



Development of a Career Maturity Scale for High School Students Based on Super's Theory

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Abstract

Career maturity is essential for high school students because it enables them to plan their careers, seek career-related information, and make informed career decisions. This study aimed to develop a career maturity scale for high school students using a research and development (R&D) methodology. The participants were students at SMAN 14 Samarinda, aged 14–18. The validation process consisted of three stages: expert validation, readability validation, and empirical validation. Expert validation involved four specialists, and data were analysed using Aiken's V coefficient. Readability validation was conducted with 20 respondents who provided feedback on the clarity and phrasing of the scale items. Subsequently, an empirical test was performed with 75 respondents, and the data were analysed using the Pearson product-moment correlation (where the calculated r-value exceeded the critical r-table value). Reliability was assessed using Cronbach's alpha at a 5% significance level. The study yielded a career maturity scale with 39 valid items and a reliability coefficient of 0.825. Consequently, SMAN 14 Samarinda now has a standardised instrument to assess students' career maturity, enabling the design of more strategic and impactful career guidance interventions.

Keywords: career decision making, career exploration, career maturity scale, career planning, crystallization

INTRODUCTION

Super (Brown & Lent, 2020) explains that career maturity measures an individual's readiness to choose a career path. This readiness is reflected in an individual's ability to make appropriate career choices based on their own circumstances and potential. Individuals with high career maturity tend to make purposeful career choices. In contrast, those who lack career maturity often feel confused when making such choices because they have not yet established a clear career direction (Az-zahra dkk., 2024). Achieving career maturity involves planning and decision-making rooted in exploring both the self

and the career environment (Jiang et al., 2019). Career planning provides a strategic foundation, enabling individuals to systematically outline the steps needed to reach their professional goals (Gashi et al., 2023). Career decision-making helps individuals choose a career path based on information gathered during the exploration process (Lindawati dkk., 2022).

Career maturity involves an individual's ability to understand themselves, recognise different occupations, and develop a clear plan to achieve their desired career (Sari dkk., 2023). This capacity provides a vital foundation for individuals to determine their career path purposefully, supporting sustained professional success and personal satisfaction (Ebner & Paul, 2023). High career maturity enables individuals to select a career that aligns with their personal characteristics and to make informed decisions based on the exploration and planning they have undertaken (Lau et al., 2021). Consequently, career maturity should be cultivated from an early stage so that individuals are equipped to navigate various career-related challenges—whether those currently being experienced or those that may arise in the future (Marciniak et al., 2022).

At the secondary education level, career maturity matters because students must decide whether to pursue higher education or enter the workforce (Covacevich et al., 2021). At this juncture, students need the attitudes and skills to understand career alternatives and choose a path that aligns with their potential and personal characteristics (Kleine et al., 2021). Super (Brown & Lent, 2020) asserts that an individual's success in meeting the demands of each stage of career development depends on their readiness to face the various challenges associated with that stage.

Developing a career maturity scale based on Super's theory is a strategic step toward identifying students' readiness to address career

development tasks. Super's theory provides a relevant foundation for developing such an instrument because it presents career maturity systematically and applies it in practice, integrating key concepts from research-based developmental psychology while considering the individual's overall development. This conceptual framework can serve as a basis for formulating relevant aspects and indicators for constructing a career maturity scale (Riyadi, 2017).

For high school students, the relevant stage of career development is "crystallisation," which occurs between the ages of 14 and 18. Using indicators of the crystallisation developmental task allows assessment of career maturity in a way aligned with the developmental demands faced by high school students (Sururi, 2020). Accordingly, this study's career maturity scale for high school students is grounded in Super's theory. It integrates two concepts: components of career maturity and the career development tasks associated with the crystallisation stage. This integration is intended to produce a more comprehensive measurement instrument that is well-suited to the characteristics of the career development stage experienced by high school students.

RESEARCH METHODS

Approaches and Types of Research

This research uses the Research and Development (RnD) method, following the instrument development stages proposed by Azwar (2022).

