

Instruments for Measuring Career Decision Self-Efficacy in High School Students: A Systematic Literature Review

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Abstrack

In the field of career development, career decision-making self-efficacy plays an important role in adolescents' career decision-making process, decision-making ability, career exploration behaviour, performance goals, and career identity. The main objective of this review was to identify and analyse the instruments used by researchers to measure high school students' CDSE. Using the Systematic Literature Review method, the researcher specifically identified Scopus-indexed articles published between 2003 and 2023. The authors found that the Career Decision Self-Efficacy Scale Short Form (CDSES-SF), developed by Betz, Klein, & Taylor (1996), is the most widely used instrument to measure career decision self-efficacy. The CDSES-SF shows high reliability, with Cronbach's alpha ranging from $\alpha=0.78-0.95$, placing it in the good and excellent categories. In addition, the CDSES-SF has been applied to diverse high school students from different races, ethnicities, ages, grade levels, skin colours, genders, and countries.

Keywords: career decision self-efficacy, high school students, a systematic literature review, instrument

Abstrak

Dalam bidang pengembangan karir, career decision-making self-efficacy berperan penting dalam proses pengambilan keputusan karir remaja, kemampuan mengambil keputusan, perilaku eksplorasi karir, tujuan kinerja, dan identitas karir. Tujuan utama dari tinjauan ini adalah untuk mengidentifikasi dan menganalisis instrumen yang digunakan para peneliti untuk mengukur CDSE siswa SMA. Dengan menggunakan metode Systematic Literature Review, peneliti secara khusus mengidentifikasi artikel-artikel terindeks Scopus yang diterbitkan antara tahun 2003 sampai 2023. Penulis menemukan bahwa Career Decision Self-Efficacy Scale Short Form (CDSES-SF), yang dikembangkan oleh Betz, Klein, & Taylor (1996), adalah instrumen yang paling banyak digunakan untuk mengukur efikasi diri keputusan karir. CDSES-SF menunjukkan keandalan yang tinggi, dengan alpha Cronbach berkisar antara $\alpha=0,78-0,95$, menempatkannya pada kategori baik dan sangat baik. Selain itu, CDSES-SF telah diterapkan pada siswa sekolah menengah yang beragam dari berbagai ras, etnis, usia, tingkat kelas, warna kulit, jenis kelamin, dan negara.

Keywords: *career decision-making self-efficacy, siswa sekolah menengah atas, systematic literature review*

Article info

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INTRODUCTION

In the context of Guidance and Counseling, the achievement of developmental tasks is the main goal of Guidance and Counseling services. The construct of career decision self-efficacy (CDSE) is used to help high school students develop beliefs about their abilities, as well as help them prepare to choose an appropriate career and achieve desired career goals. Career decision self-efficacy (CDSE) refers to an individual's belief in his or her ability to engage in planning and decision-making related to education and employment. It is an important indicator of career competence in adolescents (Chiesa et al., 2016). CDSE generally serves as an important trigger for improved career outcomes, including career decision-making skills (Choi et al., 2012), and a stable career identity (Cordeiro et al., 2015).

High school students or *Sekolah Menengah Atas* (SMA) students are teenagers who have developmental tasks in the career aspect, namely they must be able to develop alternative career plans by considering the ability to see opportunities and a variety of careers (POP BK SMA, 2016). High school students have developmental tasks as teenagers to be able to choose an alternative job from a variety of jobs, be able to consider how long it will take to finish school, be able to plan what to do after graduating from school, be able to choose a study program that suits their interests and abilities, and be able to make decisions where to work (Healey in Yusuf et al., 2021). High school students are entering a period where they are exploring and seeking information about career fields that interest them, as well as making career-related decisions. At this stage of exploration, the main focus is to gain information about oneself and the various career fields available as a basis for making specific career choices. Career exploration includes the process of choosing a high school that matches the individual's desired career path. For some adolescents, this period of career exploration can be difficult. Not all adolescents can make decisions easily. Career decisions can also have a long-term impact, as they can commit students to a specific career path that can involve a long period of education and training before actually resulting in employment.

Previous research shows that many students experience confusion and apprehension regarding their career development (Meddour et al., 2016; Bolat and Odaci 2017; Fort and Murariu 2018). In Indonesia, career indecision is common among high school students (Sawitri et al., 2015), which can lead to additional stress, unnecessary procrastination, and in some cases, avoidance of making decisions. The results of a survey conducted by Surya et al (2022) on 145 students of SMA Negeri 24 Bandung showed that on the CDMSE percentage 15.9% of students were in the high category, 77.2% were in the medium category, and 6.2% were in the low category.

