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Validation of the Career Exploration Survey-Revised (CESR) Questionnaires among Secondary School Students in Malaysia

Shukree Yusof[1], Ahmad Jazimin Jusoh[2*]

[1,2]Faculty of Human Development, Sultan Idris Education University

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Abstract

The validity and reliability of Career Exploration Service-Revised (CESR) questionnaires were tested in a pilot study. The objective of the study was to find out how reliable the various parts of the questionnaires were. There were 5 experts and 35 senior high school students involved in this study. The instrument was distributed to students in grades four and higher at two secondary schools in the Hulu Terengganu region. The study participants were students who have already been chosen. Students were chosen to participate in the study from a broader pool of applicants whose characteristics were similar to those of the final study participants. This was done to gauge the extent to which the students trusted the various parts of the instrument. The validity analysis shows that the items are spot-on, allowing the research to proceed. All items on the Self-Exploration sub-construct of the first sub-construct were trustworthy, as shown by high values for the corresponding CESR reliability coefficients.

Keywords: Career exploration survey-revised, validation, secondary school, Malaysia

(*) Corresponding Author: jazimin@fpm.upsi.edu.my

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INTRODUCTION

Career Exploration is when considering different avenues for one's professional life; it is essential to engage in a never-ending cycle of learning new things about oneself and the working world, putting one's ideas to the test, and then reflecting on one's experiences and adjusting one's plans in accordance with those reflections (Savickas, 2019). Students may go through several career exploration cycles while enrolled in college, and they will most likely go through many more of these cycles throughout the rest of their lives (Green et al., 2020; Saputra et al., 2022). Career exploration is a process that students go through multiple times throughout their lives. They will receive an overview of the process and recommendations regarding where to begin after graduating from their respective schools (Jiang et al., 2019).

The researcher devised a survey called the Career Exploration Survey-Revised (CESR) to determine the route the students want to pursue once they have completed their current course of study and graduated from their respective schools. The researcher has developed a battery of rating scales to collect the panel's feedback and judgments on each item. All questions, positive and negative alike, in this survey, have been assigned a score between 1 and 10 by the researcher. Morgan et al. (2019) state that a group of between five and nine outside specialists ideal to

evaluate an instrument. The panelists were chosen because of their extensive experience in psychology and counseling and their knowledge of guidance and counseling, questionnaire development, and academic research (Hizriani et al., 2022; Rozubi et al., 2022). Nevertheless, given that this was a brand-new design, several different procedures were carried out to ensure that the questionnaire was valid and reliable (Pearson et al., 2020).

The researcher conducted a test run of the study before launching the full-scale project (Handrianto, 2017; Pearson et al., 2020). A pilot study was a test run with a small sample of participants to ensure good research questions and methods. According to Malmqvist et al. (2019), the pilot study's purpose was to ensure the validity and reliability of the research instrument, including the testing procedure, the amount of time needed to complete the questionnaire, and the clarity of the questions and instructions. Including, if necessary, excluding elements not contributing to the essential data. According to Protogerou and Hagger (2020), the most suitable participants for pilot research are drawn from the same pool of people who will make up the study's final sample. Protecting the instrument's accuracy against flaws depends heavily on ensuring its validity and dependability. The better the validity and reliability of the instrument, the better the data that can be used to conduct research (Shen et al, 2021; Hizriani et al., 2023).

Validation of the instrument is required (Andrade et al., 2020). Protecting the instrument's accuracy against flaws depends heavily on the instrument's validity. If the instrument has a high value and validity, reliable data may be collected for high-quality research (Shen et al, 2021; Zainil et al., 2023). While assessing a research instrument's validity, one looks at how well it consistently answers the research questions designed for it. As defined by Sürücü and Maslakçi (2020), high validity indicates that the instrument in question measures what it claims to measure. Protogerou and Hagger (2020) agree that validity is high when there is a good fit between the instrument and the phenomenon being assessed.

The researcher used the same procedure that the prior researcher did to establish a validity coefficient (validity coefficient) for each item in the CESR, basing their calculation on the mean of the cumulative score derived from expert evaluations. Sürücü and Maslakçi (2020) argue that even if a questionnaire has been pilot tested, it still has to be retested to ensure its validity and reliability because the inferences drawn from the pilot test are relevant only to the aims and participants of the current study.

