Exploring Psychometric Properties of The Extended Objective Measure of Ego Identity Status-II (EOM-EIS II) among Adolescents in Malaysia

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Abstract
There are many approaches that have been used in measuring identity formation among adolescents. A very popular approach taken to measure identity formation objectively is through psychometric assessment. The EOM-EIS II instrument is a test commonly used among researchers. Thus, the research is aimed to evaluate the EOM-EIS II in the local culture of Malaysia. The research objectives are to evaluate the content validity, construct validity and the reliability of the EOM-EIS-II instrument. This study adapted correlational method using cross-sectional design approach. Also, in this study, researchers have performed forward-backward translation method and have tested psychometric properties. In testing the content and construct validity in this instrument, a total of 100 adolescents in one of the schools in Malacca, Malaysia was used as the study sample aged between 13-17 years old. Cronbach alpha analysis and Exploratory Factor Analysis (EFA) were used to test the reliability and validity of this instrument. This scale consists of 64 items, but after going through expert evaluation, the instrument only had 44 items. However, a total of 31 items had to be dropped again and only 13 items were accepted in the final instrument. Results of Exploratory Factor Analysis (EFA) extracted two factors with good Eigen values and Percentage of Variance Explained (PVE) with PVE total of 65.53%. All the factors showed that good factor loadings between .666 and .842. Reliability analysis also showed high values of Cronbach alpha for the two dimensions from 0.76 to 0.78. From this study, psychometric properties have been explored and showed good validity and reliability values. However, there are only two constructs retained out of the four original ego identity statuses constructs proposed by Marcia. This study can be used as a screening material to measure the identity formation among adolescents in Malaysia and researchers had found novelty in the Marcia's Theory of Ego Identity Statuses.
Keywords: Psychometric Properties, EOM-EIS II Instrument, Adolesce

Introduction

A popular study about the formation of identity was expressed by Marcia (1966) and Erikson (1968) in the past decades. The Theory of Identity Formation (Marcia, 1966) comprised of two main variables namely crisis and commitment, which influenced the formation of the level of identity. The formation of identity is the critical development task during the development of adolescents (Erikson, 1968; Luyckx et al., 2005; Morsunbul & Atak, 2013). Psychologists used the term identity to describe personal identity (Tsang et al., 2012). Furthermore, according to Grotevant (1998), identity is recognized as the combination of personalities and social pattern in defining one's self through the recognition of others. According to Erikson (1968), the formation of adolescents' identity is supported by psychological moratorium where during this period, society lets the adolescents to be free from responsibilities and are free to try something new to find their own identity. In forming an identity, adolescents search for 'societal identity file' do experiments through multiple roles and personality trials.

Marcia (1966) used Erikson's theory of Identity Development as the foundation for the work to described four adolescents' identity status through commitment and crisis. According to Marcia (1994), crisis refers to seeking out and experimenting with alternatives that exist within an individual's social context and commitment refers to seeking out and experimenting with alternatives that exist within an individual's social context (Marcia, 1966, 1994, 2002). Thus, Marcia has described using the four adolescents' status such as (a) Identity Diffusion which refers to adolescent who has no commitment and experience of identity crisis. Thus, lead them living in liberty and drifting. At this stage, adolescent tends to have low self-esteem, delinquent behavior and substance use, misuse and abuse (Sandhu et al., 2012; Adams et al., 2005), (b) Identity Foreclosure refers to adolescent who has commitment but no crisis. Adolescents at this stage easily adopt goals, values and parental trusts or authorities without giving much thought, less commitment and self exploration (Marcia 2002; Sandhu et al., 2012; Adams et al., 2005), (c) Identity Moratorium refer to adolescent who is at crisis and is exploring various roles and identity, thus testing and trying them at various commitments. Adolescents at this stage further experiencing uncertainties in life choices and feeling anxious temporarily due to their transitional identity stage before reaching to achievement identity (Kroger et al., 2010), (d) Identity Achievement refers to adolescent who have made choices and fully committed to the choices being made (Kroger et al., 2010).

Based on these four identity statuses through the semi-structured interview method in the basic Marcia theory, Adams et al (1979) have developed an instrument *Objective Measure of Ego Identity Status-OM-EIS* to measure the formation of adolescent identity. Then, the OM-EIS instrument is revised by Grotewant and Adams (1984) (Extended Objective Measure of Ego Identity Status; EOM-EIS) and later revised by Benion and Adams (1986) (Extended Objective Measure of Ego Identity Status 2; EOM-EIS II). However, these two instruments have several limitations related to the content of items and high correlation values between identity moratorium and identity diffusion. This causes difficulty to the researcher to differentiate between the two types of identity (Morsunbul & Atak, 2013). However, both instruments are still used to measure the four types of identity developed by Marcia.

Because the scale was developed in the western culture, it is important to examine whether the concept of identity formations is suitable in the local culture of Malaysia. Several studies

have shown different findings such as Jensen et al (1998), who have identified the development pattern of adolescents for late adolescents who were brought up in Norway where a country that has mixed economic system in comparison to late adolescents who were brought up in a free economic system in the USA. Adolescents in Norway are involved with political decisions which oppose the large social differences and the strong working social attitude to hinder an individual from becoming different to one another. While, adolescents in the USA are characterized who often adopts individualistic values (Hofstede, 1980). Both adolescents from these two countries are different in terms of exploration and self identity commitment influenced by different social contexts.