We conducted a preliminary study at SMA Kartika XIX-2 Bandung on November 22, 2023. we conducted an interview with the coordinator of Guidance and Counseling. The results of the interview illustrate that students of SMA Kartika XIX-2 Bandung still feel confusion in deciding a career. This happens because the hours for Guidance and Counseling services in class are only available for grade 10, while grade 11 and 12 students need to go to the BK teacher independently. This lack of intervention in the career field is one aspect that causes students to experience career indecision. Students experience confusion and lack of information about their interests, talents, and values, have not been able to gather occupational information, have not been able to identify career goals, have not planned their careers, and have not been able to solve problems that include their resilience when challenged with occupational barriers.



The concept of career decision-making self-efficacy is frequently discussed in the career development literature (Andrews et al., 2014). However, most of these studies focus on career decision making self-efficacy levels of college students and adults; there is little research to be found in terms of young adolescents, specifically high school students. The main objective of this review is to identify and analyze the instruments used by researchers to measure the career decision self-efficacy of high school students. We specifically searched for and identified Scopus indexed articles from 2003 to 2023 that targeted high school students.

METHOD

In this research, we adopt the systematic literature review method which aims to review studies that systematically analyze the career decision-making self-efficacy of high school students.

The search method uses the help of software Publish or Perish 8 to get articles published in the last 20 years (2003 to 2023). The search domain is the Scopus search domain, so that the search results only come from Scopus indexed articles. Title words (title words) that are applied are “career decision self efficacy”. Keywords (keywords) that are applied are “students high school”. The determination of the title and keywords is because we want to get articles that contain career decision self-efficacy in the title and the research participants were high school students.

For inclusion in the literature review, the following inclusion criteria were used: (1) focusing on high school students' decision-making self-efficacy studies (2) English-language journal articles (3); peer reviewed journals; and (4) issued in the last 20 years or from 2003 to 2023.

RESULT AND DISCUSSION

We specifically look for Scopus indexed articles from 2003 to 2023 which made high school students the research targets. Based on the Scopus search domain, the articles found were 37 articles, we then identified each article and did not include 16 articles because they did not meet the inclusion criteria that we had set. The number of articles reviewed in this study were 21 articles.



Tabel 1.
Characteristics of the Reviewed Articles

No	Article Title	Author and Year of Publication	Measurement	Research Participants	Reliability (Value <i>Alpha Cronbach</i>)
1.	Improving Career Decision Self-Efficacy and STEM Self-Efficacy in High School Girls: Evaluation of an Intervention	(Falco & Summers, 2019)	<i>The Middle School Self-Efficacy Scale</i> (MSSES; Fouad et al., 1997). The instrument consists of 46 total response-scale items with two subscales (24 items) designed to measure self-efficacy: <i>Career Decision Self-Efficacy</i> (12 items) and <i>Math/Science (STEM) Self-Efficacy</i> (12 items) subscale.	88 female students, consisting of: 42 Latina and 46 white students, 40 freshmen, and 48 sophomores at the same high school.	Reliability for 12 item <i>Career Decision Self-Efficacy</i> : 0.60 (time 1), 0.93 (time 2), day 0.93 (time 3).
2.	Career Decision-Making Self-Efficacy Change in Italian High School Students	(Chiesa et al., 2016)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996).	280 Italian high school students.	0.92 (time 1) and 0.94 (time 2).
3.	Core Self-Evaluations, Career Decision Self-Efficacy, and Vocational Identity Among Greek Adolescents	(Koumoundourou et al., 2012)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996).	200 Greek high school students (92 boys and 108 girls)	0,91



No	Article Title	Author and Year of Publication	Measurement	Research Participants	Reliability (Value Alpha Cronbach)
4.	An Examination of the Structure of the Career Decision Self-Efficacy Scale (Short Form) Among Italian High School Students	(Presti et al., 2013)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996).	3,390 Italian students in the final year of secondary school (1,260 boys and 2,130 girls), consisting of: 2,159 (63.7%) Lyceums (pre-university secondary schools), 981 (28.9%) technical institutes (technical education curricula) which could lead to employment and university), 208 (6.1%) institute professionals (engineering education curriculum that prepares students to work as technicians), and 42 (1.2%) did not provide this information.	0,89
5.	Career-specific parenting practices and career decision-making self-efficacy among Chinese adolescents: The interactive effects of parenting practices and the mediating role of autonomy	(Zhang et al., 2019)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996).	641 students (52.4% girls, 47% boys) 10th grade high school students in China	0,94