Research Subject

This study includes three groups: experts, participants for the readability test, and participants for the empirical test. The expert group comprises four lecturers from Mulawarman University, including subject-matter experts and language experts. The readability test

involved 20 students from SMAN 14 Samarinda, while the empirical test involved 75 students from the same school. The participants in the empirical test were different individuals from those who took part in the readability test. This separation of the two groups was implemented to prevent any influence that prior experience with the instrument might have had on the students' responses during the empirical test phase.

Research Procedure

This study's instrument development process is tailored to the research objectives. It follows the scale development stages proposed by Azwar (2022), namely: 1) identification of the measurement objective, 2) delineation of the measurement domain, 3) operationalisation of aspects, 4) item writing and review, 5) expert validation, 6) readability testing, 7) empirical testing, and 8) final compilation. The first four stages constitute the product development phase, while the subsequent four stages comprise the instrument testing and refinement phase.

Data Analysis

This study employs two types of data analysis: quantitative and qualitative. Quantitative analysis is derived from expert validation assessments and empirical testing. Qualitative analysis, meanwhile, consists of feedback on scale items from expert validators during the expert validation phase, as well as input from respondents during the readability test.

RESEARCH RESULT

Identification of Needs

SMAN 14 Samarinda currently lacks a specific instrument to measure students' career maturity. Existing career-related evaluations—typically needs assessments or pre-graduation evaluations

for 12th-grade students—do not specifically assess career maturity. This highlights the need for a valid, reliable career maturity instrument to provide a more focused overview of students' career maturity levels. Such an instrument is expected to help guidance and counselling teachers identify students' career maturity levels and serve as a foundation for developing guidance and counselling services tailored to students' specific needs and career development.

Stages in Developing an Instrument Prototype

The first stage involves identifying the measurement objectives, which entails determining and understanding the theoretical framework underpinning the research. This study is grounded in Super's theory, which encompasses various career development concepts. The second stage involves defining the measurement domain by selecting concepts from Super's theory relevant to career maturity, considering the respondents' age range, and ensuring no overlap among the indicators used for these concepts. Based on these considerations, this study focuses on one specific career development task: "crystallisation," which is appropriate for the respondents' 14–18 age range. Furthermore, the study incorporates the components of career maturity as proposed by Hamzah (2019), which consist of four aspects: career exploration, career planning, career decision-making, and knowledge of the world of work.

The third stage operationalises aspects by developing indicators that will be formulated into scale items. Operationalising variables is a crucial phase in research because it transforms abstract concepts into indicators that can be systematically defined and measured (Raudenská, 2023). Through this process, researchers convert theoretical ideas into concrete, measurable variables, enabling a more focused research approach (Iba & Wardhana, 2024). Furthermore, a systematic, clear operationalisation process facilitates the collection of reliable, valid data (Lasmita & Muspawi, 2024). Based on this process,

the established aspects and indicators are organised into a scale blueprint, which serves as the foundation for drafting the items, as presented below:

Table 1

Scale Blueprint Prior to Testing

Concept	Aspect	Indicator	Item	
			Favo	Unfavo
Vocational developmental tasks	Crystallisation (developing a self-concept and making initial career choices)	Understanding one's self-concept	1,2,3	8,9,10
		Aligning one's self-concept with one's preferred career choice	4,5	11,12
		Making educational decisions that align with one's career interests	6,7	13,14
Career maturity	Career planning (career planning preparedness)	Recognising the importance of career planning for the future	15,16	19,20
		Preparing oneself to make career choices	17,18	21,22
	Career exploration (accessing career information)	Seeking career information	23,24	27,28
		Exploring career options through relevant activities	25,26	29,30
	World of work Information (understanding and using career-related information)	Understanding different types of occupations and their roles	31,32	37,38
		Understanding how to achieve success in the workplace	33,34	39,40
		Using career-related information	35,36	41,42