In addition, there are also researchers who conduct the identity test among adolescents in Turkey because the population in Turkey is large (Benion & Adams, 1986; Luyckx et al., 2008; Morsunbul & Atak, 2013). Research findings show that adolescents in Turkey have high level in identity moratorium and low level in identity diffusion. This is because adolescents in Turkey thrive based on their social context. Adolescents have to be independent in life to achieve good identity formation because a lot of contributions in the social context will help in forming a healthy identity (Morsunbul & Atak, 2013). Furthermore, active adolescents found various identitites in the exploration process. However, if the exploration process is prolonged, it will affect the formation of identity achievement while commitment is the ability to enhance adolescents' self esteem in determining life goals (Luyckx et al., 2008; Morsunbul & Atak, 2013). These findings have different directions in determining adolescent's identity formation due to the differences in socio-cultural influences in adolescence stage. Thus, it is paramount to identify the suitability of this scale in utilizing it for the formation of adolescents' identity based on culture in Malaysia.

Research Objectives
Based on the above arguments, the objectives of the research are:

i)   Evaluate the content validity of the Extended Objective Measure Of Ego Identity Status-II.
ii)   Assess the construct validity of the Extended Objective Measure Of Ego Identity Status-II.
iii)   Assess the reliability of the Extended Objective Measure Of Ego Identity Status-II.

Research Method
Research Design
The study adapted correlational method using cross-sectional design approach. This method involves comparison based on the difference within a group, but all groups involved are measured at the same time (Stangor, 2015; Creswell, 2009). The population in the study was secondary school students from one of the state in Malaysia. For the pilot data, researchers gathered data form a minimum of 100 respondents to check for psychometric properties through exploratory factor analysis. A number of 100 adolescents participated in this study. According to Hair et al. (2010) and Zainudin (2012), the appropriate total number of samples is used through the exploration factor analysis which is at least 100 samples. All respondents were aged between 13 to 17 year old at a school in Malacca, Malaysia. A total of 43 male adolescents and 57 female adolescents participated in the study voluntarily.

Research Instruments

This study comprised of two main sections. Section A which consisted of demographic information like gender, age, race, parents' occupation and family income. Section B consisted of Extended Objective Measure of Ego Identity Status-II (EOM-EIS II) instrument by Adams dan Bennion (1989). The Extended Objective Measure of Ego Identity Status-II instrument developed by Adams, Bennion & Huh (1989) is to measure the formation of adolescents' identity based on Marcia's Theory (1966) through the four types of identity status (identity achievement, identity moratorium, identity foreclosure and identity diffusion). This instrument has 64 items and it measures the formation of respondents identity through two domains namely ideology domain (personal identity) and interpersonal domain (social identity). Ideology domain has 8 items that are related to occupation (8 items), religion (8 items) and life philosophy (8 items); whereas the interpersonal domain also has 8 items which is related to friendship (8 items), recreation (8 items), dating (8 items) and gender roles (8 items). Both domains have items to measure the four identity status as suggested by Marcia which are identity achievement, identity moratorium, identity foreclosure and identity diffusion. Every domain has 32 items and 4 sub-categories. This instrument also uses the six-point Likert Scale to measure respondents' identity status which is from strongly disagree (1), disagree (2), slightly disagree (3), slightly agree (4), agree (5) to strongly agree (6). The original EOM-EIS II test shows the internal consistency value for every domain is from 0.58 to 0.80 (Bennion & Adams, 1986).

Validity Protocol

This study employed four phases of testing validation of the instrument. Among the phases are the forward-backward translation, content validation, construct validation and the reliability (Kamaluddin et al., 2020).

The Forward-backward Translation

The translation of the questionnaire or instrument is to put the instrument in its used language (Harkness & SchouaGlusberg, 1998) and to transfer the message from a language into another language (Haslina et al., 2017). The EOM-EIS II instrument is translated by a language expert into Malay language. The items in the questionnaire as well as in fulfilling the value, the norms and culture of local community (Ibrahim et al., 2015; Faiznur, 2019).

A lot of problems can occur during the translation of the research instrument because sometimes what is being translated gives a different meaning in a different culture (Brislin, 1970). In order to avoid this problem from happening, the researcher has used the forward-backward translation method adopted from Amalia (2011) by appointing two language experts. The first step is, the researcher has prepared forward translation documents (from English into Malay language). Second, the researcher has refined the translated sentences made in the first step. Next, the researcher prepares backward translating documents (from Malay language into English). Then, the researcher refines the sentences from the suggestions by the backward translator. Both appointed translators are language experts in ensuring the translation is appropriate to the target population. Lastly, the researcher makes improvements to the sentences together with translation group.

Content Validity

Content validation refers to how far an instrument reflects its content and enables the instrument to be generalized (Taherdoost, 2016). It can also be gained through the quality of the instrument content through systematic assessment in ensuring whether the measured instrument represents the whole construct (Anastasi & Urbina, 2010). Content validity is very important to be done particularly in the development of new instrument which needs high measurement quality (Polit, Beck & Owen, 2007) and dropping unwanted items in a construct (Taherdoost, 2016; Boudreau et al., 2001). The content validity involves many observations from past researches and the researcher has to appoint a professional or from the field to assess the developed instrument which is the preliminary step in testing the validity of a measuring instrument (Marican, 2009). In this study, the researcher has appointed a number of experts to test the validity of the instrument content due to most of the items in the instrument are not appropriate with Malaysian culture. Among the appointed experts are from professionals and field experts (Rubio et al., 2003). The choosing criteria of professionals has to be lecturers from any renown universities in Malaysia who have a few criteria such as i) possess PhD from any university, ii) expert in the field assessed, iii) active in teaching and learning, research and publication as well as iv) obtain consent from the experts themselves to be involved in the assessment of the instrument. Whereas, for field experts, they have to fulfill the criteria of at least possessing more than five years experience in that particular field. All the three chosen experts fulfilled the set criteria before the pilot study is executed.