The researcher conducted a pilot study to determine the accuracy of the instruments that were going to be used in this investigation. The results of this study were using in the main inquiry. The Career Exploration Service-Revised (CESR) was some of the items used in this study. After that, this instrument was given to a group of students enrolled in the fourth grade at two different secondary schools located within the Hulu Terengganu district to elicit their opinions on the degree of trustworthiness displayed by each of the instrument's components. This was done to determine whether the students believed that each of the instrument's components was reliable. The students who took part in the study have been selected from a bigger group of individuals with characteristics that are comparable

to those of the actual study sample. The students who participated in the research have been selected.

METHODOLOGY

In this pilot research, the questions and answers are presented to a select group of participants to determine whether they are accurate. According to Malmqvist et al. (2019), the pilot study's purpose was to investigate the research instrument's potential for validity and reliability. This covered the testing procedure, the time it took to complete the questionnaire, and checking to ensure that all of the questions and instructions were understandable (Jusoh et al., 2022). This also includes, if it becomes necessary to do so, getting rid of objects that do not provide the required data. According to Haven et al. (2022), the responders of the research's target population make up the most valuable participants in the pilot study. This indicates that the students included in the main research are also included in the pilot study being conducted.

The researcher conducted a pilot study to determine whether or not the tools used in this investigation. Namely, the Career Exploration Service-Revised (CESR) was reliable. After that, this device was given to a group of students who were enrolled in the fourth grade at two different secondary schools in the Hulu Terengganu area. The objective was to determine the degree to which each instrument component might be trusted. Participants were randomly selected from a pool of thirty-five students for this pilot project. The students that participated in the research project were selected from a larger group whose features were comparable to those of the actual research project sample.

RESULTS

Validity and Reliability of the Instrument

To prevent defects in instrument accuracy, validity and reliability are crucial. The more valid and reliable the instrument, the more accurate the data were in producing a good study (Alshenqeeti, 2014; Adam et al., 2022). The researcher created assessment forms to get expert feedback on each item. The researcher assigns ten points from 1 to 10 to all questions, positive and negative. Dorussen et al. (2005) recommends six to nine experts for assessment. Grant and Davis (1997) recommend five to nine external experts for instrument evaluation. The expert panel was selected based on guidance, counseling skills, questionnaire design, and academic psychology and counseling experience. This study included five psychology and counseling specialists from four area institutions. This study's experts were:

Expert 1: Counseling Psychology Assistant Secretary General, Ministry of Education Malaysia (KPM).
Expert 2: Counseling Psychology Professor, Universiti Utara Malaysia (UUM).
Expert 3: Senior Lecturer, Counseling Psychology, University Malaysia Terengganu (UMT).
Expert 4: UPSI Psychology and Counseling Senior Professor.
Expert 5: Organizational Counselor, Hulu Selangor District Education Office (PPDHS).

CESR items and content are validated using a ten-point rating scale from 1 (strongly disagree) to 10 (strongly agree) (strongly agree). The module's validity was determined by dividing the expert's score (x) by the actual score (y) and multiplying by 100. Tuckman (2011) and Sidek and Jamaluddin (2010) say an instrument with 70% content validity has mastered or achieved a high degree of accomplishment.

Validation Process of Research Instruments

Validity protects instrument accuracy against faults. The better the device, the more accurate the data for solid research (Chan, 2004; Handrianto, 2019). Validity is the research tool's stability and consistency in answering research questions. The correlation between each item's score and the overall score measures an instrument's construct validity. Pearson's correlation analysis between item scores and construct scores can achieve this. Watkins (2021) set the minimal correlation coefficient as 0.30. Numally and Berstein (1994) claimed that items with a total score above 0.25 had good correlation values. According to Cohen (1988), a correlation coefficient between 0.10 and 0.29 is minor, 0.30 to 0.49 is medium, and 0.50 to 1.00 is strong. The researcher chose.05.

Validity of the Instrument

Examine the information gathered from the panel of experts' assessment forms to determine the reliability and validity of the CESR. Table 1 below shows the results:

Table 1. *Validity of the CESR Instrument*

Subconstruct	Expert assessment					Score
	1	2	3	4	5	(%)
Purposeful systematic exploration	46	45	47	44	47	92
Environmental exploration	80	51	76	79	84	82
Self-exploration	126	126	135	123	133	92

Total validity percentage = 280 ÷ 280 x 100 = 100% (total score divided by real score, then that number multiplied by one hundred).