No	Article Title	Author and Year of Publication	Measurement	Research Participants	Reliability (Value Alpha Cronbach)
6.	High School Final Year Students' Career Decision-Making Self-Efficacy, Attachment Styles and Gender Role Orientations	(Bolat & Odaci, 2017)	<i>Career Decision-Making Self-Efficacy Scale</i> developed by Bozgeyikli (2004)	808 final year students, consisting of 439 girls (54.3%) and 369 boys (45.7%). Participants consisted of 308 (38.1%). Students from SMA Anatolia, 28 (3.5%) from SMA Science, 198 (24.5%) from Technical and Vocational School, 101 (12.5%) from SMA Imam Hatip Anatolia, 111 (13.7%) from Business School, and 62 (7.7%) from other (regular) SMA.	0,91
7.	Perceived parenting styles, thinking styles, and gender on the career decision self-efficacy of adolescents: how & why?	(Situmorang & Salim, 2021)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996).	617 high school students in Jakarta (grades 11 and 12), consisting of 211 boys and 406 girls.	0.901 * for 21 valid items.
8.	How do students become good workers? Investigating the impact of gender and school on the relationship between career decision-making self-efficacy and career exploration	(Chen, Chen, et al., 2021)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996).	24,273 students from 13 different secondary schools (boys = 15,050, girls = 9,223; urban schools = 12,327, rural schools = 11,946).	0,914



No	Article Title	Author and Year of Publication	Measurement	Research Participants	Reliability (Value Alpha Cronbach)
9.	Making a commitment to your future: Investigating the effect of career exploration and career decision-making self-efficacy on the relationship between career concern and career commitment	(Chen, Xue, et al., 2021)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996).	All students (1105 students) in grade 10 from the seven high schools located in Jiangsu province, China (four high schools each in Nanjing City, one high school in Suzhou City, and two high schools in Yangzhou City)	0,814
10.	Decision-Making Styles, Career Decision Self-Efficacy, and Career Adaptability Among High School Student	(Dostanić et al., 2021)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996).	216 students (61% girls, 39% boys) from five high schools in northern Serbia. The sample consisted of 4th grade high school students aged 17 to 18 from Gymnasium (grammar school equivalent to 12th grade in the USA school system) in the Republic of Serbia.	0,90
11.	The predictors of career decision-making difficulties among high school students: Career decision self-efficacy and personal traits - Turkey case	(Duru et al., 2021)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996) and adapted to Turkish by Işık (2010).	482 students from seven high schools in Arnavutkoy, Istanbul. Between participants, 282 were female (67.5%) and 136 were male (32.5%), ranging from 14 to 19 years.	0.88 for the original version and 0.89 for the Turkish language



No	Article Title	Author and Year of Publication	Measurement	Research Participants	Reliability (Value Alpha Cronbach)
12.	The importance of achievement goals and attitudes towards education for explaining adolescents career decision self-efficacy	(Bubić et al., 2015)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996)	Of the 361 Croatian high school students who participated in this study, 125 (34.6%) were boys and 236 (65.4%) were girls. All participants were enrolled in their last year of secondary school, namely one gymnasium (n = 96; 26.6%) and three vocational schools (medical, for tourism and economics) (n = 264; 73.1%)	0,90
13.	Career Decision Making Self Efficacy and Its Implications on Guidance and Counseling Programs: A Study of High School Students During the Covid-19 Pandemic	(Wahyuning sih et al., 2023)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996)	469 high school students in Boyolali Regency and Surakarta City, Indonesia.	0,908
14.	A path analysis of effects of the career locus of control dimensions and career decision self-efficacy on career aspiration	(Al-Bahrani et al., 2021)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996)	The sample consisted of 1376 grade 10 students and 1324 grade 11 students studying in several public secondary schools located in nine governorates in the Sultanate of Oman	0,89
15.	After earthquake in sigi: Can social support affect career decision self-efficacy?	(Salim & Darmayanti, 2021)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996)	141 high school students who were victims of the earthquake in Sigi filled in	0,899