Construct Validity

According to Ismail (2013), construct validity is to see how far a test is able to measure the concept being measured. The study has used the Exploratory Factor Analysis (EFA) method to test the construct validity and the value of reliability is also measured through Cronbach Alpha coefficient method. A pilot study was done using the cross sectional research design to test the instrument construct validity. The researcher has administered questionnaires to 100 adolescents. It is appropriate with the number of samples through exploratory factor analysis which is at least 100 samples (Hair et al., 2010; Zainudin, 2012; Pearson & Mundform, 2010). The researcher also has exceeded the amount of minimal samples where according to Hair et al. (2010), the determination of sampling size is by using the ratio 5:1 which means five respondents for every item or construct. The researcher makes the selection of respondents among adolescents in the age between 13 to 17 years old. Adolescents in this school are categorized as at-risk adolescents because they possess the characteristic such as the status of low socioeconomic family, difficult to get good education and facing several life pressures (McWhirter, 2017). Most of them are female respondents (57%), aged 16 years old (30%) of Malay race amounting to 59%, who have parents working in the public sector (33%) and categorized as earning low income with family earning less than RM 4360 (80%).

Results and Discussion
Results of Content Validity

Three content experts were appointed to review form which was prepared and given at least two weeks for instrument evaluation process. This is in line with the view of Rubio et al. (2003) who suggests at least three to four experts are enough to evaluate the content validity of an instrument.

Matore et al (2017) state that there are several ways in calculating content validity quantitatively, among them are the calculation by using Cohen Kappa Interrater Agreement Measure (Cohen, 2012); Tinsley-Weiss T Index (Tinsley & Weiss, 1975); or r*WG(J) by Lindell, Brandt and Whitney (1999). However, this method focuses on the agreement of panel of experts in general. There are several arguments among past researchers about the selection of panel of experts such as eight panel of experts, nine panel of experts and ten panel of experts (Mishra & Panda, 2007; Baheiraei et al., 2013). In fact, there are researchers who say that the more experts the better the content validation that can be evaluated, meaning to say, more than 30 experts (Aksorn & Hadikusumo, 2007). But, Lawshe (1975) and Rubio et al. (2003) suggest at least three to four experts are sufficient to evaluate the content validity of an instrument and also suggest the minimum value of CVR for 5 panels is 0.99. However, in this study, most of the items did not achieve the CVR value as suggested by (Lawshe, 1975).

Therefore, in order to evaluate the content validity as a whole based on the evaluation of experts, the achievement of content validity for this instrument has also used other alternative which is a formula introduced by Tuckman dan Waheed (1981); as well as Jamaludin (2004) that is by using the formula of frequency and percentage of agreement for every aspect and item. According to Tuckman and Waheed (1981), the achievement level of 70 % is considered to have achieved a high level. The total score of experts must be adjusted with the maximum score. Out of 64 items being developed, experts score is 25 (64 items x 3 two-point scale = 25). Based on Tuckman and Waheed (1981), the formula that was used for the calculation of content validity was;

$$\frac{\text{Total expert score (X)} \times 100\%}{\text{Maximum Score}}$$

Table 1 shows a total of 20 items must be dropped because they contradicted with the value introduced by Tuckman and Waheed (1981). In the construct of Identity Achievement, a number of 13 items from 16 items need to be dropped because it has the value of content validity that is less than 70%. This shows only 3 items that are maintained in the construct. Further, for the construct of Identity Moratorium, a number of six items need to be dropped out of all 16 items. This makes only 10 items that are retained. For the construct of Identity Diffusion, only one item is dropped from the overall 16 items and making 15 items maintained. Lastly, the construct of Identity Foreclosure, all of the items are accepted because it has the value of content validity exceeding 70% as suggested by Tuckman and Waheed (1981).

Table 1 Summary if Dropped Items

Constructs	Original Items	Items after Expert Validation
Identity Achievement	16	3
Identity Moratorium	16	10
Identity Diffusion	16	15
Identity Foreclosure	16	16
TOTAL	64	44

Result of Construct Validity

Data were analysed using the Exploratory Factor Analysis (EFA) in exploring the factor structure in the scale. Hair et al (2010) mentions that the EFA is to evaluate the items being used in a questionnaire that can be classified according to the structure of certain factors. Therefore, it also intends to evaluate the accuracy of the next analysis. This test is developed by Bennion and Adams (1986) to test the theory of Identity Formation by Marcia (1966) about the four types of identity status namely identity achievement, identity moratorium, identity foreclosure and identity diffusion. This instrument originally has 64 items and after it has gone through experts' validation, there are several items that were dropped and leaving it with 44 items during the pilot test.

This instrument was analysed using the Principal Component Analysis (PCA) and the varimax rotation to test the obtained data in this study. Factor analysis was used by the researcher to identify, reduce and compose items in the questionnaire in a particular construct. Before doing the factor analysis, the Barlett's Test of Sphericity was used to identify whether the correlation between items are sufficient to do the factor analysis. Table 2 shows the significant value $p < 0.05$ where it shows that the correlation of items are sufficient to do the analysis factor. Table 2 shows the value of KMO test which is 0.67, exceeding the value suggested by Chua (2014) which is 0.50, Beavers et al. (2013) state that the value of KMO > 0.60 is sufficient and suitable to do the factor analysis. According to Chua (2014), factor analysis is suitable if the KMO value is greater than 0.50, meanwhile Field (2000) finds that the good KMO value is between 0.80 until 0.90. In this study, it shows that the data do not have any serious problem of multi-collinearity, therefore, it is suitable for factor analysis.