Concept	Aspect	Indicator	Item	
			Favo	Unfavo
	Career decision making (career decision-making processes and independence)	Identifying factors to consider when making career choices	43,44	47,48
		Making career decisions independently	45,46	49,50

The fourth stage is item writing, which involves developing statements that reflect indicators of favourable and unfavourable behaviours. Favourable statements support the object being measured, while unfavourable statements contradict it (Widodo dkk., 2023). In this stage, 50 items were generated using a Likert scale with a score range of 1–4 and four response options: Strongly Disagree (STS), Disagree (TS), Agree (S), and Strongly Agree (SS).

The Likert scale is used to measure the attitudes, views, or perceptions of an individual or a group regarding a social phenomenon (Abdullah dkk., 2022). Using this scale allows respondents to express their level of agreement or disagreement incrementally, providing a more quantifiable representation of their positions (Koo & Yang, 2025). During item writing, the researchers also conducted an initial review, examining each item to ensure that the wording of both favourable and unfavourable statements aligned with the behavioural indicators being measured.

Expert Validation Test

Based on the data analysis using Aiken's V—applied to the assessments provided by content and language validators—all items on the scale received scores in the high to very high range; consequently, no items required elimination during the expert validation phase. Nevertheless, the validators offered several observations, particularly

regarding linguistic aspects such as punctuation usage and sentence effectiveness. These observations informed refinements to the items before the instrument proceeded to the next stage. The results of the validation analysis conducted by the expert validators are presented below:

Table 2

Summary of Expert Validation Analysis Results

Item	V	Category	Item	V	Category
Item 01	0.94	Very high	Item 26	1.00	Very high
Item 02	1.00	Very high	Item 27	0.75	High
Item 03	0.94	Very high	Item 28	0.88	Very high
Item 04	1.00	Very high	Item 29	0.81	Very high
Item 05	0.94	Very high	Item 30	0.88	Very high
Item 06	1.00	Very high	Item 31	1.00	Very high
Item 07	1.00	Very high	Item 32	1.00	Very high
Item 08	0.81	Very high	Item 33	1.00	Very high
Item 09	0.75	High	Item 34	1.00	Very high
Item 10	0.75	High	Item 35	0.94	Very high
Item 11	0.81	Very high	Item 36	0.94	Very high
Item 12	0.88	Very high	Item 37	0.81	Very high
Item 13	0.94	Very high	Item 38	0.88	Very high
Item 14	1.00	Very high	Item 39	0.81	Very high
Item 15	1.00	Very high	Item 40	0.81	Very high
Item 16	1.00	Very high	Item 41	0.88	Very high
Item 17	1.00	Very high	Item 42	0.88	Very high
Item 18	1.00	Very high	Item 43	1.00	Very high
Item 19	0.81	Very high	Item 44	1.00	Very high
Item 20	0.88	Very high	Item 45	1.00	Very high
Item 21	1.00	Very high	Item 46	1.00	Very high
Item 22	1.00	Very high	Item 47	0.81	Very high
Item 23	0.94	Very high	Item 48	1.00	Very high
Item 24	1.00	Very high	Item 49	1.00	Very high
Item 25	1.00	Very high	Item 50	1.00	Very high

Readability Test

A readability test was conducted with 20 students from SMAN 14 Samarinda, aged 14–18, who were selected at random. During this phase, respondents received the scale instrument and provided feedback on the instructions and the wording of each item. This feedback included identifying words or sentences that were difficult to

understand or ineffective. The researchers used this feedback to refine the instrument. Based on the readability test results, 22 items required revision, including replacing difficult-to-understand terms, removing ineffective wording, and making editorial adjustments to ensure greater clarity for respondents. After revising these 22 items, the prototype scale was deemed ready for the empirical testing phase. The items that underwent revision are presented below:

Table 3

Readability Test Revision

No	Item	Revision	No	Item	Revision
	Item 1	Replacing the word “identify”		Item 22	Replacing “waiting” with “delaying”.
	Item 2	Changing “self-confidence” to “self-confidence”		Item 25	Removing the word “freelance”
	Item 5	Removing the word “ability”		Item 26	Removing the word “workshop”
	Item 7	Replacing “educational decision” with “chosen field of study”.		Item 27	Revising the wording to improve clarity and understanding.
	Item 9	Revising the wording to make the item easier to understand.		Item 28	Replacing “reference” with “source”.
	Item 10	Replacing “guidance” with “discussing”.		Item 31	Replacing “job role” with “job function”.
	Item 11	Replacing “exploration” with “finding out”.		Item 32	Replacing “skills” with “expertise”.
	Item 15	Making minor wording changes to improve clarity and understanding.		Item 35	Removing the word “career” from the phrase “career progression”.
	Item 16	Adding the word “goal”.		Item 36	Adding wording to make the item easier to understand.
	Item 19	Replacing “long-term” with “in the future”.		Item 43	Adding the word “goal”.
	Item 21	Replacing “specific” with “more detailed”.		Item 44	Replacing “job prospects” with “employment opportunities”.

Empirical Test

After expert validation and readability testing, the instrument underwent empirical testing through a field trial under real-world conditions. Data were collected from 75 students at SMAN 14 Samarinda, aged 14–18 years, comprising students from grades X and XI. The obtained data were then analysed using the Pearson Product-Moment correlation to determine the **r-calculated** value. With 75 respondents and a 5% significance level, the **r-table** value was 0.227. Item validity was determined by comparing the **r-calculated** value with the **r-table** value; an item is considered valid if the **r-calculated** value is greater than the **r-table** value, whereas an item is considered invalid if the **r-calculated** value is less than the **r-table** value.

Table 4

Scale Validity Data Analysis Results

Item	r-calculated	Note	Item	r-calculated	Note
01	0.327	Valid	26	0.330	Valid
02	0.377	Valid	27	0.218	Invalid
03	0.352	Valid	28	0.373	Valid
04	0.332	Valid	29	0.321	Valid
05	0.425	Valid	30	0.310	Valid
06	0.380	Valid	31	0.341	Valid
07	0.367	Valid	32	0.387	Valid
08	0.004	Invalid	33	0.278	Valid
09	0.158	Invalid	34	0.287	Valid
10	0.305	Valid	35	0.363	Valid
11	0.181	Invalid	36	0.315	Valid
12	0.335	Valid	37	0.419	Valid
13	0.349	Valid	38	0.110	Invalid
14	0.352	Valid	39	0.184	Invalid
15	0.306	Valid	40	0.258	Valid
16	0.331	Valid	41	0.316	Valid
17	0.488	Valid	42	0.460	Valid
18	0.520	Valid	43	0.460	Valid
19	0.169	Invalid	44	0.200	Invalid
20	0.300	Valid	45	0.334	Valid
21	0.208	Invalid	46	0.310	Valid
22	0.263	Valid	47	0.220	Invalid
23	0.235	Valid	48	0.271	Valid

Item	r-calculated	Note	Item	r-calculated	Note
24	0.420	Valid	49	0.192	Invalid
25	0.339	Valid	50	0.239	Valid

The data analysis results indicate that of the 50 items tested, 39 were valid and 11 were invalid. The invalid items were subsequently eliminated, whereas the valid items were retained. Consequently, the career maturity scale was reconstructed from the original blueprint after the validity testing.