Based on Table 1, the researcher's evaluation of five experts using the CESR instrument shows that the construct scores of purposeful systematic exploration and self-exploration are 92%, while the construct score of environmental exploration is only 82%. Based on what experts thought, the overall score got a high percentage for everything looked at. This result shows that these things are great for doing research. The validity value of CESR is based on the average score. Table 2 shows the percentage of the average score and the validity coefficient.

Table 2. *Validity values of the CESR instrument*

Subconstruct	No Item	Score Average	% Score Average	Coefficient validity
Purposeful systematic exploration	5	45.8	91.60	.916
Environmental exploration	9	41.1	82.22	.822

Self-exploration	14	45.9	91.86	.918
Total	28	44.3	88.56	.885

The overall percentage based on the mean score is 88.56
Coefficient de validité = 88.56 10, which is 0.885, or.885

Based on Table 2 above, the value of the CESR instrument found that the construct score of Systematic Purposeful Exploration, which has five items, got an average score of 45.8 with a percentage of 91.6% and a validity coefficient of.916. The average score for the self-exploration construct is 45.9, with a percentage of 91.86% and a validity coefficient of.916. The average score for environmental exploration is 82.22%, and with 9 items, the validity coefficient is.822. The results show that the items are very appropriate and make it possible for the study to be done.

Reliability Process of Research Instruments

Watkins (2021) says that the questionnaire's stability and internal consistency make it reliable as a research tool. Hollnagel (1989) says that a research instrument's reliability is based on how well it works or how consistent it is with itself. Even if it is used at different times, the instrument measures the same thing in the same way each time. The Cronbach Alpha value is often used to measure the internal consistency of a construct, especially when it comes to Likert-scale instruments. When measuring the reliability of a research tool, a Cronbach Alpha value of more than 0.60 is often used (Piaw, 2013). Statistical Packages for Social Science (SPSS) Version 23.0 software was used to measure the instrument's reliability using Crobanch's Alpha Statistical Test. Data from the instrument were collected for the pilot study.

Meeker (2022) says a construct's instrument's reliability value should be above 0.6 at the.05 significance level. However, the best way to build an instrument is with a value above.70. But any number above 0.60 is still acceptable (Pallant, 2020; Serang et al., 2022). Similarly, Watkins (2021) thinks that an instrument's level of reliability is good when the alpha value is above .60. Based on the reliability score, the research tool has been changed and made better to fit the needs of the study. Based on what Pallant (2020), the researcher chose to use the Cronbach Alpha value to figure out how reliable the research tool was. With that information, the researcher figured out how reliable the items and constructs were for each instrument, with a value of more than 0.70 at the.05 significance level.

Instrument Reliability

Pallant (2020) says that the results or findings of a study can be used to measure how reliable a measuring tool is. With a measurement tool that measures what it is supposed to measure, every finding from the research was useful. Meeker (2022) says that a research questionnaire's level of reliability is measured by how well it fits together. The same thing is also meant by the questionnaire's ability to measure the same thing, even if given differently. Piaw (2013) said that a value of 0.6 at the.05 significance level is a good reliability value for a construct in an instrument. In Table 3, we can see how reliable the CESR questionnaire is.

Table 3. *Reliability values for CESR*

Questionnaire	***a*-value**
CESR	.831

Table 3 shows that the CESR instrument got a good value of a, which is 0.83 for the reliability coefficient. Thus, the values show that the CESR instrument can be used to determine if someone is interested in a career. The researcher also looked at how consistent the CESR questionnaire was based on the sub-construct of career exploration. At Cronbach's Alpha level, the subconstruct's reliability coefficient value is set to be above 0.7. Table 4 lists the values of the CESR reliability coefficients for each sub-construct.

Table 4. *Reliability values for CESR according to sub-constructs*

Sub construct	***a*-value**
Purposeful systematic exploration	.826
Environmental exploration	.828
Self-exploration	.829

Table 4 shows that the sub-reliability construct's coefficient has a good value and is higher than.70. The sub-construct with the highest alpha value is Self-Exploration, which has a value of.829. Then came the sub-construct Environmental Exploration, which had a score of.828. Systematic Exploration Aimed at.826 is the third sub-construct. Table 5 shows the value of the CESR reliability coefficient for the first sub-construct, "Purposeful Systematic Exploration," based on the item.