Table 2 KMO and Barlett's Test of Sphericity

KMO and Barlett's Test of Spericity	Values
Kaiser-Meyer- Olkin Measure of Sampling Adequency (KMO)	0.67
Barlett's Test of Sphericity (p)	0.00

Next, the researcher refers to Kaiser criteria (KMO) which suggests the researcher to choose a factor with Eigen value larger than 1.00 and this analysis shows 17 items are categorized under 5 factors that have Eigen values larger than 1. It is in line with Hashimi et al. (2020) who says the criteria for the Eigen value is > 1.00. Besides that, the researcher refers to Scree Test (Figure 1) where it shows 5 points before the start of a straight line. This shows that there are 5 major factors that give huge contribution to the change of research data variance on the whole. All the five factors show 65.53% variance as a whole. Scree plot suggests five major

components with Eigen value more than 1. Factor 1 contributes 29.08% variance (Eigen value = 4.94), followed by Factor 2 with 12.62% variance (Eigen value = 2.15), Factor 3 with 9.01% variance (Eigen value = 1.53), Factor 4 with 7.59% variance (Eigen value = 1.29) and Factor 5 with 7.23% variance (Eigen value = 1.23).
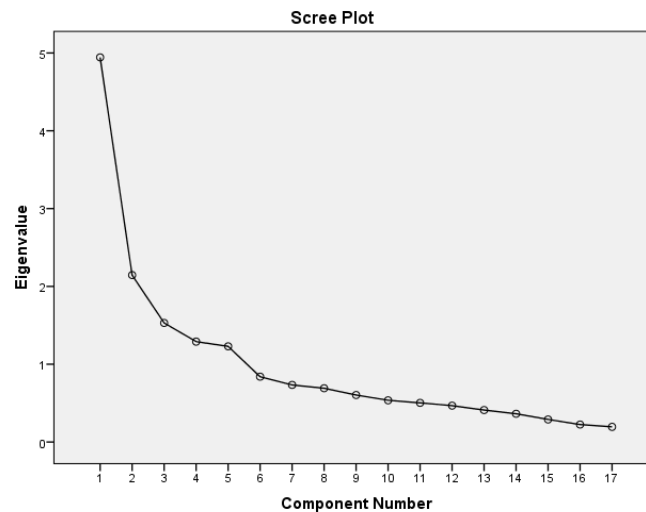
**Figure 1 Scree Plot for Extended Objective Measure
of Ego Identity Status II**

Although the EFA showed five factors, the structure and organization of items failed to fit with the original structure of EOM-EIS II test. Factor 1 and Factor 3 were combined and named as construct Identity Diffusion. Factor 1 has 4 items (C27, C 28, C 42, C25, C 26, C 24) with the factor loading values of 0.705 until 0.842. Next, factor 2 were the combination of items from Identity Achievement and Identity Moratorium which have four items named C1 and C3 which was also the construct of Identity Achievement. Item C9 and C13 on the other hand were items for the construct of Identity Moratorium with the factor loading values of 0.639 until 0.794. However, the construct and the items must be dropped because each factor must consist at least three to five items in order to explain a factor in the EFA (MacCallum et al., 1999; & Raubenheimer, 2004; & Hair, 2010). Thus, factors 4 and 5 were also combined and identified as Identity Foreclosure which involved 7 items (C16, C38, C39, C37, C33, C35, C34) with the factor loading values from 0.606 until 0.827.

Based on Table 3, the Component Transformation Matrix shows that correlation between the five factors was average where construct 1 has average correlation with construct 3 with the value 0.630, whereby construct 5 and construct 4 similarly have the same medium high correlation which was 0.708. This causes the researcher to combine these factors. Overall, this instrument only has two factors as mentioned which are Identity Diffusion and Identity Foreclosure.

Table 3 Component Transformation Matrix

Component	1	2	3	4	5
1	.557	.351	.452	.440	.410
2	-.452	.879	-.093	-.101	.071
3	.630	.256	-.698	-.095	-.203
4	.112	-.084	-.042	-.691	.708
5	.276	.179	.546	-.556	-.533

Table 4 shows the total of factor loading values on each items in the EOM-EIS II that were retained where the lowest factor loading value was 0.606 which was item C13 (My own views on a desirable life style were taught to me by my parents and I don't see any need to question what they taught me) whereas the highest loading factor value was 0.842 which was item C6 (I don't think about dating much. I just kind of take it as it comes).

Table 4 : Factor Loading for Extended Objective Measure of Ego Identity Status II Scale for Malaysian Adolescents

No. Item	Ego Identity Status	Factor Loading
Identity Diffusion		
C6	I don't think about dating much. I just kind of take it as it comes. *(Saya tidak banyak memikirkan tentang bertemu janji. Saya hanya sekadar ambil tahu apabila sampai masanya).*	.842
C7	I've never really seriously considered men's and women's roles in marriage. It just doesn't seem to concern me. *(Saya tidak pernah benar-benar mempertimbangkan secara serius peranan lelaki dan wanita di dalam alam perkahwinan. Ia tidak kelihatan begitu membimbangkan saya).*	.808
C8	Opinions on men's and women's roles seem so varied that I don't think much about it. *(Pendapat mengenai peranan lelaki dan perempuan kelihatan sangat berbeza di mana saya tidak memikirkannya sangat).*	.733
C9	I sometimes join in recreational activities when asked, but I rarely try anything on my own. *(Kadangkala saya menyertai aktiviti rekreasi apabila diminta, tetapi saya jarang mencuba apa-apa secara bersendirian).*	.779
C10	Sometimes I join in leisure activities, but I really don't see a need to look for a particular activity to do regularly. *(Kadangkala saya menyertai aktiviti santai, tetapi saya merasakan tidak ada keperluan untuk mencari satu aktiviti khusus yang dilakukan secara kerap).*	.740
C17	My ideas about men's and women's roles come right from my parents and family. I haven't seen any need to look further. *(Idea saya mengenai peranan lelaki dan perempuan berasas dari ibu bapa dan keluarga saya. Saya tidak melihat sebarang keperluan untuk meneliti dengan lebih lanjut).*	.731
Identity Foreclosure		

