JKPP

(Jurnal Kajian Pendidikan dan Psikologi)
E-ISSN: 2988-7526
https://altinriset.com/journal/index.php/jkpp
Vol.2, No. 3, April 2025

CONFIRMATORY ANALYSIS OF CAREER MATURITY INSTRUMENTS AND GUIDANCE SERVICE IMPLICATIONS

[*1]Ayu Intani Yahya, [2]Agung Nugraha, [3]Dewang Sulistiana
[*1,2,3]Universitas Muhammadiyah Tasikmalaya
Email: [*1]ayuintaniyahya2001@gmail.com, [2]agung.nugraha@umtas.ac.id, [3]dewang.sulistiana@umtas.ac.id

Abstract

This study aims to develop a standard measurement tool that can be used to accurately measure the career maturity of high school students. The need for this measurement tool is motivated by the low level of understanding of students' career maturity, which is caused by the mismatch between the guidance and counseling services provided at schools and the actual needs of students. To achieve this objective, this study uses a quantitative approach with a confirmatory descriptive design. The research subjects were 918 eleventh-grade high school students in the northern region of Tasikmalaya District, with a sample of 707 students selected incidentally. This study is a continuation of the previous stage, which used exploratory factor analysis, and in this stage, the factor structure was confirmed through Confirmatory Factor Analysis (CFA). The CFA results indicate that the developed measurement tool has adequate goodness of fit values. During the confirmation process, there was a change in the indicator structure from 19 to 16 factors, as well as a reduction in the number of items from 65 to 62 relevant items. These findings indicate that the measurement tool produced is capable of providing a valid and reliable picture of the career maturity level of high school students. With the availability of this standardized measurement tool, it is hoped that guidance and counseling services in schools can be tailored more effectively and efficiently, ultimately enhancing students' career maturity. This study makes an important contribution to the development of educational intervention strategies focused on comprehensive career readiness for students.

Keywords: Instrument, Career Maturity, Confirmatory Factor Analysis

Abstrak

Penelitian ini bertujuan untuk mengembangkan alat ukur standar yang dapat digunakan untuk mengukur kematangan karier siswa SMA secara akurat. Kebutuhan akan alat ukur ini dilatarbelakangi oleh rendahnya pemahaman terhadap kematangan karier siswa yang disebabkan oleh ketidaksesuaian antara layanan Bimbingan dan Konseling di sekolah dengan kebutuhan nyata para siswa. Untuk mencapai tujuan tersebut, penelitian ini menggunakan pendekatan kuantitatif dengan desain deskriptif konfirmatori. Subjek penelitian adalah 918 siswa kelas XI SMA di wilayah utara Kabupaten Tasikmalaya, dengan sampel sebanyak 707 siswa yang dipilih secara insidental. Penelitian ini merupakan lanjutan dari tahap sebelumnya yang menggunakan analisis faktor eksploratori, dan dalam tahap ini dilakukan konfirmasi struktur faktor melalui Analisis

Faktor Konfirmatori (CFA). Hasil CFA menunjukkan bahwa alat ukur yang dikembangkan memiliki nilai goodness of fit yang memadai. Selama proses konfirmasi, terjadi perubahan struktur indikator dari 19 menjadi 16 faktor, serta pengurangan jumlah item dari 65 menjadi 62 butir yang relevan. Temuan ini mengindikasikan bahwa alat ukur yang dihasilkan mampu memberikan gambaran yang valid dan andal mengenai tingkat kematangan karier siswa SMA. Dengan tersedianya alat ukur terstandar ini, diharapkan layanan Bimbingan dan Konseling di sekolah dapat disesuaikan secara lebih tepat sasaran dan efektif, sehingga pada akhirnya dapat meningkatkan kematangan karier siswa. Penelitian ini memberikan kontribusi penting dalam pengembangan strategi intervensi pendidikan yang berorientasi pada kesiapan karier siswa secara menyeluruh.
*Ka**ta kunci:** Instrumen, Kematangan Karier, Analisis Faktor Konfirmatori*

INTRODUCTION

To achieve their goals, individuals need to have adequate abilities in planning their future careers. This process is important so that mistakes do not occur in choosing the right career. However, there are still many individuals, especially high school students, who do not understand the importance of career planning. According to Mak & Sockel, (2001)Career maturity is a person's ability to achieve his or her goals by carrying out career development tasks that vary at each stage of maturity. Everyone develops their profession differently for reasons related to their unique psychological aspects. Everyone develops their profession differently for a variety of reasons related to their unique psychological makeup. The statement that has been explained above, that career maturity is a person's readiness to make a wise assessment about their education or work, is in line with the perspective of Coetzee, (2014) which emphasizes the importance of professional maturity for all individuals, especially students, because it relates to their readiness to enter the world of work.