Table 5

Blueprint for the Career Maturity Instrument Scale (Post-Testing Phase)

Concept	Aspect	Indicator	Item	
			Favo	Unfavo
Vocational developmental tasks	Crystallisation	Understanding one's self-concept	1,2,3	8
		Aligning one's self-concept with one's preferred career choice	4,5	9
		Making educational decisions that align with one's career interests	6,7	10.11
Career maturity	Career planning	Recognising the importance of career planning for the future	12,13	16
		Preparing oneself to make career choices	14,15	17
	Career exploration	Seeking career information	18,19	22
		Exploring career options through relevant activities	20.21	23,24
	World of work Information	Understanding different types of occupations and their roles	25,26	31

Concept	Aspect	Indicator	Item	
			Favo	Unfavo
		Understanding how to achieve success in the workplace	27,28	32
		Using career-related information	29,30	33,34
	Career decision making	Identifying factors to consider when making career choices	35	38
		Making career decisions independently	36,37	39

The 39-item career maturity scale, which had been established as valid, was subsequently subjected to a reliability test. Reliability was assessed using Cronbach's Alpha coefficient, yielding 0.825. This result indicates good reliability, suggesting adequate internal consistency for measuring students' career maturity.

Table 6

Cronbach's Alpha Reliability Analysis

Product	Initial Number of Items	Final Number of Items	Cronbach's Alpha	Interp.
Career Maturity Scale	50	39	0.825	Reliable

Final Compilation

After the validity and reliability testing, the researcher revised the Career Maturity Scale based on the results. This process yielded a final version of the Career Maturity Scale that meets validity and reliability criteria, making it suitable for measuring students' career maturity.

Table 7

A Developed Career Maturity Scale for High School Students

No	Item Statement
1	I can recognise and understand my interests, values and skills.
2	I am confident in explaining who I am and what I want to achieve in my career..
3	I can identify my strengths and weaknesses.
4	I can relate my interests and skills to occupations that suit me..
5	I feel that my interests and skills are suited to the type of occupation I have chosen..
6	I have planned my education to help me achieve my desired career.
7	I believe that the chosen level of education is important for helping me achieve my career goals
8	I feel that I need to discuss my career choices further with teachers and parents and engage in self-reflection to understand how my character and personality may influence my career choices.
9	I am still looking for an occupation that is not only interesting to me but also suited to my personality and abilities.
10	I am considering what education or training is required for the career I am interested in.
11	I feel that I need more information before deciding whether the education I plan to pursue will genuinely support my career goals.
12	I believe that good career planning will help me achieve my future goals.
13	I believe that it is important to plan my career steps early to achieve my goals and career success.
14	I feel ready to make career choices that suit my interests and abilities.
15	I have taken the necessary steps to prepare myself to choose the right career.
16	I feel that many factors can influence my career, so I have not yet established a definite plan.
17	I prefer to postpone making a career choice until I have gained more experience.
18	I seek career information from various sources, such as websites, books, school counsellors and other resources.
19	I regularly seek information about career opportunities in fields that interest me.
20	I actively explore different career-related experiences through extracurricular activities, competitions, work or other activities.
21	I attend seminars, information sessions and training programmes to explore my career options.

No	Item Statement
22	I seek career information from sources commonly used in my community.
23	I prefer learning about the world of work through other people's stories or experiences rather than trying things out myself.
24	I prefer choosing extracurricular activities based on my interests rather than considering how they relate to the world of work I wish to enter.
25	I understand the different types of occupations available and their functions in society.
26	I can explain the responsibilities and expertise required for different types of occupations.
27	I know strategies that can help me achieve career success.
28	I understand that developing skills and building networks are important for achieving success at work.
29	I use the career information I have to determine the steps I need to take in the future, such as choosing subjects or extracurricular activities.
30	I tend to consider career options based on the information I already know rather than seeking further information.
31	I focus more on what I enjoy about a job than on understanding the responsibilities it involves.
32	I focus more on completing my current education than on finding out how to succeed in my future career.
33	I understand that career information can help me, but I am currently more focused on school activities.
34	I believe that the information I have will be useful in the future, even though I have not yet fully applied it.
35	I consider my interests, abilities and goals before choosing an educational pathway and an occupation.
36	I feel capable of making career decisions without relying on other people's opinions.
37	I am not easily influenced by pressure from those around me when making career decisions.
38	I believe that career decisions do not always require careful consideration of many factors, as long as I feel comfortable with my choice.
39	I believe that the people around me know better what is best for my career choices.