C5	When it comes to religion, I just haven't found anything that appeals and I don't really feel the need to look. *(Apabila berkait dengan agama, saya masih belum menemui apa-apa yang menarik dan saya merasakan tidak ada keperluan untuk berbuat apa-apa).*	.705
C11	I guess I'm pretty much like my folks when it comes to politics. I follow what they do in terms of voting and such. *(Saya rasa saya adalah seperti ibu bapa saya apabila berkaitan dengan politik. Saya ikut apa yang mereka lakukan dari segi mengundi dan sebagainya).*	.827
C12	My folks have always had their own political and moral beliefs about issues like abortion and mercy killing and I've always gone along accepting what they have. *(Ibu bapa saya sentiasa mempunyai kepercayaan politik dan moral yang tersendiri mengenai isu-isu seperti pengguguran dan pembunuhan belas kasihan dan saya sentiasa menerima kepercayaan mereka).*	.772
C13	My own views on a desirable life style were taught to me by my parents and I don't see any need to question what they taught me. *(Pandangan saya terhadap gaya hidup yang diinginkan adalah diajar oleh ibu bapa saya dan saya tidak melihat sebarang keperluan untuk mempersoalkan apa yang telah mereka ajar).*	.606
C14	My parents know what's best for me in terms of how to choose my friends. *(Ibu bapa saya tahu apa yang terbaik untuk saya dari segi bagaimana untuk memilih kawan- kawan saya).*	.772
C15	I only pick friends my parents would approve of. *(Saya hanya memilih kawan yang akan dipersetujui ibu bapa saya).*	.703
C16	I only go out with the type of people my parents expect me to date. *(Saya hanya keluar bersama jenis orang yang ibubapa saya harapkan untuk saya bertemu janji).*	.666

On the whole, the EFA analysis failed to replicate the structure of four factors as suggested by (Adams and Bennion, 1989). In fact, this model has shown a better match. The EOM-EIS II in this study explains that among the adolescent population in Malaysia, most of them have no commitment and do not have any experience in identity crisis. They tend to follow with the culture practiced by their parents and significant individuals who are with them. These findings are supported by Sandhu et al (2012); Adams et al (2005) found that adolescents tend to adopt goals, value and parental trust or authoritative people without thinking much. Therefore, adolescents who do not possess positive self identity tend to have less self-esteem, prone to delinquent behaviour, drug and alcohol abuse (Adams et al., 2005; Lucyckx et al., 2005; McWhirter et al., 2017).

Based on the two factors extracted, two items of identity achievement and two items of identity moratorium have been dropped because the construct and items must be dropped because every construct needs to be at least three to five items to explain a factor in the EFA (MacCallum et al., 1999; & Raubenheimer, 2004; & Hair, 2010). This is supported by the results of discriminant validity analysis made by past researchers, who found that identity diffusion and identity moratorium measure different things, however they overlap with each other (Adams et al., 1979; Grotevant & Adams, 1984). The discriminant validity is to prove a subscale in an instrument that measures a different construct or showing a minimum correlation with other construct (Hair et al., 2010; Leavy, 2017). Among the items being dropped in the identity achievement are C1 "I have been through a period of serious questioning about my faith and now I can say that I understand what I believe as an individual", C2 "I have chosen one or more recreational activities to get involve frequently in comparison to other things and I am satisfied with the choice". Therefore, the items that are being dropped in the identity moratorium are C3 "there are many types of people. I still explore various possibilities to find the correct friends for me" and C14 "while I do not have a recreational activity that is committed, I am experiencing many types of activities to identify an activity that I can really involve in."

There are a few reasons why these results contradicted with the original construct in EOM-EIS II. The main reason that influences the identity formation of adolescents is because of cultural and social community factors in Malaysia. Every individual lives and develops in a different cultural environment (Marcia, 2002; Azhar, 2006; Bronfenbrenner & Morris, 2006). In the context of Malaysian culture, the cultivation of good values describes the existance of local cultural values where the adolescents grew up (Kroger, 2007). Therefore, according to Arifain et al (2021) among the significant values is to respect each other where most adolescents respect their parents, culture and religion which is an obligation to the adolescents (Mohamad Khairi, 2015; Yahya, 2003; Shaffer, 2005). Adolescents who have identity foreclosure often accept traditional values and culture and do not put focus on their self value (Marcia, 2002; Sandhu et al., 2012; Adams et al., 2005). They do not face any crisis, however, they only accept and use the values and culture brought by their mother or their father (Jas Laile Suzana, 2012). Adolescents identity is the reflection of an individual's adaptation with social context. This means, adolescents shape different identity status based on the differences in the social, political and economical contexts (Stegarud et al., 1999). Since this identity is seen as a complex, dynamic process and involves culture and social influences, the shaping of adolescents' identity has to involve people around in their ecology in giving exposure in the life of an adolescent (Sandhu et al., 2012; Tsang et al., 2012).

The second reason is due to the family environment at home. Based on the experience of parenting education in Malaysia, most children tend to obey and comply to their parents rather than making their own decisions. According to Santrock (2008), parents play the role in forming perception, feelings and behavior based on the rules of what should be done by adolescents. This is more prominent among parents who practice authoritarian parenting style where parents have set guidelines and regulations for their children. According to Rageliene dan Justickis (2016), authoritarian parenting style has significant influence in forming a low self identity where it leads to the enhancement of identity diffusion among female adolescents but not in the male adolescents. The status of identity diffusion

