 1.44 to + 1.46 logits, indicating variation in item difficulty across the scale. Item 21 had the highest logit value (+ 1.46), indicating that it was the most difficult item to endorse, whereas Item 15 had the lowest logit value (− 1.44), indicating that it was the easiest item.

The Wright person–item map (Fig. 2) further illustrates the distribution of respondents and item difficulty on the same logit scale. The item distribution ranged from − 1.44 to + 1.46 logits, whereas respondents showed a wider distribution of career maturity measures. The wider distribution of person measures relative to the item difficulties suggests that the current item set provides greater measurement coverage for respondents at the lower and middle portions of the career maturity continuum, while additional higher-difficulty items may be useful for differentiating respondents with very high levels of career maturity. This pattern suggests that the scale may be particularly useful for identifying students with lower and moderate levels of career maturity who may require further assessment and differentiated career guidance support.

To further summarise the relative ordering of item difficulty, the 40 items were grouped into higher- and lower-difficulty categories according to their estimated logit positions, as presented in Table 4.

Table 4
Item Difficulty Level of the Career Maturity Scale

Difficulty level	Items
Higher difficulty	21, 30, 26, 9, 14, 37, 36, 2, 11, 25, 24, 23, 1, 31, 3, 35, 19, 10, 40, 34
Lower difficulty	33, 32, 27, 7, 28, 5, 20, 39, 22, 12, 17, 29, 16, 38, 6, 18, 8, 13, 4, 15

3.6 Differential Item Functioning (DIF)

DIF analysis was conducted to examine whether the Career Maturity Scale functioned differently across respondents according to disability status. The analysis included 1,270 respondents distributed across the two DIF groups (n = 1,213 and n = 57). Using the Welch test with a significance level of $p < .05$, 11 of the 40 items showed statistically significant DIF: Items 3, 4, 7, 9, 12, 21, 22, 26, 30, 36, and 37.

The remaining 29 items did not show statistically significant DIF. The significant DIF contrasts ranged from − 0.90 to + 1.04 logits, indicating differences in estimated item difficulty between the two disability-status groups for these items. For example, Item 7 showed a contrast of − 0.90 logits ($p = .0002$), whereas Item 9 showed a contrast of + 1.04 logits ($p < .001$). Items 21, 26, 30, 36, and 37 showed positive DIF contrasts, whereas Items 3, 4, 7, 12, and 22 showed negative DIF contrasts. These findings indicate that most items functioned similarly across disability-status groups, while a subset of items showed statistically significant differences in item functioning.

3.7 Final Measurement Structure

Based on the item-fit, rating-scale, and reliability evidence, all 40 items were retained in the current measurement structure; no items were removed on the basis of item fit or rating-scale functioning. The scale therefore comprises 40 items across the cognitive, affective, and psychomotor dimensions of career maturity. However, 11 items flagged for DIF by disability status warrant qualitative and accessibility review before the scale is used for direct score comparisons between students with and without disabilities.

4. Discussion

4.1 Principal Findings

The present study examined measurement evidence for an Indonesian Career Maturity Scale as a basis for assessing career development needs and supporting career navigation in inclusive school settings, including students with and without disabilities. Overall, the findings indicated that the scale provided adequate measurement information regarding respondent differentiation, item functioning, response-category functioning, and item difficulty. Among the 1,270 non-extreme respondents, person reliability was .94 and item reliability was .99, with separation indices of 3.90 and 11.01, respectively. These findings indicate that the scale could differentiate respondents across several levels of career maturity and establish a stable hierarchy of item difficulty. Cronbach's alpha (.96) further indicated high internal

consistency. The four-point rating scale also functioned as intended, with all response categories used, observed average measures increasing monotonically, and ordered Andrich thresholds.

Taken together, these findings provide a measurement basis for identifying variation in students' career maturity and informing the assessment of career development needs in inclusive school settings. Such assessment information is relevant to career guidance because understanding students' levels of career maturity can help identify areas requiring support as they explore educational and occupational alternatives and prepare for transitions beyond secondary education. However, 11 of the 40 items showed statistically significant differential item functioning by disability status, indicating that some items warrant further qualitative and accessibility review before direct comparisons are made between students with and without disabilities.