DISCUSSION

SMAN 14 Samarinda currently lacks a specific instrument to measure students' career maturity. Career-related evaluations are

generally conducted through needs assessments or toward the end of the academic year for 12th-grade students; however, these evaluations do not specifically assess students' career maturity. A valid and reliable career maturity instrument is needed to assist school counsellors in identifying students' career maturity levels and in developing guidance and counselling services tailored to their specific needs.

A career maturity scale is highly significant for high school students because it provides an objective tool to assess their readiness to plan for the future (Ismail et al., 2022). Consequently, this instrument is designed to help students identify their personality traits, explore their interests, and take concrete steps toward their future goals. Furthermore, this scale can help school counsellors understand each student's unique needs, enabling the school to provide more targeted guidance services. Ultimately, implementing this scale helps high school students make optimal, realistic career decisions that align with their greatest potential.

Super's theory emphasises several key elements —self-concept, components of career maturity, and stages of career development—each accompanied by specific developmental tasks (Brown & Lent, 2020). Regarding career maturity itself, an adolescent's level of career readiness can be measured through various indicators, including career planning, career exploration, the ability to make career-related decisions, the breadth of knowledge about the world of work, and a deep understanding of the occupational groups in which one has an interest (Lestari & Tentama, 2020).

Researchers have developed career maturity scales based on Super's theory several times for both senior high school (SMA) and vocational high school (SMK) students. One example is Riyadi (2017). career maturity scale for senior high school students, which incorporates six indicators and extends the Career Development

Inventory (CDI). Meanwhile, Krisphianti dan Nurwulansari (2022) developed a career maturity scale for vocational high school students, structured around four indicators: career planning, active engagement in seeking career-related information, the ability to utilise such information, and career decision-making.

Both studies use components of career maturity as a reference for developing their items. The key difference between the present study and previous studies is its use of developmental task phases. Super (Brown & Lent, 2020) developed the concept of "vocational maturity" to measure an individual's success in completing career-related developmental tasks across various age ranges. These tasks are divided into five phases: crystallisation (14–18 years), specification (18–21 years), implementation (21–24 years), stabilisation (24–35 years), and consolidation (35 years and older).

Previous research has not utilised developmental phases as a benchmark; therefore, this study seeks to integrate components of career maturity with career developmental tasks—specifically during the crystallisation stage—as indicators for instrument development. Furthermore, this study yielded fewer items (39) than earlier studies: Krisphianti dan Nurwulansari (2022) used 55 items, while Riyadi (2017) used 90 items. Nevertheless, the instrument developed in this study achieved a reliability coefficient of 0.825. This coefficient is higher than that of the career maturity scale developed by Riyadi (2017) which had a reliability coefficient of 0.766 for the multiple-choice version (Format 1). In Riyadi's study, the essay-based version (Format 1) had a reliability coefficient of 0.684, while Format 2 had a coefficient of 0.807. However, the reliability coefficient in the present study remains lower than that reported by Krisphianti dan Nurwulansari (2022) which reached 0.892.

CONCLUSION

Based on the results of expert validation tests, readability tests, empirical tests, and reliability calculations using Cronbach's alpha, it can be concluded that the career maturity scale based on Super's theory for high school students has met the validity and reliability criteria. However, this research has several limitations. The scope of the research includes only instrument development and validity and reliability testing, without a system for interpreting results. This instrument also requires a face validity test to improve the appearance of the filling sheets and question sheets, which are still monotonous and less effective. In addition, instrument testing was carried out in only one school, so its applicability to a wider population still needs to be studied. Further research is recommended to conduct face validity tests, develop interpretations of the results, and test the instruments with junior high and vocational school students. Testing with junior high and vocational school students should include a readability test to ensure each item's wording aligns with students' characteristics and level of understanding.

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