As stated by Xu dkk., (2023) regarding career maturity, namely a person's ability or ability to make his or her career choices in a real or realistic way. Palladino Schultheiss & Stead, (2004) Formulated various factors that can have an impact on career maturity, including education in school, which is included in external factors. According to Stead & Schultheiss, (2003) School has a very strong influence on individual career choice, as school is an institution that prepares individuals to choose their careers. Adolescence is a transitional period between youth and adulthood, so choosing a job is very important during adolescence, especially for teenagers in high school. High school students should carefully consider planning a professional path that will allow them to continue their studies in college, as the high school curriculum is built with college continuation in mind.

In fact, until now, there is a phenomenon of high unemployment in Indonesia, which is still a complex problem to be overcome immediately. In line with Naidoo dkk., (1998) that exposure to members of the labor force who are looking for work but cannot find it is considered unemployment. The number of school graduates in Tasikmalaya Regency increases every year, but the unemployment rate in Tasikmalaya Regency remains high because there are not enough jobs in this area. The average length of education is one of the factors that has the potential to affect the unemployment rate. Education is a means that human resources can use to increase their capacity to acquire new information and

skills. According to Zhang & Tu, (2023), the higher a person's education, the higher the ability and opportunity to work. So that higher education can increase a person's work ability or productivity, and provide greater opportunities to get a job, which also has a significant effect on a person's performance.

Data from the Central Statistics Agency (BPS) of Tasikmalaya Regency shows that the open unemployment rate (TPT) of Vocational High School and Senior High School graduates was 8.41% of the total TPT in February 2023. The presentation illustrates that the unemployment rate in Indonesia is still favored by high school graduates, including in Tasikmalaya Regency. According to the Central Statistics Agency (BPS) of Tasikmalaya Regency, the high unemployment in Tasikmalaya Regency reached 3.89%, which means that the relevance between the socio-educational conditions due to school dropouts and the rampant unemployment is an undeniable reality (Muh. Dahlan T: 2013). Unemployment has an influence on students, namely forming an image, disposition, and dignity in a harmonious life in nationality, civilization, and religion.

As stated by Dodd dkk., (2022)Adolescents are said to have problems in their careers if they are unable to achieve career maturity according to their career development stages and tasks. Lack of effort by students in investigating and collecting data about careers is one of the characteristics of students who cannot plan their careers. Another characteristic of students who are unable to plan careers is reduced students' ability to plan post-graduation activities. Based on Qudsiyah, (2023), if the behavior observed in the field is per the theory, it can be concluded that students are not yet able to effectively plan their lives or investigate career choices. In reality, professional development tasks are still beyond the reach of high school students. In addition, a large number of high school students continue to feel restless and unprepared in choosing their future careers. This data shows that when it comes to choosing a job, many teens struggle with stress, doubt, and a lack of preparation.

In this study, the researcher noted that this is per the opinion of Lestari & Tentama, (2020), who stated that not caring about career and choices based on following friends, if left unchecked, will result in negative impacts. The negative impact of this is the selection of further studies by origin, and the selection of jobs that are not per talents, and without looking at the abilities in individuals, will lead to career failure. In line with data from the National Socio-Economic Survey Flores & O'Brien, (2002) that as many as 61% of high school students have not gained an understanding of the direction of career choices after graduating from high school, so many of the students prefer to work and help their family's economy, but they are also confused about what job they might be able to choose and what kind of job can accept them with high school graduation status.

The number of unemployed is because teenagers are not aware and understand, or interpret life. It was triggered by the lack of measuring instruments to explore how ready high school students are to navigate and interpret life. Students, to make the right career decisions, must first recognize their interests and talents. Therefore, assessments are needed in schools that can help students in the process of career maturity according to their potential. Career assessments are used in the process of career development, career

planning, and career maturity (Toggweiler & Künzli, 2020). Therefore, the researcher uses the IKK or Student Career Maturity Instrument to reveal students' readiness to recognize and overcome career problems in the future based on Donald E. Super's theory, which contains 6 aspects and 19 indicators that are proven to measure students' career maturity (Praskova dkk., 2015).

Some instruments can measure students' career maturity, namely *the Childhood Career Development Scale* (CCDS) and *Career Maturity Inventory* (CMI). Both CCDS and CMI instruments are used to measure the level of career maturity in students, but CMI and CCDS have limitations, namely, these two instruments are not necessarily suitable for the culture in Indonesia because these instruments are tested in South Africa. Apart from that, some instruments can be applied to measure the level of career maturity of high school students in Indonesia, and Exploratory Factor Analysis has been carried out by Dewi Firda (2021) and Confirmatory Factor Analysis by Rosia (2022) and Muhammad Fauzy Rosyad (2023). However, previous researchers, Rosia (2022) and Muhammad Fauzy Rosyad (2023) still suggested conducting a third Confirmatory Factor Analysis so that this instrument is more standard and can be used as it should.

