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FACTORIAL VALIDITY EVIDENCES OF THE REVISED VERSION OF THE EMIRATI SCALE FOR VOCATIONAL INTERESTS- (ESVI-R)

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ABSTRACT: *This study aimed at examining the factor structure of the revised version of the Emirati scale for vocational interests (ESVI-R). The sample of this study consisted of 1920 students from middle and high schools in the United Arab Emirates (UAE). 866 (45.1%) of which were males and 1054 (54.9%) of which were female. To achieve the main aim of the study, the exploratory factor analysis (EFA) as a data reduction procedure was used. The direct oblimin with Kaiser normalization was applied as a rotation technique. Analyses indicate the appropriateness of the ESVI-R in terms of internal consistency, as well as the content and factorial validity. Finally, EFC results showed that 52.85% of the variation of UAE data on ESVI-R is accounted for by a fifteen-factor model that underlining the structure of ESVI-R.*

KEYWORDS: vocational interests, UAE middle and high school students, exploratory factor analysis, direct oblimin rotation

INTRODUCTION

Vocational interests may serve as strong predictors of a job applicant's future job performance, job knowledge, and intentions to continue with an organization. Whether it is attending certain sporting, reading books on a specific topic, or spending time doing yard work, individuals tend to have strong preferences for activities that they find interesting. Although we may not often stop to consider it, our interests have a significant influence over the approach we take towards an activity, as well as how we decide to spend our time on various tasks. This same principle, that we are motivated to do activities we find interesting, also impacts the way employees act in the workplace (Campbell & Putka, 2011, Boerchi & Magnano, 2015).

Vocational interests refer to individuals' preferences with respect to various career- relevant activities (Lent, Brown, & Hackett, 2002). Vocational interests are thought to be a result of the interaction between cultural and personal factors (Holland, 1985). The process of developing the vocational interests starts with a preference for some activities over others, then these references are developing into strong interests, which then turns into certain competencies, which in the final step creates a personal disposition that lead the person to think and act in special ways (Holland, 1985).

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In past research, factor analysis has been the primary exploratory tool to identify basic interest dimensions such as vocational interests. The structure of each type of vocational interest is characterized by commonalities in the preference for specific activities such as selling, teaching, or organizing, and are often represented in specific objects of interest such as science religion, or art. Guilford, Christensen, Bond, and Sutton (1954) administered a 1000 item interest inventory to Air Force personnel in an effort to find some basic dimensions of interests. Seventeen factors emerged from which six were clearly directed towards vocational interests. Holland (1966) suggested a similar set of six vocational interest dimensions that have become Building on the findings of this study, one of the most widely studied models of vocational interests. The theory of career personalities has shed important light on the idea of pairing individuals with vocational environments. Some empirical studies have shown that different vocational areas are dominated by individuals with distinctive career personalities (e.g. Toomey,Levinson,& Morrison,2008;Yu & Alvi,1996). Career personalities refer to individuals' preferences with respect to various career-relevant activities (Lent, Brown, & Hackett, 2002).

Holland proposed a structural model of vocational interests that defined the relations between each of his six interest types. These six types or interests were placed within a hexagonal representation of vocational interests with adjacent types being the most related to each other. The distances between interests or types in the hexagon are thought to approximate the intercorrelations among the interests and the distances between the types indicating the degree of the relationship. This structural hypothesis has been confirmed by many individual studies (Laudeman, 1975., Rounds, 1995., Yu., and Alvi,1996). Holland acknowledges that categorizing people into one of six types is unacceptable because this might imply that there are only six different types of people. Instead, he explains that there is a wide variety of individual variation among people and their levels of interest in different activities, but he believes that these six categories represent a simple ordering of an individual's resemblance to each type (Rounds, 1995).

During the past four decades, the theory of career personalities (Holland,1973) has been broadly examined by researchers and applied to the practical area of career counseling (Poitras, Guay,& Ratlle,2012). Holland (1973) established the theory of career personalities by categorizing the career personalities of human beings into six main types: realistic (R), Investigative (I), Artistic (A), social (S), Enterprising (E), and conventional (C). According to Holland, the relations among the six types of career personalities can be described by a hexagonal model in which each type of career personality occupies one angle in the order of RIASEC (Lippaa,1998). Based on the hexagonal model, it is assumed that the correlations between career personalities that are adjacent to each other (e.g., R & I) are stronger than those between career personalities that are not adjacent to each other (e.g., R & A), and the correlations between career personalities that are located opposite to each other (e.g., R & S) are the weakest. The RIASEC model has been validated across different societies, including the United States, and China (Ebehardt and Machinsky,1984, Yang, Lance, & Hui, 2006).