4.2 Interpretation of the Main Findings

The dimensionality evidence available—person and item separation and reliability indices—supports adequate differentiation among respondents and a stable hierarchy of items, although, as noted in Section 3.2, detailed PCA of standardised residuals could not be reported because the corresponding output was not available. This cautious interpretation avoids attributing dimensionality evidence to the scale that is not supported by the current analysis output.

All 40 items demonstrated acceptable fit with the Rasch model, and none required removal based on item fit. The relatively broad item difficulty range (− 1.44 to + 1.46 logits) indicates that the scale includes items representing different levels of career maturity. However, the Wright map showed that respondents' career maturity measures were more widely distributed than item difficulties, suggesting that the current item set provides greater measurement coverage for respondents at the lower and middle portions of the measured continuum. This pattern is relevant for career guidance in inclusive schools because assessment can help identify students whose career maturity may require further attention as they explore educational and occupational alternatives. Future refinement could consider developing additional challenging items to extend the upper end of the item hierarchy and improve targeting for students with higher levels of career maturity.

4.3 Comparison With Previous Research

The measurement evidence obtained in the present study is broadly consistent with previous research showing that career maturity can be assessed with satisfactory reliability and measurement precision. Previous studies have reported acceptable measurement properties for career maturity measures, although differences in instruments, samples, response formats, and analytical approaches make direct numerical comparisons difficult (Lestari & Tentama, 2020; Atmoko et al., 2026; Gao et al., 2025). The present study extends this body of research by examining career maturity measurement using the Rasch model in an inclusive-school context involving students with and without disabilities. This context is important because career assessment in inclusive education needs to provide information that can support the identification of diverse students' career development needs.

In the present analysis, person reliability was .94 with a separation index of 3.90, while item reliability was .99 with an item separation of 11.01. All 40 items demonstrated acceptable fit to the Rasch model, with Infit MNSQ values ranging from 0.69 to 1.47 and Outfit MNSQ values ranging from 0.67 to 1.46. These findings provide evidence of adequate measurement precision and a stable hierarchy of item difficulty. Beyond overall reliability, the Rasch analysis also provides information about item difficulty, response-category functioning, and differences in item functioning according to disability status. Such information can be useful when career maturity assessment is used to identify areas of support for students as they explore educational and occupational pathways.

At the same time, the present findings should not be interpreted as evidence that the scale is psychometrically equivalent to instruments examined in previous studies. Differences in measurement models and reporting conventions limit direct comparison of reliability coefficients and item-level statistics across studies. The contribution of the present study is therefore better understood as extending career maturity measurement research to an inclusive educational context and providing measurement evidence that can inform the assessment of career development needs. In turn, such assessment information can support career guidance processes aimed at helping students understand their options, evaluate alternatives, and prepare for further education or employment.

4.4 Theoretical Implications

The findings have implications for the conceptualisation of career maturity as a developmental construct that can be operationalised through observable and measurable indicators. The adequate item fit, person reliability, and item separation provide measurement evidence that career maturity can be represented through a calibrated hierarchy of indicators within an inclusive-school context. In this respect, the findings are consistent with the broader developmental perspective on career maturity associated with Super and subsequent extensions of the construct. The findings further suggest that career maturity assessment can provide information about students' readiness to understand career-related information, explore alternatives, and make decisions regarding further educational and occupational pathways. These aspects are relevant to understanding career navigation as a developmental process through which students prepare for and manage their future pathways.

The findings also have implications for measurement in inclusive education. By examining item functioning across students with and without disabilities, the study moves beyond the assumption that a career-maturity measure functions equivalently across respondent groups. The identification of DIF in a subset of items indicates that some career-maturity indicators may function differently across disability-status groups. This highlights the importance of considering measurement invariance when assessing career development in inclusive settings. For career guidance, this means that assessment information should be interpreted with attention to students' diverse characteristics and contexts rather than treated as a uniform indicator of readiness. Rasch analysis can therefore complement developmental perspectives on career maturity by providing information that helps identify aspects of assessment requiring further substantive and accessibility consideration in inclusive career guidance.