In this regard, to accommodate the needs of instruments for measuring the career maturity of high school students, this study is focused on the Analysis of Confirmatory Factors of the Career Maturity Instrument of the third high school student using the framework of the Exploratory Factor Analysis of Donald E. Super's theory which is suitable for the conditions of high school students in Indonesia. However, what is different in this study is the expansion and addition of research subjects, which were previously only tested in the Northern region of Tasikmalaya Regency with a total of 718 students and in this study it is sought to exceed this number to get maximum results in testing instruments and the validity of the instrument. This instrument has been made as simple as possible, which aims to provide students more quickly be provided with career services per the results revealed by the instrument, because filling in the instrument does not take a long time.

METHOD

The method used in this study is a descriptive research method. To verify that the research variables are more standardized, this study is a continuation of the exploratory factor analysis conducted by (Djaali, 2021). *Confirmatory Factor Analysis* (CFA) is a powerful factor analysis technique to test models within the framework of structural model factors. In addition, to determine whether the final hypothesis has dimensions that correspond to the first hypothesis, or vice versa. *Maximum Likelihood* is a confirmatory factor analysis used by academics to find the ideal *factor loading* value. The analysis of confirmatory factors in this study applied *second-order factor analysis*. This factor analysis reduces the resulting latent construct to another latent construct, or the construct is dropped. In addition to the descriptive method, this study also uses a quantitative approach, applying a quantitative approach to produce data in the form of statistically described numbers, testing theories to establish facts, and rematching the initial hypothesis with the hypotheses derived from the research findings. To create a standardized High School Career Maturity Instrument (IKK-SMA), this study aims to collect an overview of the

validity of the items and an overview of the validity of the construct using confirmatory factor analysis. Data collection is closely related to measurement activities. The purpose of measurement itself is to find out the ability or performance of something or someone, either in terms of ability, attitude, skills, perception, or others.

RESULT AND DISCUSSION

The Career Maturity Instrument in high school students has been tested theoretically and empirically tested, starting from the validity of the content using *expert judgment* which is the tester of the validity of the content of the scale, are supervisors, statistical consultants, and lecturers who have expertise in the field of guidance and counseling, according to Creswell, (2015) to test the validity of content, expert *opinions (expert judgement) can be used.* Content validity is comparing the content of the scale with the scale grid. In the validity of the content, there are research variables that are studied, indicators for latent variables, and items as complementary indicators, so that this validity test can be carried out systematically.

Based on the data collected, an overview of the reliability of students' career maturity instruments was obtained to analyze the level of reliability of students' career maturity instruments. Reliability indicates the level of reliability or consistency of a research instrument, or in other words, the extent to which the instrument can produce scores consistently" (Coaley, 2010: 100). In more detail, the data is shown in the following Table 1:

Figure 1. Reliability Test Results

TESTING	VALUE	CRITERION
ALPHA CRONBACH'S	0, 90	Very good
PERSON RELIABILITY	0, 88-0, 91	Good
ITEM RELIABILITY	0, 99	Special

The test results are based on the results of the *fit order item* of the High School Student Career Maturity Instrument, with a total of 65 statement items, of which 61 are valid. Here are the Table 2 results of the validity test of the item of the Career Maturity Instrument for High School Students.

Figure 1. Valid and Invalid Items

VALID AND INVALID ITEMS

SIGNIFICANCE	No Item	Sum
VALID	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32,	61

	33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 44, 45, 46, 47, 48, 49, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65	
INVALID	13, 43, 50, 62	4

Based on the initial construction of Donald E. Super's theory, there are 19 indicators of career maturity, which are summarized into 6 aspects. After the analysis of the exploratory factors, the number of aspects and indicators did not change, namely 19 with the same name and some with a new name, but in the analysis of the exploratory factors, the items of career maturity instruments changed. However, in the analysis of confirmatory factors, the number of aspects did not change, which was 6, but the indicators changed. The instrument is said to be valid if the standardized loading value is greater than 0.30 and the t-values are greater than 1.96 (Yusuf Iis dkk., 2022). Elimination was carried out on 3 indicators that were below 0.30, so the remaining 15 indicators were re-analyzed. The results of the re-analysis show that the scale construct model includes *good fit* criteria Suryadi dkk., (2020) so that some indicators and items change in the career maturity instrument after exploring factor analysis and confirmatory factor analysis, in line with this, according to Brooks dkk., (1995) in principle, factor analysis is used to group several variables that will later be used in one factor that has similarities. So it can be concluded in this study, the instrument of career maturity for the rest of high school has 16 indicators, 62 items.