Some studied indicated for a probable relationship between students' academic majors and

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their vocational interests. For example, Laudeman (1975) compared vocational interest scores across six different academic major groups using Holland's RIASEC model and found d that engineering students scored the highest in Realistic interests, education students scored the highest in Social interests, accounting students scored the highest in Conventional interests, marketing students scored the highest in Enterprising interests, and arts and music students scored the highest in Artistic interests. In terms of performance or GP A in the case of students, Lowman and Leeman (1998) found that Investigative (sometimes known as Intellectual) interests were associated with higher grade point average as might be expected, but most of the research examining performance and satisfaction outcomes have generally done so through the examination of congruence.

Significance of the study

As establishing Valid And reliable psychological scales appropriate for the Emirati society is one of the most important targets for all psychologists, educators, and researchers at in UAE. All attempting to participate effectively and efficiently in the process of producing such standardized psychological tools and instruments to be used with the Emirati population. Creating a valid and reliable scale to measure UAE students' vocational interests is one of the most vital goals of the emirate's society, namely for the ministry of education in the UAE. The main purpose of such scale is to identify middle and high students career preferences in UAE assuming that such preferences or interests might have direct and indirect effects on their achievement, attitudes, and future academic and career plans. To accomplish that goal a group of researchers in UAEU had been designed the target scale (Al Najjar, Nassar, Dodeen, Alshiakh, Deiban, & Darwesh, 2018). The reliability and the content validity of ESVI-R scale were established. However, the construct validity which is a more sophisticated technique for establishing the validity of an instrument based upon statistical evidences (Kumar, 2005) was not enough in the case of ESVI-R. Hence, the main purpose of the current research is to establish statistical evidences about the construct validity of The Emirates Scale for Vocational Interests- Revised (ESVI-R) via using the confirmatory factor analysis technique.

METHOD PARTICIPANTS

The sample of this study consisted of students in middle and high schools in the UAE. The sample is composed of 1920 students, 866 (45.1%) of which are males and 1054 (54.9%) of which are female. The sample contained students from grades Ninth to twelfth, 227 students (11.8%) from grad ninth, 608 students (31.9 %) form grade tenth,579 students (30.2 %) from grad eleventh, and 506 students (26.4 %) form grad twelfth. They were selected randomly from the different middle and high schools located in the different emirates. Their ages ranged from 14 to 20 years, with a mean age of 15.9 years.

Instrumentation

The Emirate Scale for Vocational Interests- Revised (ESVI-R) enhanced by Alnajjar, Dodeen, Alshaikh, Nassar, Daiban, and Darwish (2018) consisted of 84 items, all of which have been stated in Arabic to ensure that students comprehend the exact meaning for each item. The respondents were asked to respond for each item via a two point's response scale points,

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yes, if they think that statement or vocational type fits their interests, or no if they think that it doesn't fit their interests. ESVI-R was designed to assess the vocational interests of UAE middle and high students. That scale is the modified version of the original Emirates Scale for Vocational Interests (ESVI) developed by Al Ghorani, Dodeen, Darwish, and Farghali (2010). Later, that scale had been used to measure UAE school students' vocational interests (Alnajjar,2017). The main two reasons that recognized the need for such modification, based on the opinions or the perceptions of the experts in the UAE ministry of education are that the old version was too long and more importantly, it does not include the updated types of jobs such as the work in the fields of space or artificial intelligence. Hence, ESVI-R has some fields or types of jobs haven't existed in the old version of the same scale. The Emirates Scale for Vocational Interests-Revised is composed of the following twelve sub-scales with the corresponding number of items: Literary Interests, 7 items; Police / Military Interests, 7 items; Economic and real estate Interests, 7 items; Scientific Interests,7 items; Engineering Interests,7 items; Medical / health Interests, 7 items; Tourism and Archeology Interests, 7 items; law Interests, 7 items; Humanities Interests, 7 items; Educational Interests, 7 items.; Information technology and artificial intelligence Interests, 7 items; political Interests, 7 items.
The research instrument was administered by school counselors in students' classroom setting where the students were requested to answer each item individually. Data collection lasted approximately 25 min per classroom.