4.5 Practical/Educational Implications

The findings have practical implications for assessing career maturity in inclusive-school settings. Eleven items showed statistically significant DIF ($p < .05$): Items 3, 4, 7, 9, 12, 21, 22, 26, 30, 36, and 37. Given the relatively small number of students with disabilities ($n = 58$), these findings should be interpreted cautiously. Rather than immediately removing these items, their wording, accessibility, and relevance should be examined in relation to the experiences of students with disabilities. The findings suggest that career maturity assessment in inclusive schools should be used as part of a broader process of understanding students' career development needs rather than as a stand-alone indicator of career readiness. The scale may support career guidance and counselling by helping practitioners identify areas in which students may need support in understanding career information, exploring educational and occupational alternatives, and making informed decisions. Such assessment information can contribute to more responsive career guidance and career navigation support for diverse students in inclusive school settings.

4.6 Implications for Inclusive Education/Career Guidance

Practically, the Indonesian Career Maturity Scale may serve as an assessment resource for inclusive schools and career guidance practitioners to assess and monitor students' career maturity. Mapping students' career maturity can support the identification of career development needs and inform differentiated career guidance and counselling services, particularly in preparing students for further education and employment. In this context, career maturity assessment can contribute to career navigation by providing information about students' readiness to understand career-related information, explore educational and occupational alternatives, and make informed decisions about their future pathways. For students with disabilities, such assessment information can help career guidance practitioners consider individual needs and contextual factors when providing support for education-to-work transitions.

4.7 Limitations

The present study has several limitations that should be acknowledged. First, the study relied on self-reported responses, which may be subject to response bias and may not fully reflect students' actual career-related behaviours or decision-making processes. Second, the cross-sectional nature of the study limits the extent to which changes in students' career maturity over time can be examined. Third, although the study included students from inclusive school settings in West Java, the sample was obtained using a non-probability sampling approach, which may limit the generalisability of the findings to students in other regions or educational contexts. In addition, the relatively small number of students with disabilities (n = 58) requires caution when interpreting the DIF findings related to disability status.

4.8 Directions for Future Research

The present study has several limitations that should be acknowledged. First, the study relied on self-reported responses, which may be subject to response bias and may not fully reflect students' actual

career-related behaviours or decision-making processes. Second, the cross-sectional nature of the study limits the extent to which changes in students' career maturity over time can be examined. Third, although the study included students from inclusive school settings in West Java, the sample was obtained using a non-probability sampling approach, which may limit the generalisability of the findings to students in other regions or educational contexts. Fourth, the relatively small number of students with disabilities (n = 58) requires caution when interpreting the DIF findings related to disability status. Finally, PCA of standardised residuals was not available in the current analysis output, limiting the extent to which the dimensionality of the scale could be examined and its unidimensionality established.

5. Conclusion

The Indonesian Career Maturity Scale demonstrated favourable measurement evidence, including high reliability, acceptable item fit, and appropriate rating-scale functioning. All 40 items showed acceptable fit, with item difficulty ranging from − 1.44 to + 1.46 logits. Person reliability was .94, and item reliability was .99. DIF analysis identified 11 items showing significant DIF by disability status; given the relatively small number of students with disabilities (*n* = 58), these findings should be interpreted cautiously. Overall, the 40-item scale provides useful measurement evidence for assessing career maturity among students in inclusive-school settings and can serve as an assessment resource for identifying students' career development needs and informing career guidance and navigation. Further qualitative and accessibility examination of the DIF items is warranted before direct comparisons between students with and without disabilities are made. By supporting more responsive career assessment and guidance for diverse learners in inclusive schools, the study contributes to the broader goal of equitable and inclusive education reflected in Sustainable Development Goal 4 (Quality Education).

Declarations

Consent to Participate

Participation was voluntary, and informed consent was obtained from participants prior to data collection. For participants under the age of 18, informed consent was obtained from their parents or legal guardians, as applicable.