experienced by adolescents often come from neglectful parents and distancing themselves from their children (Waterman, 1982). Moreover, parents who practice permissive style has significant relationship with the formation of low self identity which leads to identity diffusion as compared to democratic parenting style where it indirectly helps the adolescents to achieve the formation of a good identity. In fact, according to Haikal et al. (2014), parents who practice authoritarian and permissive parenting style leads to depression of the adolescents (Ismail et al., 2008). With that being said, Jas Laile Suzana (2012) states that parents with inconsistent attitude in handling antisocial and prosocial behavior have also become a strong bond in shaping delinquent adolescents. Therefore, this parental attitude has made it difficult for the children to do exploration and commitment in their life. This is supported by Baumrind (1971) who explain that parenting and family influence are very impactful and supportive in forming and directing the exploration and commitment of adolescents' self identity (Allen & Sheeber, 2009). On the other hand, parents who practice a more friendly parenting can stimulate children to be more open and positive (Baumrind, 1971; Ismail et al., 2008; Yi et al., 2010). Based on the reasons given, the researcher can conclude that the content of items C17, C11, C12, C15, C16 have clear relevance from the aspect of respondents' culture, social and family environment. So, the content of the items are interpreted as the elements that describe the formation of identity of adolescents in Malaysia.

Reliability of the Instrument

Reliability tests commonly used to check the internal consistency of scales in survey research are Cronbach's alpha and factor analysis (Leavy, 2017). A reliability test was conducted on 100 samples and Cronbach's alpha values were observed by constructs. The results showed in Table 5.

Table 5 Cronbach's Alpha values for the EOM-EIS II Instrument

Marcia's Ego Identity Statuses	Cronbach alpha (α)	Internal Consistency
Identity Diffusion (6 items)	0.78	High
Identity Foreclosure (7 items)	0.76	High
Overall (13 Items)	**0.84**	**High**

As table 5 shows that Cronbach's alpha test value is 0.78 for identity diffusion, 0.76 for identity foreclosure, and 0.84 for overall ego identity statuses, higher than 0.7, which mean that these constructs are reliable (Anastasi & Urbina, 2010; Hair et al., 2010).

Conclusions

Statistically, this study has proved that items and construct in the EOM-EIS II instrument has good validity and reliability in measuring the formation of adolescents' identity. The contributions of this study is to understanding more about the identity formation of adolescents with socio-cultural differences in adolescence stage. This instrument is also hoped to be a filtering tool in children and adolescents. Thus, the researcher can see the dominant identity status in the adolescents themselves. It is hoped that through the exploration of the psychometric instrument features it can provide benefits to various parties

particularly teachers in understanding adolescents' attitudes and beliefs and aiding teachers in shaping good communication with the adolescents. Intervention is able to be done earlier if the adolescents are found to have problem in self formation. Adolescents in this study possess high features of identity formation of diffusion and foreclosure due to the factors of family environment and culture being practiced in Malaysia. Therefore, social environment factor particularly parents, peers, teachers, community, society and country play important roles in helping adolescent form a superior self- formation. This shows a holistic action that needs to be taken by all parties through social learning such as modelling, reinforcement and good encouragement from all aspects in ensuring good formation and fostering social values among adolescents. If all parties provide a good role, we can help adolescents form good self-identity and foster good values in themselves. A civilized society is a society that can practice good moral values in daily life.

Acknowledgement

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References

Adams, G. R., Shea, J., & Fitch, S. A. (1979). Towards the development of an objective assessment of ego-identity status. Journal of Youth and Adolescent, 9, 223-237. DOI:10.1007/BF02087622.

Adams, G. R., Bennion, L., & Huh, K. (1989). Objective measure of ego identity status: A reference manual. University of Guelph, Canada.

Adams, G. R., Munro, B., Munro, G., Doherty-Poirer, M., & Edwards, J. (2005). Identity processing styles and Canadian adolescents' self-reported delinquency. Identity: An International Journal of Theory and Research, 5(1), 57-65.
DOI: 10.1207/s1532706xid0501_4

Aksorn, T., & Hadikusumo, B. H. W. (2007). Gap analysis approach for construction safety program improvement. Journal of Construction in Developing Countries, 12(1), 77–97.

Allen, N. B., & Sheeber, L. B. (2009). Adolescent emotional development and the emergence of depression disorders. The British Journal of Psychiatry, 195 (5): 465-466.

Amalia, M. (2011). Garis Panduan bagi Penterjemahan Alat Ukur The Resilience Scale 25. item.https://www.researchgate.net/publication/305767569_BacktoBack_Translation_ Malay_English_for_Resilience_Scale_unpublished [10 July 2021].

Anastasi, A., & Urbina, S. (2010). Psychological testing. PHI Learning Private Limited.

Arifain, S. M. K., Sulaiman, W. S. W., Badayai, A. R. A., & Abdullah, N. A. (2021). Pembangunan dan Penilaian Instrumen Nilai Sosial (INS) Remaja. Jurnal 'Ulwan, 6(1), 1-21.

Azhar, A. (2006). Strategi Pembelajaran Pengaturan Kendiri Pendidikan Islam dan Penghayatan Akhlak   Pelajar Sekolah Menengah di Sarawak. Bangi: UKM.

Babbie, E. (2013). The practice of social research. (13th Ed.). Belmont, CA: Wadsworth, Cengage Learning.

Baheiraei, A., Khoori, E., Ahmadi, F., Foroushani, A. R., Ghofranipour, F., & Weiler, R. M. (2013). Psychometric properties of the adolescent health concern inventory: the Persian version. Iranian Journal of Psychiatry, 8(1), 28–36.

Baumrind, D. (1971). Current patterns of parental authority. Developmental Psychology, 4(1, Pt.2), 1–103. DOI: https://doi.org/10.1037/h0030372.

Beavers, A. S., Lounsbury, J. W., Richards, J. K., Huck, S. W., Skolits, G. J., & Esquivel, S. L. (2013). Practical considerations for using exploratory factor analysis in educational research. Practical Assessment, Research, and Evaluation, 18(1), 1-13. DOI: https://doi.org/10.7275/qv2q-rk76.