Reliability and content validity evidences of ESVI-R:
The subscales reliability was found to be high with alpha coefficients ranging from 0.69 to 0.87 for the total sample. Six senior psychologists evaluated the content validity of the instrument. The consensus among them ranged from 83 % to 100% for all items. In terms of construct validity, the correlation between each item and the total score for each sub-scale was computed to determine the internal consistency as an indicator of the scale validity. All correlations were relatively high and positive (Alnajjar et al., 2018).

Factor analysis and the construct validity of ESVI-R
Factor analysis has become such a widely used technique for estimation of construct validity (Laura,1999, Stevens,1996). Construct validity refers to the extent to which a test measures the concept or construct that it is intended to measure (Tuckman.1999). Reyment and Joreskog (1993) had been defined the factor analysis as a generic term that we use to describe a number of methods designed to analyze interrelationships within a set of variables or objects [resulting in] the construction of a few hypothetical variables (or objects),called factors, that are supposed to contain the essential information in a larger set of observed variables or objects .... that reduces the overall complexity of the data by taking advantage of inherent interdependencies [and so] a small number of factors will usually account for approximately the same amount of information as do the much larger set of original observations. (p. 71). Gorsuch (1983) indicated that the purpose of factor analysis "is to summarize the interrelationships among the variables in a concise but accurate manner as an aid in conceptualization" (p. 2).

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Determining the appropriate type of factor analysis to be applied as a statistical technique to verify the validity of the research instruments one of the most important issues in psychological and educational research. According to Stevens (1996). The purpose of exploratory factor analysis is to identify the factor structure or model for a set of variables. This often involves determining how many factors exist, as well as the pattern of the factor loadings ... EFA is generally considered to be more of a theory-generating than a theory-testing procedure. In contrast, confirmatory factor analysis (CFA) is generally based on a strong theoretical and/or empirical foundation that allows the researchers to specify an exact factor model in advance. This model usually specifies which variables will load on which factors, as well as such things as which factors are correlated. It is more of a theory-testing procedure than is EFA. (p. 389). Since the main aim of establishing ESVI-R was to examine UAE students' vocational interests based on the different old and updated types of existing jobs that available in the UAE market; instead of examining the structure of the scale according to the strong theoretical background, EFA might fits that aim more than CFA. In other words, although the researchers who designed ESVI-had been taken into consideration the general frame of Holland's vocational interests' theory, they didn't design the different dimensions and the items of ESVI-R to reflect the exact or precise structure of that theory. reversely, the main aim was to explore UAE middle and high school students' vocational interests on the light of the available jobs in UAE. For this reason, the authors of this research believe that EFA should be used to explore whether the number of dimensions or types of jobs that available in ESVI-R is suitable to measure the assumed or the observed types of jobs in UAE public and private sectors.

Data Analysis Procedure

To achieve the main aim of the present study, factor analysis as data reduction procedure in IBM SPSS Statistics 25 was used; moreover, the principal component analysis was utilized as the extraction method, with applying the direct oblimin with Kaiser normalization as a rotation technique. Bryant and Yarnold (1995, p. 132) define the rotation as "a procedure in which the eigenvectors (factors) are rotated in an attempt to achieve simple structure." The reason that justifies the researchers' decision about using direct oblimin as a rotation method is the notable number of the factor correlations that exceeded the value of .32 (Tabachnick and Fiddell, 2007). According to Tabachnick and Fiddell (2007, p. 646) who argue that "Perhaps the best way to decide between orthogonal and oblique rotation is to request oblique rotation [e.g., direct oblimin or promax from SPSS] with the desired number of factors and look at the correlations among factors…if factor correlations are not driven by the data, the solution remains nearly orthogonal. Look at the factor correlation matrix for correlations around .32 and above. If correlations exceed .32, then there is 10% (or more) overlap in variance among factors, enough variance to warrant oblique rotation unless there are compelling reasons for orthogonal rotation."