No	Article Title	Author and Year of Publication	Measurement	Research Participants	Reliability (Value Alpha Cronbach)
16.	The relationship of career decision-making self-efficacy, vocational identity, and career exploration behavior in African American high school students	(Gushue et al., 2006)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996)	72 high school students from urban high schools in a large northeastern city whose parents or guardians consented to their participation in this study. Of the participants, 62.5% were male (n = 45) and 37.5% were female (n = 27). All participants identified racially as black, non-Hispanic. The age of students ranged from 15 to 19 years,	0,87
17.	The relationship among support, ethnic identity, career decision self-efficacy, and outcome expectations in African American high school students: Applying social cognitive career theory	(Gushue & Whitson, 2006)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996)	104 African-American ninth-grade public high school students in a large urban area in the northeast who self-identify as African-American/Black. Consists of 54 women and 49 men (1 missing). The age of the participants ranged from 13 to 16 years.	0,78



No	Article Title	Author and Year of Publication	Measurement	Research Participants	Reliability (Value Alpha Cronbach)
18.	The relation of acculturation, problem-solving appraisal, and career decision-making self-efficacy to Mexican American high school students' educational goals	(Flores et al., 2006)	Jones (1992) adapted <i>Career Decision-Making Self-Efficacy Scale</i> (CDMSE; Taylor & Betz, 1983) for use with high school students to assess confidence in the ability to engage in career decision-making tasks. The CDMSE was revised to include "high school" for "college" to expand on the high school version (CDMSE-HS; Jones, 1992).	The sample consisted of 105 (51% female; 49% male) Mexican American high school students from two public schools located near the Texas–Mexico border. Most of the participants were Grade 10 students (60%) followed by Grade 11 students (22%), Grade 12 students (12%), Grade 9 students (4%, and 2 (2%) who lost data. The ages of the students ranged from 15 to 18 years	-
19.	Causal relationship between career indecision and career decision-making self-efficacy: A longitudinal cross-lagged analysis	(Creed & Patton, 2006)	<i>Career Decision Self-Efficacy Scale–Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996)	This study examined 166 students when they were in grade 8 of middle school and then when they were in grade 10	0.95 (Time 1) and 0.94 (Time 2)
20.	A psychometric evaluation of the career decision self-efficacy scale-short form in Chinese high school students	(Hampton, 2006)	<i>Career Decision Self-Efficacy Scale–Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996).	183 high school students from a public high school in a northeastern city in China. Ninety-six (54%) participants were women and 87 (46%) were men. Participants' ages ranged from 16 to 20 years, with a mean of 17 years (SD = 0.67).	0,93



No	Article Title	Author and Year of Publication	Measurement	Research Participants	Reliability (Value Alpha Cronbach)
21.	Career decision-making self-efficacy of South African high school boys and girls	(Eaton et al., 2004)	<i>Career Decision Self-Efficacy Scale-Short Form</i> (CDSES-SF; Betz, Klein, & Taylor, 1996)	White South African secondary school students in Grades 9 to 11, of whom 368 were boys and 494 girls	-

Based on the 21 articles mentioned above, there are a variety of instruments used to measure self efficacy in decision making for high school students. The 21 studies involved 3 instruments or measuring devices, namely: Career Decision Self-Efficacy Scale-Short Form (CDSES-SF; Betz, Klein, & Taylor, 1996), The Middle School Self-Efficacy Scale (MSSES; Fouad et al., 1997), give Career Decision Making Self-Efficacy Scale developed by Bozgeyikli (2004).

Career Decision Self-Efficacy Scale-Short Form (CDSES-SF; Betz, Klein, & Taylor, 1996).

The CDSES-SF was the instrument most used in the studies reviewed in this study. Construct self-efficacy Career decisions were first introduced to the career area by Hackett and Betz (1981) who showed that students' beliefs about their educational abilities and careers were significantly related to the various career choices they considered. Since then, the CDSE and CDSE-SF have become the main instruments used to assess this context-specific self-efficacy. However, due to concerns about the length of the 50 item CDSE, and the heavy response series (10-point Likert-type scale), researchers and career practitioners are increasingly using the short form of the scale, which includes 25 items and a 5-point response continuum (Betz et al. , 2005; Chaney et al., 2007). This scale measures five dimensions of individual career decision self-efficacy, namely self-assessment, gathering work-related information, goal selection, future planning, and problem solving (Betz et al., 1996).