The first Confirmatory Factor Analysis was carried out by Rosia Fatmawati (2023) in this IKK study; the number of aspects did not change, namely 6, but the indicators changed. This Career Maturity Instrument has 19 indicators, but in the first CFA, there were changes, or some indicators were dropped because they were not in accordance with the *standards* that had been set. The indicators that experienced a drop were the CPIND4, INF3, and POGIND3 indicators. Furthermore, the second Confirmatory Factor Analysis conducted by Muhammad Fauzy Rosyad (2024) in his research, no aspects have changed, as well as the first study, which has 6 aspects. This second study has changed the indicators to 15 indicators. The indicators that experienced a drop were CPIND2, CPIND3, CPIND4, and CEIND2. In the next study conducted by the researcher, similar to the previous research, there were no changes in the aspect of the instrument, but there were several indicators that were dropped because they did not by the *standards* that had been set. The indicators that experienced a drop were the CPIND3, CEIND1, and INF2 indicators.

There are several reasons in the CFA items that are dropped can be different, which have to do with the following factors:

1. Quality of Items

Items that have a low *loading factor* value (less than 0.40 or 0.50) or do not contribute significantly to the construct being measured will be dropped. *A low loading factor* shows

that the item does not explain the construct variant well, so CFA 2 and 3 have the same dropped indicator, namely CPIND3, but in addition to that CFA 3 has other dropped items, namely CEIND1 and INF2, so it can be said that the item measures the same aspect of the construct and has a *loading factor* low, other than that this item is irrelevant meaning that it is not directly related to the construct being measured and the reason this item was dropped is because it is inconsistent meaning that if the item shows highly variable results among respondents, this could indicate a problem, and the item may need to be dropped.

2. Model Fit *(Model Fit)*

Items CPIND3, CEIND1, and INF2 in CFA 3 had unfit models (e.g., high *Chi-square* values or poor RMSEA) removed to improve overall model fit. This can be done by looking at the modification index to identify problematic items.

a. Reliability Value. Items that show low reliability in the test (e.g., *Cronbach's alpha* below 0.70) are dropped to improve the quality of the measurement. This means that the items dropped on CFA 3 have a low reliability value compared to the previous study.

b. Changing Theory or Context. The development of a theory or a better understanding of constructs can lead to a reassessment of existing items and a decision to remove items that are considered irrelevant.

c. Sample Characteristics. The demographic and psychographic characteristics of respondents can influence how items are understood and assessed. Items that don't resonate with one group may be dropped, while the same item can be retained in another group.

d. Cultural Context. Different areas of sampling (e.g., culture or demographics) can influence respondents' understanding of certain items. Items that are not sensitive to the local context can be removed due to the low loading factor.

e. Sample Size or Quantity. Small sample sizes can result in unstable estimates, which affect decisions about dropped items. In these cases, items that have low loading may be retained for further analysis.

In the context of *Confirmatory Factor Analysis* (CFA), the term "unstable" refers to a situation in which certain items are inconsistent in their performance across various samples or analyses. In line with the quote of Kline, R. B. (2015), items that do not maintain a stable loading on different samples may indicate problems with construct validity and may be considered unstable. This means that an unstable item may exhibit significantly variable loading factors between different samples, even though the item is relevant in one analysis, its performance may not be consistent in another. In addition, items that are dropped consistently in multiple analyses may not contribute enough to the model, suggesting that they do not match the expected construct structure, as per Brown, T. A. (2015), the instability of item performance on different datasets suggests that the item may not consistently measure the desired construct. Another thing that indicates that

an item is unstable is affected by the instability of the item's performance on different datasets indicates that the item may not consistently measure the desired construct.

CONCLUSION

This research aims to produce a standard career maturity instrument. Conclusions related to the formulation of the problem and the purpose of the research show that the initial design of the exploratory factor analysis (EFA) instrument by Dewi Firda (2021) consists of 6 aspects: career planning, career exploration, knowledge of making career decisions, information about the world of work, knowledge of preferred work groups, and realization of career decisions. The Confirmatory Factor Analysis (CFA) test also confirmed these 6 aspects, with 19 indicators and 65 items. The results of the CFA test showed that there were 16 indicators after elimination, because 3 indicators had an estimated value of < 0.3 from the standard factor loading. As a result, the number of items is reduced from 65 to 62. In construct validity tests, items often have to be dropped to obtain a suitable measurement model. Elimination criteria include negative factor charge coefficients, high residual correlation, or insignificant charge coefficients. Three indicators were removed because they were insignificant and not in accordance with conditions in 7 schools in Tasikmalaya Regency. The implication of this instrument in guidance and counseling services is the importance of data collection to determine the quality of research. This instrument aims to obtain data on student conditions and make it easier for guidance and counseling teachers to conduct career assessments that are interpreted according to students. Additionally, this instrument is used as a needs assessment for career mapping, helping students recognize their interests and talents.

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