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Exploratory factor analysis results:

Descriptive statistics and correlation matrix results

The descriptive statistics results show that the means of respondents' scores on the items of ESVI-R ranged from .17 to .92 with standard deviations ranged from .37 to .74 (only two standard deviation values exceeds .5), these results indicate that most of the items of the scale were able to reflect the variation among the respondents in terms of measuring their vocational extract the correlation coefficient matrix between the respondents' scores on all the items of ESVI-R, the results revealed different levels were negative, however, most of the other correlations were positive. The most important results of this correlation matrix were that the items have a specific pattern of the relationships. As some of which have a strong correlation coefficient between each other and low correlation coefficients with the other items. These results indicate the existence of a specific number of factors or latent variables that can be used to explain a significant percentage of the total variation in respondents scores on ESVI-R.

KMO and Bartlett's tests results.

In order to examine the adequacy of the used sample in the current study, KMO test (Kaiser-Meyer Olkin measure of sampling) was used. This statistic indicates the proportion of variance in the variables (items) that might be caused by underlying factors. High values (close to 1.0) generally indicate that factor analysis may be useful with the data. If the value is less than 0.50, the results of the factor analysis probably won't be very useful (Kumaraswamy, 2012). Fortunately, in the present study, that value was satisfactory .923 which means that using factor analysis to analyze the data was valid. In addition, Bartlett's test of sphericity that tests the hypothesis that the correlation matrix is an identity matrix, which would indicate that the variables (items) are unrelated and therefore unsuitable for structure detection. Small values (less than 0.05) of the significance level indicate that factor analysis may be useful with the existing data (Lee and Kang, 2018). The results of that test in this study revealed that Chi-Square value was relatively very large and significant (P> 0.01), which means that the items are related and appropriate for structure deduction.

Communalities

Communalities indicate the common variance shared by factors with given variables or items. In other words, according to Stevens (1996), a communality of a variable (or item) is the amount of variance on a variable accounted for by the set of factors (p. 366). Higher communality indicated that a larger amount of the variance in the variable has been extracted by the factor solution. In general, the higher the mean of communalities the more accurate the measurement of factor analysis (Watkins, 2018). The value of communalities is one of the important criteria that must be considered for deciding on how many components or factors to retain, and its playing very essential role in determining the appropriate method or technique to be used to achieve that goal (Stevens,1996). The communality values(see table 1) that extracted through the data of the present study ranged from .28 to .68 (96% of the values were ≥ .4 and 63%≥ .5) with a mean of .485 which is to some extent an important indicator the role of the obtained factors in explaining the variation within the variables or the items of ESVI-R.

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Table 1
The communalities for the ESVI-R items

Item	com	Item	com	Item	com	Item	com	item	com	item	com
1	.461	15	.517	29	.481	43	.384	57	.587	71	.706
2	.740	16	.536	30	.429	44	.417	58	.456	72	.540
3	.680	17	.428	31	.571	45	.651	59	.501	73	.526
4	.674	18	.673	32	.426	46	.583	60	.538	74	.546
5	.539	19	.427	33	.300	47	.634	61	.407	75	.602
6	.574	20	.606	34	.534	48	.555	62	.433	76	.527
7	.425	21	.457	35	.554	49	.688	63	.593	77	.626
8	.418	22	.436	36	.608	50	.430	64	.396	78	.526
9	.528	23	.486	37	.563	51	.423	65	.553	79	.563
10	.435	24	.599	38	.682	52	.489	66	.566	80	.590
11	.464	25	.582	39	.563	53	.516	67	.555	81	.624
12	.602	26	.661	40	.605	54	.669	68	.563	82	.632
13	.728	27	.466	41	.473	55	.513	69	.469	83	.508
14	.488	28	.429	42	.688	56	.641	70	.587	84	.639

Com: communality

Two methods to decide how many components to retain

The main aim of exploratory factor analysis is to reduce the number of variables or items to a limited number of components or factors, yet, they should be able to explain a significant proportion of the total variation of the phenomenon. Determining the number of components or factors to retain in an exploratory factor analysis still one of the controversial issues in scientific research (Kristopher, Guangjian, Cheongtag, Gerhard, 2013., Ruscio, and Roche,2012). In other words, the goal of the researchers is to determine the number of "major" factors underlying a battery of measures. Importantly, errors in the selection of the number of factors in a model can have a substantial effect on the results obtained (e.g., Comrey. 1978; Fava & Velicer, 1992; Wood, Tataryn, & Gorsuch, 1996).