Based on the studies reviewed in this study, the CDSES-SF has a reliability that ranges from $\alpha=0.78$ to 0.95, which means that it is included in the Cronbach alpha criteria in the good and very good categories (Sumintono & Widhiarso, 2014: 112) . This reliability also means that the interaction between respondents and items is good so that the CDSES-SF instrument can be trusted to be used as a data collection tool. Table 1 shows that CDSES-SF has also been carried out on various high school students of various races, ethnicities, ages, grade levels, skin colors, genders, and countries, so that the use of the CDSES-SF instrument is very possible if used in Indonesia which is rich in ethnicity. and culture, this is reinforced by the fact that 2 of our literature reviews in this study, are articles that contain research on high school students in Indonesia, by Situmorang & Salim (2021) on 617 high school students in Jakarta and research by Wahyuningsih et al., (2023) for 469 high school students in Boyolali Regency and Surakarta City had high reliability, namely 0.901 and 0.908.



The Middle School Self-Efficacy Scale (MSSES; Fouad et al., 1997)

Among the various studies reviewed in this research, only the Falco & Summers, 2019 study used this instrument. This instrument aims to measure self-efficacy in the process domain and content domain. The Middle School Self Efficacy Scale (MSSES; Fouad et al., 1997) was developed for use in assessing the effect of intervention programs designed to promote career decision-making and career awareness in mathematics and science, especially for female and minority students, and suitable for use among adolescents (Falco & Summers, 2019). The instrument consists of a total of 46 response-scale items with two subscales (24 items) designed to measure self-efficacy: Self-Efficacy Career Decisions (12 items) and Math/Science (STEM) Self-Efficacy subscales (12 items). Responses were obtained using a 5-point Likert scale that asked students to rate the extent to which they agreed or disagreed with a series of statements ranging from strongly agree (1) to strongly disagree (5). Although the MSSES has acceptable reliability and evidence of construct validity for secondary school students (as reported by Fouad et al., 1997), and items from the Career Decision Self-Efficacy Scale and the Math/Science Self-Efficacy Scale have been used widely to another study using a high school sample (Falco & Summers, 2019).

The Falco & Summers study (2019) did not find a study that established construct validity for each sample. Even Fouad and Guillen (2006) recommend that because there have been many adaptations of Fouad, Smith, and Enochs' (1997) instruments without study replication, the reliability and validity of the adapted instruments need to be further determined. In terms of reliability, 12 items of Career Decision Self-Efficacy Of The Middle School Self-Efficacy Scale (MSSES; Fouad et al., 1997) has a alpha cronbach 0.60 (time 1), 0.93 (time 2), day 0.93 (time 3). Alpha cronbach 0.60 indicates poor instrument reliability (Sumintono & Widhiarso, 2014:112), while Alpha cronbach 0.93 shows excellent instrument reliability.

Career Decision-Making Self-Efficacy Scale (CDMSES) Developed by Bozgeyikli (2004)

This scale measures high school students' career decision-making self-efficacy in three dimensions and with a total of 27 items (eg, "choose a job you can achieve," "determine strengths and weaknesses"). The three dimensions are: (a) Properly Evaluating Personal and Work Qualities, (b) Collecting Occupational Data, and (c) Making Realistic Plans. This assessment uses a 5-point Likert scale. The highest possible scores of the CDMSES sub-dimensions range between 40 and 55 (Bolat & Odacı, 2017). The reliability of this instrument was measured in Bolat & Odacı's (2017) study on high school students and had a value alpha cronbach 0.91, which means very good (Sumintono & Widhiarso, 2014: 112) or the interaction between respondents and items is good so that the instrument can be trusted to be used as a data collection tool.

CONCLUSION

Based on a literature review spanning the last 20 years (2003-2023) on Scopus indexed articles, it was found that out of 21 studies, Career Decision Self-Efficacy Scale–Short Form (CDSES-SF) developed by Betz, Klein, & Taylor (1996) is the instrument most widely used to measure the career decision self-efficacy of high school students. Based on the studies reviewed in this study, the CDSES SF has a reliability ranging from $\alpha=0.78$ to 0.95, which means it is included in the criteria alpha cronbach good and very good category. This reliability also means the interaction between respondents and good



items so that the CDESES-SF instrument can be trusted to be used as a career decision self-efficacy measure for high school students. The CDESES-SF instrument has also been carried out on various high school students of various races, ethnicities, ages, grade levels, skin colors, genders, and countries, so that the use of the CDESES-SF instrument is very possible if used in Indonesia which is rich in culture.

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