Bennion, L. D., & Adams, G. R. (1986). A revision of the Extended Version of the Objective Measure of Ego Identity Status: An Identity Instrument for Use with Late Adolescents. Journal of Adolescent Research, 1(2), 183-198. DOI: https://doi.org/10.1177/074355488612005.

Boudreau, J.W., Boswell, W.R & Judge, T.A. (2001). Effects of personality on executive career success in the United States. Journal of Vocational Behaviour, 58(1): 53-81. DOI: https://doi.org/10.1006/jvbe.2000.1755.

Brislin, R. (1970). Back-translation for cross-cultural research. Journal of Cross Cultural Psychology, 1, 185-216. DOI:10.1177/135910457000100301.

Bronfenbrenner, U., & Morris, P. A. (2006). The ecology of human development. In Damon, W., & Lerner, R. Handbook of Psychology. (6th Ed). Ner York: Wiley.

Chua, Y. P. (2014). Kaedah dan Statistik Penyelidikan Buku 5: Ujian Regresi, Analisis Faktor, dan Analisis SEM. (Edisi ke-2). Kuala Lumpur: McGraw Hill Education.

Cohen, R. J., Swerdlik, M., & Sturman, E. (2012). Psychological testing and assessment: and introduction of test and measurement (8th ed.). New York: McGraw Hill.

Creswell, J. W. (2009). Research design: Qualitative, quantitative and mixed methods approaches. 3rd ed. US: Sage Publications, Inc.

Erikson, E. H. (1968). Identity: Youth and Crisis. New York: W.W Norton.

Faiznur, A. D., Mizhanim, M. S., Khazriyati, S., & Nur Zakiah, M. S. (2019). Kesahan dan Kebolehpercayaan Soal Selidik 'Pengalaman Pembelajaran Berbantukan Rakan' Versi Bahasa Melayu Untuk Pembelajaran Teknik Lampu Celah Biomikroskopi. Jurnal Personalia Pelajar, 21(2), 13-22.

Field, A. (2000). Discovering statistics using SPSS for window. London-Thousand Oaks- New Delhi: Sage Publication.

Gillham, B. (2000). Case study research methods. London: Bloomsbury Academic.

Grotevant, H. D., & Adams, G. R. (1984). Development of an objective measure to assess ego identity in adolescence: Validation and replication. Journal of Youth and Adolescence, 13(5), 419-438. DOI: https://doi.org/10.1007/BF02088639.

Grotevant, H. D. (1998). Adolescent development in family context In. Handbook of Child Psychology: New York: John Wiley.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate Data Analysis. (7th ed). Prentice Hall, Englewood Cliffs.

Harkness, J. A., & Schoua-Glusberg, A. (1998). Questionnaires in translation. ZUMA-Nachrichten Spezial, 3, 87-125.

Haslina, H., & Nurul, S. D. (2017). The Translation of Foreign Words in an English Novel into Malay. GEMAOnline - Journal of Language Studies, 17 (1): 163 – 183.

Hofstede, G. (1980). Work-Related Values. Newbury Park: Sage Publication.

Mishra, S., & Panda, S. (2007). Development and Factor Analysis of an Instrument to measure Faculty Attitude towards e-Learning. Asian Journal of Distance Education, 5(1), 27–33.

Ismail, K. H., Lukman, Z. M. & Hamsan, H. H. (2008). Pembangunan kanak-kanak: teori, isu dan cabaran. Selangor: Arah Publication Sdn. Bhd.

Ismail, R. (2013). Metodologi penyelidikan: teori dan praktis. Bangi: Penerbit UKM.

Jensen, M., Kfustwsen. I., Sandbekk, M., & Krocer, J. (1998). Ego Identity Status in Cross-Cultural Context: A Comparison of Norwegian and United States University Students. Psychological Reports, 83 (1), 455-460. DOI: 10.2466/pr0.1998.83.2.455.

Kamaluddin, M. R., Tharumalay, R. D., Sulaiman, W. S. W., Mariamdaran, S. D., & Nasir, N. C. M. (2020). Penerokaan ciri-ciri psikometrik alat ujian agresif dalam Bahasa Tamil: Terjemahan, kesahan dan kebolehpercayaan. Jurnal Psikologi Malaysia, 34 (3), 12-27.

Kroger, J. (2007). Identity development: Adolescent through adulthood. New York: Sage Publication.

Kroger, J., Martinussen, M., & Marcia, J.E. (2010). Identity status change during adolescent and young adulthood: a meta-analysis. Journal of Adolescent, 33, 683-698. DOI: 10.1016/j.adolescence.2009.11.002.

Leavy, P. (2017). Research design: Quantitative, qualitative, mixed methods, arts-based and community-based participatory research approaches. New York: The Guilford Press.

Lawshe, C. H. (1975). A quantitative approach to content validity. Personnel Psychology, 28(4), 563–575. DOI: http://doi.org/10.1111/j.1744-6570.1975.tb01393.x.

Luyckx, K., Goossens, L., Soenens, B., & Vansteenkiste, M. (2005). Identity statuses based on 4 rather than 2 identity dimensions: extending and refining Marcia's paradigm. Journal of Youth and Adolescence, 34 (6), 605-618. DOI: 10.1007/s10964-005-8949-x.

Luyckx, K., Schwartz, S. J., Berzonsky, M. D., Soenens, B., Vansteenkiste, M., Smits, I., & Goossens, L. (2008). Capturing ruminative exploration: Extending the four-dimensional model of identity formation in late adolescence. Journal of Research in Personality, 42(1), 58-82. DOI: 10.1016/j.jrp.2007.04.004.

MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. Psychological Methods, 4(1), 84-99. DOI: https://doi.org/10.1037/1082-989X.4.1.84.