Probably, the most used criteria to determine the number of the retained factors is Kiser as it retains only the components or factors that their eigenvalues are greater than 1(Stevens, 1996., Everett, 1983). According to Stevens (1996. p.366) using this technique will retention only the most important factors, however, blind use could lead to retaining factors which may have no practical significance in terms of the proportion of the explained variance of the total variation through these factors. In general, using Kiser rule (Eigenvalue > 1) might be not the correct decision in the case of large number of variables(40 or more) and low communalities(around .4 or less), however, the same criterion could identify the correct number of factors in the case of the small number of variables ranged (10 to 15) or moderate (20 to 30)and the values of communalities are high(> .7)(Stevens, 1996, p. 366).

The second procedure that used in the present study to determine the number of retained factors, is the scree plot, which was created by cattle (1966). This method is performed based on a visual inspection of the Scree plot. However, according to Ledesma., Valero-Mora., Pedro., &

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Macbeth (2015), the Scree plot may at times be ambiguous and open to interpretation. In one of their paper, the same researchers aimed to explore several graphical and computational improvements to the Scree plot in order to make it more valid and informative. These enhancements are based on dynamic and interactive data visualization tools and range from adding Parallel Analysis results to "linking" the Scree plot with other graphics, such as factor-loadings plots. To illustrate their proposed improvements, they introduce and describe an example based on real data on which a principal component analysis was appropriate. They attempted to provide better graphical tools to help researchers to determine the number of factors to retain. The scree test involves plotting the eigenvalues in descending order of their magnitude against their factor numbers and determining where they level off. The break between the steep slope and a leveling off indicates the number of meaningful factors, different from random error. The technique is illustrated and compared with alternative techniques for determining the number of factors to retain (Zoski., and Jurs,1996).

As shown in table 2, In the present, after using Kiser rule the items of ESVI-R loaded on 16 factors or components. in other words, the eigenvalues for those 16 components were greater than 1. Factor 1 explained 14.35% of the variance. The rotated factor loadings show that factor 1 was comprised of 7 items namely: 6, 20,26,38,59,68, and 77, all of which reported on two points scale (0,1). The factor loadings for the mentioned items range from .494 to .792. As all of the factor loadings for the reported items were greater than .4, it's obvious that factor 1 has been loaded adequately with those items These items estimating UAE school students vocational interests toward jobs or actions related to law (e.g. Lawyer, judge, prosecutor) therefore, factor 1 can be called law vocational interests.

Moreover, table 2 revealed that Factor 2 explained 7.82% of the variance. Via the rotated factor loading, it can be noted that factor 2 contained 7 items namely: 12,39,1,23,43,33, and 58 measured on two points scale (0,1). The factor loadings for the mentioned items range from .484 to .760. Since all the factor loadings for the reported items were greater than .4, it's obvious that factor 2 has been loaded sufficiently with those items. All of the mentioned items are measuring UAE school students scientific vocational interests or their interests toward jobs or occupations related to natural sciences (e.g. researchers in a scientific laboratory, physicist, seismologist) .

Regarding Factor 3, table 2 revealed that Factor 3 explained 4.96% of the variance. In addition, the rotated factor loadings indicate that factor 3 contained 7 items namely: 49,3,36,24,15,16 and 72 reported on two points scale (0,1). The factor loadings for these items range from .588 to .823. As the factor loadings for those 7 items were greater than .4, it's obvious that factor has been loaded sufficiently with those items. Finally, all the mentioned items are measuring UAE school students' scientific vocational interests or their interests toward jobs or careers related to medical / health Interests (Doctor, Nurse, Medical Laboratory Analyst).

Concerning Factor 4, table 2 exposed that Factor 4 explained 3.78% of the variance. Furthermore, the rotated factor loadings indicate that factor 4 contained 4 items namely: 71, 47, 84, and 31 reported on two points scale (0,1). The factor loadings range from .484 to .760.

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As all the factor loadings for the reported items were greater than .4, it's clear that factor 4 has been loaded satisfactorily with those items. All of the mentioned items are measuring UAE school students' tourism vocational interests or their interests toward jobs or careers related to truism(e.g. Tour guide, tour operator, consultant in the tourist office).