Table 5. *Reliability Coefficient Values According to the Items of the Purposeful Systematic Exploration Sub-Construct*

Purposeful Systematic Exploration	***a*-value**
Entire item	.826
I experimented with different career activities.	.822
I show some vocational skills that I have to friends.	.823
I practice work assignments that interest me after paying attention to them.	.822
I participate as a volunteer in the career field of interest.	.821
I discussed with my friends at school the career I was interested in.	.824

Based on Table 5, the reliability coefficient value for the items in the Purposeful Systematic Exploration subconstruct. The value of an is good and is more than .70. I talk with my friends at school about the career I am interested in, which has an alpha value of .824. Then I volunteer in the career field of interest, which has a value of .821, the item with the lowest value. Table 6 shows the value of the CESR reliability coefficient for each item in the first subconstruct, "Environmental Exploration."

Table 6

Reliability Coefficient Values According to the Items of the Environmental Exploration Sub-Construct

Environmental Exploration	*a*-value
Entire item	.828
I am exploring a career that suits me.	.823
I followed career recognition activities through the career program.	.823
I am looking for information about the special characteristics of a job field.	.825
I collect information about the basic offers in a certain job field.	.823
I am looking for information on job specialization in a career field.	.824
I get career guidance from teachers.	.823
I looked for career information in the school's Guidance and Counseling room.	.822
I get career information by browsing the internet (virtual world).	.826
I research the suitability of personal information with a suitable career.	.823
I attended a career fair.	.822
I am looking for further education information from an education agency.	.821
I discuss career information with the family.	.823
I collect educational information that meets career requirements.	.823
I discussed with the teacher the compatibility of the subject with the career.	.823

Referring to Table 6, the value of an on the items of the Environmental Exploration sub-construct. The researcher looks up career information on the internet (virtual world), which has an alpha value of.826. This is the item with the highest alpha value. Then, The researcher was looking for information about continuing my education from an education agency, which has a value of.821. Table 7 shows the value of the CESR reliability coefficient for each item in the Self-Exploration sub-construct of the first sub-construct.

DISCUSSION

The study's components were evaluated by experts using specially designed forms with a score between one and ten. The expert panel members are selected based on their expertise in the fields of guidance and counseling as well as academic psychology (Crothers et al., 2020; Hines et al., 2020). Experts in psychology and counseling participated in this study, hailing from four local institutions. This method of expert verification has been used by doctoral academics (Savickas, 2019; Rahman et al., 2022). Following the same procedure as the prior study, the researcher calculated a validity coefficient for the CESR items by averaging the total scores from experts' ratings. This can be done by calculating the correlation between item and construct scores using Pearson's method. Sürücü (2020) established 0.30 as the minimum for the correlation coefficient. Good correlation values were determined to be those with item sums greater than 0.25, as stated by Hollnagel (1989). Watkins (2021) suggests that the correlation coefficient could take on values between 0.10 and 0.25. The researcher opted for a significance level of 0.05.

Both Meeker et al. (2022) argue that a research instrument's credibility can be inferred from its performance and consistency with itself. The Cronbach Alpha value is frequently used as a metric of choice when assessing the internal

consistency of a construct, especially with Likert-scale instruments. It is acceptable to use any value greater than 0.60 as the significance threshold for the dependability value of an instrument measuring a construct, as suggested by Pallant (2020). The research instrument underwent refinement and adjustment to meet the needs of the study. Considering the work of Andrade (2020), Haven et al. (2022), and Watkins (2021), the researcher calculated the Cronbach Alpha value to establish the instrument's reliability as a research tool. Meeker et al. (2022) suggests that a research questionnaire's reliability can be gauged by observing how well its components fit together. Sürücü and Maslakçi (2020) state that, at the 0.6 significance level, a reliability value for a construct in an instrument is deemed adequate.

CONCLUSION

This study used the Cronbach Alpha value to determine how reliable a research tool was. The Career Exploration Service-Revised (CESR) questionnaire was given to fourth-year students in the Hulu Terengganu district who attended two secondary schools. A validity coefficient for the CESR questions by taking the total score from the experts' ratings and averaging it. Because of this, he could tell if the CESR items could be trusted or not. The Crobanch's Alpha Statistical Test was done to see if the instrument could be trusted or not. The instrument must first go through the validation process to ensure that it is valid and reliable. The instrument's validity and reliability directly affect the quality of the data that can be used in a research project, and this relationship can be expressed as a direct proportion. For the instrument to have high content validity, it must have a 70% or more score. The instrument's reliability is based on consistently answering the research questions.

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