Marcia, J. E. (1966). Development and validation of ego-identity status. Journal of Personality and Social Psychology, 3(5), 551–558. DOI: https://doi.org/10.1037/h0023281.

Marcia, J. E. (1980). Ego Identity Development. Handbook of adolescent psychology. New York: Wiley.

Marcia, J. E. (1994). The empirical study of ego identity. Identity and development. Newbury Park: Sage Publication.

Marcia, J. E. (2002). Identity and Psychosocial Development in Adulthood. Identity, 2(1), 7-28. DOI: https://doi.org/10.1207/S1532706XID0201_02.

Marican, S. (2009). Kaedah penyelidikan sains sosial. Selangor: Pearson Prentice Hall.

Matore, E. M., Idris, H., Rahman, N. A., & Khairani, A. Z. (2017). Kesahan kandungan pakar instrumen IKBAR bagi pengukuran AQ menggunakan Nisbah Kesahan Kandungan.

Proceeding of International Conference on Global Education V, 10-11 April 2017, 979-997.

McWhirter, J. J., McWhirter, B. T., McWhirter, E. H., & McWhirter, R. J. (2007). At risk youth: A comprehensive response for counselors, teachers, psychologist and human services professionals. (4th Ed). USA: Thomson Brooks Cole.

McWhirter, J. J., McWhirter, E. H., McWhirter, B. T., & McWhirter, A. C. (2017). At risk youth: a comprehensive respond for counselors,teachers, psychologists and human service professionals. (6th Ed). USA: Cengage Learning.

Khairi, M. O., Asmawati, S., & Samsilah, R. (2015). Penghayatan Nilai Murni dalam kalangan Pelajar Sekolah Menengah Masa Kini. Jurnal Pembangunan Sosial, 18, 1-20.

Morsunbul, U., & Atak, H. (2013). Validity and reliability study of the Turkish version ego identity process questionnaire. Educational Sciences: Theory & Practice, 13(4): 2053-2058. DOI: 10.12738/estp.2013.4.1623.

Pearson, R. H., & Mundform, D. J. (2010). Recommended sample size for conducting exploratory factor analysis on dichotomous data. Journal of Modern Applied Statistical Methods, 9(2), 359-368. DOI: 10.22237/jmasm/1288584240.

Polit, D. F., Beck, C. T., & Owen, S. V. (2007) Is the CVI an acceptable indicator of content validity? appraisal and recommendations. Research in Nursing & Health, 30, 459-467. DOI: http://dx.doi.org/10.1002/nur.20199.

Rageliene, T., & Justickis, V. (2016). Interrelations of adolescent's identity development, differentiation of self and parenting style, Psychologica, 53(53): 24-43. DOI: 10.15388/Psichol.2016.53.10030.

Raubenheimer, J. (2004). An item selection procedure to maximise scale reliability and validity. SA Journal of Industrial Psychology, 30(4), 59-64. DOI: 10.4102/sajip.v30i4.168.

Rubio, D. M., Berg-Weger, M., Tebb, S., Lee, E. S., & Rauch, S. (2003). Objectifying Content Validity: Conducting A Content Validity Study in Social Work Research. Social Work Research, 27(2), 94–104. DOI: https://doi.org/10.1093/swr/27.2.94.

Sandhu, D., Singh, B., Tung, S., & Kundra, N. (2012). Adolescent identity formation, psychological well-being, and parental attitudes. Pakistan Journal of Psychological Research, 27(1), 89–105.

Santrock, J. W. (2008). Essentials of life-span development. United States: McGrawHill International Edition.

Sekaran, U., & Bougie, R. (2010). Research method for business: A skill building approach. (5th Ed.). USA: John Wiley & Sons. Inc.

Shaffer, D. R., & Kipp, K. (2010). Developmental psychology: childhood and adolescent. (8th Ed.). USA: Wadsworth Cengage Learning.

Stangor, C. (2015). Research methods for the behavioural sciences. (5th Ed.). UK: Cengage Publication.

Stegarud, L., Solheim, B., Karlsen, M., & Kroger, J. (1999). Ego identity status in cross cultural context: A replication study. Psychological Reports, 85(2), 457-461. DOI: 10.2466/pr0.1999.85.2.457.

Taherdoost, H. (2016). Validity and reliability of the research instrument, how to test the validation of a questionnaire/survey in a research. International Journal of Academic Research in Management, 5(3), 28-36. DOI: 10.2139/ssrn.3205040.

Tuckman, B. W., & Waheed, M. A. (1981). Evaluating an individualized science programme for community college students. Journal of Research in Science Teaching, 18(6), 489-495. DOI: https://doi.org/10.1002/tea.3660180603.

Tsang, S. K. M., Hui, E. K. P., & Law, B. C. M. (2012). Positive identity as a positive youth development construct: A conceptual review. The Scientific World Journal, 1-8. DOI: https://doi.org/10.1100/2012/529691.

Waterman, A. S. (1982). Identity development from adolescence to adulthood: An extension of theory and a review of research. Developmental Psychology, 18(3): 341–358. DOI: https://doi.org/10.1037/0012-1649.18.3.341.

Yahya, B., & Rozita, S. (2003). Tahap Penghayatan Nilai-Nilai Murni Di Kalangan Pelajar-Pelajar Sarjana Muda Teknologi Serta Pendidikan Semasa Menjalankan Kerja Amali Bengkel. Jurnal Teknologi, 39, 63–76.

Yi, S., Poudel, K. C., Yasouka, J., Palmer, P. H., Yi, S., & Jimba, M. (2010). Role of risk and protective factors in risky sexual behavior among high school students in Combodia. Journal of BioMed Central, 10, 447-454. DOI: 10.1186/1471-2458-10-477.

Zainudin, A. (2012). Research Methodology and Data Analysis. (2nd Ed.). UiTM Press.