Based on table 2 results 3.16% of the variance can be explained via factor 5. Furthermore, the rotated factor loadings show that factor 5 contained 7 items namely: 45, 4,18,67,32,21, and 4 reported on two points scale (0,1). The factor loadings range from .573 to .810. As all the factor loadings for the mentioned items were greater than .4, it's possible to conclude that factor 5 has been loaded acceptably with those items. All the mentioned items are measuring UAE school students' Police / Military vocational interests or their interests toward jobs or occupations related to police or military (e.g. policeman, a soldier in the army).

Furthermore, according to table 2 results factor 6 explained 2.87% of the variance. Also, the rotated factor loadings display that factor 6 composed of 6 items namely: 46, 37, 14, 44,61, and 51 reported on two points scale (0,1). The factor loadings range from .316 to .736. As all the factor loadings related to the mentioned items were greater than .3 (Costello and Osborne, 2005., Stevens,1996), it's plausible to conclude that factor 6 has been loaded suitably with those items. All the reported items are measuring UAE school students' humanities vocational interests or their interests toward jobs or occupations related to humanities (e.g. psychologist, sociologist, social work specialist).

In addition, table 2 exposed that Factor 7 explained 2.5% of the variance. The rotated factor loadings indicate that factor 7 composed of 7 items namely: 42, 56, 80, 28, 35, 22, and 5 reported on two points scale (0,1). The factor loadings for the reported items range from .361 to .838. As all the factor loadings for the mentioned items were greater than .4, it's clear that factor 4 has been loaded acceptably with those items. All the reported items are measuring UAE school students' Economic and real estate Interests vocational interests or their interests toward jobs or careers related to that domain (e.g. accountant, financial analysts, Real Estate Tycoon).

Further, table 2 results show that 2.28% of the variance can be explained via factor 8. Also, the rotated factor loadings show that factor 8 contained 4 items namely: 53, 17,10, and 69 reported on two points scale (0,1). The factor loadings for those items range from .322 to .492. As all the factor loadings for the previous items were greater than .3 (Costello and Osborne, 2005., Stevens,1996), it's possible to conclude that factor 8 has been loaded adequately with those items. All of the mentioned items are measuring UAE school students' educational vocational interests or their interests toward jobs or occupations related to education(e.g. teacher, the school principal, school psychologist).

Moreover, according to table 2 results factor 9 explained 2.14% of the variance. In addition, the rotated factor loadings display that factor 9 consisted of 7 items namely: 63, 57,70,79,48,83, and 55 reported on two points scale (0,1) with factor loadings range from .485 to .794. As all the factor loading for the mentioned items were greater than .3 (Costello and Osborne, 2005.,

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Stevens,1996), it's conceivable to conclude that factor 9 has been loaded appropriately with those items. All the reported items are measuring UAE school students' Information technology and artificial intelligence vocational interests or their interests toward jobs or occupations related to that area (e.g. Computer Systems Analyst, Programmer, Computer and robotics Maintenance).

Additionally, table 2 revealed that Factor 10 explained 1.83% of the variance. Via the rotated factor loading, it can be noted that factor 2 contained 7 items namely: 7,9,52,64,74, 78, and 81 measured on two points scale (0,1). The factor loadings for the mentioned items range from .370 to .755. Since all the factor loadings for the reported items were greater than .4, it's obvious that factor 10 has been loaded sufficiently with those items. All the mentioned items are measuring UAE school students' political vocational interests or their interests toward jobs or occupations related to that field (e.g. Diplomat, consul, ambassador).

The eleventh explored Factor based on table 2 results explained 1.66% of the variance. Furthermore, the rotated factor loadings indicate that factor 11 contained 4 items namely: 2, 13, 19, and 50 reported on two points scale (0,1). The factor loadings range from .309 to .844. As all the factor loadings for the reported items were greater than .3, it's clear that factor 4 has been loaded satisfactorily with those items. All the mentioned items are related to UAE school students' engineering vocational interests or their interests toward jobs or careers related to that domain (e.g. Civil engineer, aeronautical engineer, architect).

Further, table 2 results show that 1.51% of the variance can be explained via factor 12. Also, the rotated factor loadings show that factor 12 contained 7 items namely: 11, 27,40,60,65.73 and 76 reported on two points scale (0,1). The factor loadings for those items range from .420 to .742. As all the factor loadings for the previous items were greater than .4 (Costello and Osborne, 2005., Stevens,1996), it's possible to conclude that factor 12 has been loaded adequately with those items. All the mentioned items are measuring UAE school students' Literary vocational interests or their interests toward jobs or occupations related to that area (e.g. Author of novels, poet, writer).