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Author Contribution

MS: Conceptualisation, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualisation, Writing – original draft, Writing – review & editing. JN: Conceptualisation, Data curation, Formal analysis, Funding acquisition, Methodology, Project administration, Resources, Supervision, Validation, Visualisation, Writing – original draft, Writing – review & editing. J: Conceptualisation, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualisation, Writing – review & editing. IY: Conceptualisation, Data curation, Formal analysis, Methodology, Project administration, Resources, Supervision, Validation, Visualisation, Writing – review & editing. IH: Conceptualisation, Methodology, Supervision, Validation, Writing – review & editing. RNR: Data curation, Investigation, Formal analysis, Visualisation, Writing – review & editing. PA: Data curation, Investigation, Visualisation, Writing – review & editing. YSA: Conceptualisation, Data curation, Formal analysis, Investigation, Methodology, Software, Visualisation, Writing – original draft, Writing – review & editing.

Data Availability

The datasets generated and/or analysed during the current study are not publicly available due to privacy and ethical considerations involving student participants, including information related to disability status. The data are available from the corresponding author on reasonable request, subject to appropriate ethical and institutional requirements.

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Figures

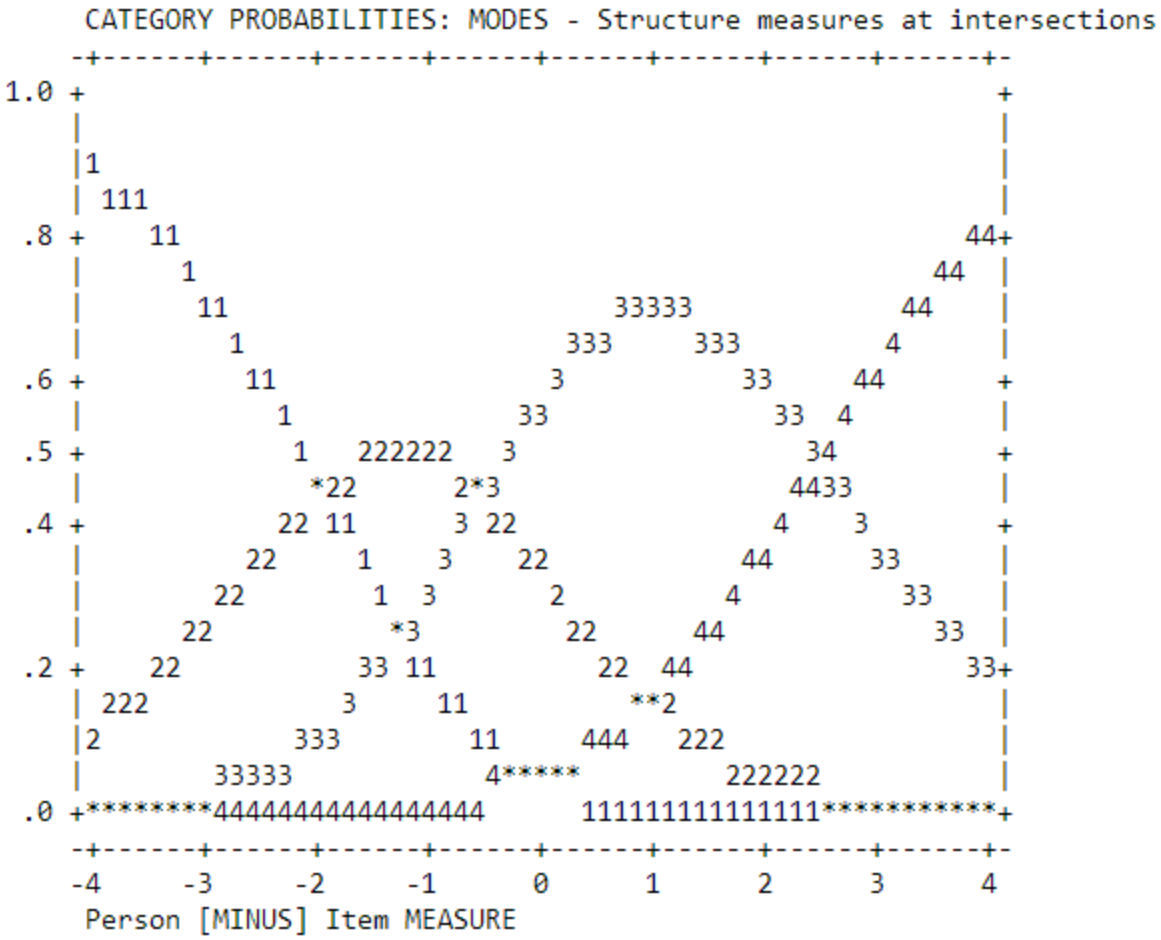

Figure 1

Rating Scale Analysis.

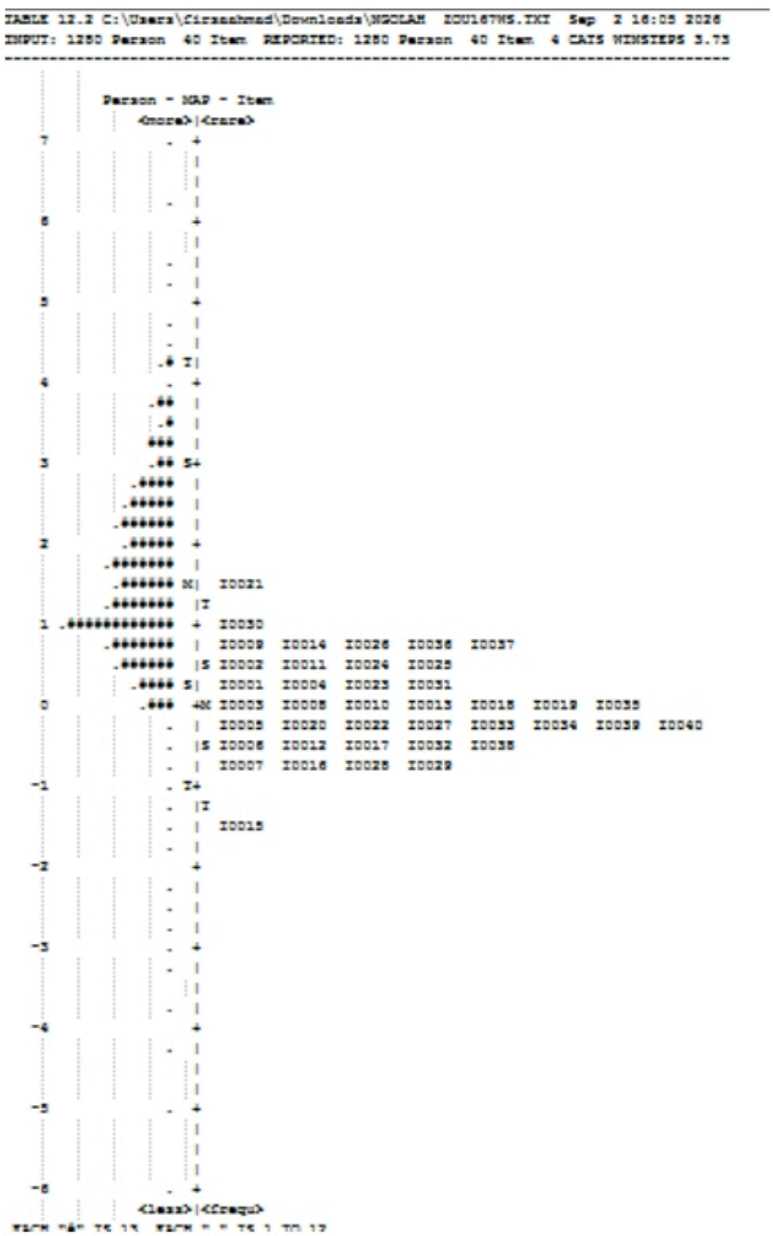

Figure 2

Wright Person–Item Map of the Career Maturity Scale