The thirteenth explored Factor according to table 2 results explained 1.42% of the variance. Additionally, the rotated factor loadings indicate that factor 13 contained 3 items namely: 25, 54, and 75 reported on two points scale (0,1). The factor loadings range from .741 to .802. As all the factor loadings for the mentioned items were greater than .4, it's obvious that factor 13 has been loaded satisfactorily with those items. All the mentioned items are related to UAE school students' vocational interests related to the field of energy, or their interests toward jobs or careers related to that domain (e.g. expert in the renewable energy, electrical engineer).The fourteenth extracted Factor according to table 2 results explained 1.3% of the variance. Based on the rotated factor loadings results, that factor contained only one item that is item number 62 in ESVI-R reported on two points scale (0,1). The factor loading for that item was .547. As factor 14 includes only one item and the statement of that item "I enjoy teaching others" is very loose, that could be applied into different situations, the researchers of the present study decided to ignore that factor via removing item 62 from ESVI-R. In this context, Stevens (1996)

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warned of the blind use of Kaiser criterion as the result of such practice could be retaining factors which may have no practical significance (i.e. the percentage of variance they accounted for is small or very small). In addition, (Stevens, 1996, p. 366) stated that "generally [Kaiser] criterion was accurate to fairly accurate, with gross overestimation occurring only with a large number of variables (40) and low communalities (around .4). [however], the criterion is more accurate when the number of variables is small (10 to 15) or moderate (20 to 30) and the communalities are high (>.7)". That could be a logical justification for the obtained results related to factor 14 in the present study as the number of items(variables) was very large (84) with moderate communalities.

The Fifteenth explored Factor according to table 2 results explained 1.28% of the variance. Moreover, the rotated factor loadings indicate that factor 15 composed of 3 items namely: 30, 34, and 69 reported on two points scale (0,1). The factor loadings range from .32 to .62. As all the factor loadings for the mentioned items were greater than .3, it's apparent that factor 15 has been loaded satisfactorily with those items. All the mentioned items are related to UAE school students' vocational interests related to the field of special education, or their interests toward jobs or careers related to that area (e.g. teacher for disabled students, a teacher for blinds and visually impaired students).The last extracted factor in the current study (i.e. factor 16), according to table 2 results consisted of 4 items, namely: 8,29,66, and 82. The factor loadings for factor 16 with those items rang from.544 to .750. All the mentioned items are measuring UAE school students' Archaeological vocational interests related to the field of Archaeology, or their interests toward jobs or careers related to that area (e.g. Archaeologist).

Table 2
The explained variance by the obtained components based on Kaiser criterion

	Initial Eigenvalues		
Component	Total	*Variance Explained*	Cumulative %
1	12.055	14.351	14.351
2	6.571	7.822	22.174
3	4.170	4.965	27.138
4	3.176	3.781	30.919
5	2.657	3.163	34.082
6	2.412	2.871	36.954
7	2.101	2.501	39.455
8	1.916	2.280	41.735
9	1.801	2.144	43.879
10	1.539	1.833	45.712
11	1.399	1.666	47.377
12	1.274	1.517	48.894
13	1.200	1.429	50.323
14	1.095	1.303	51.627
15	1.077	1.282	52.908
16	1.047	1.246	54.155

Extraction Method: Principal Component Analysis.
Scree test or scree plot results

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Finally, the other approach that had been used to determine the number of factors or components to retain in the current study , was through creating a scree plot (Cattel,1966), i.e. a graph of the eigenvalues (y-axis) of all the factors (x-axis) where the factors are listed in decreasing order of their eigenvalues (as we did in principal component analysis). The mechanism of this technique is to retain all the factors above (i.e. to the left of) the inflection point (i.e. the point where the curve starts to levels off) and eliminate any factor below (i.e. to the right of) the inflection point. Since the curve isn't necessarily smooth there can be multiple inflection points and so the actual cutoff point can be subjective. Scree test or scree plot results (see figure1) for the present study confirmed the number of significant factors obtained through using Kaiser criterion (eigenvalue >1), In this regard, Tabachnick, and Fidell (1996) suggested that the outcomes of factor extraction are parallel regardless of which method is used.

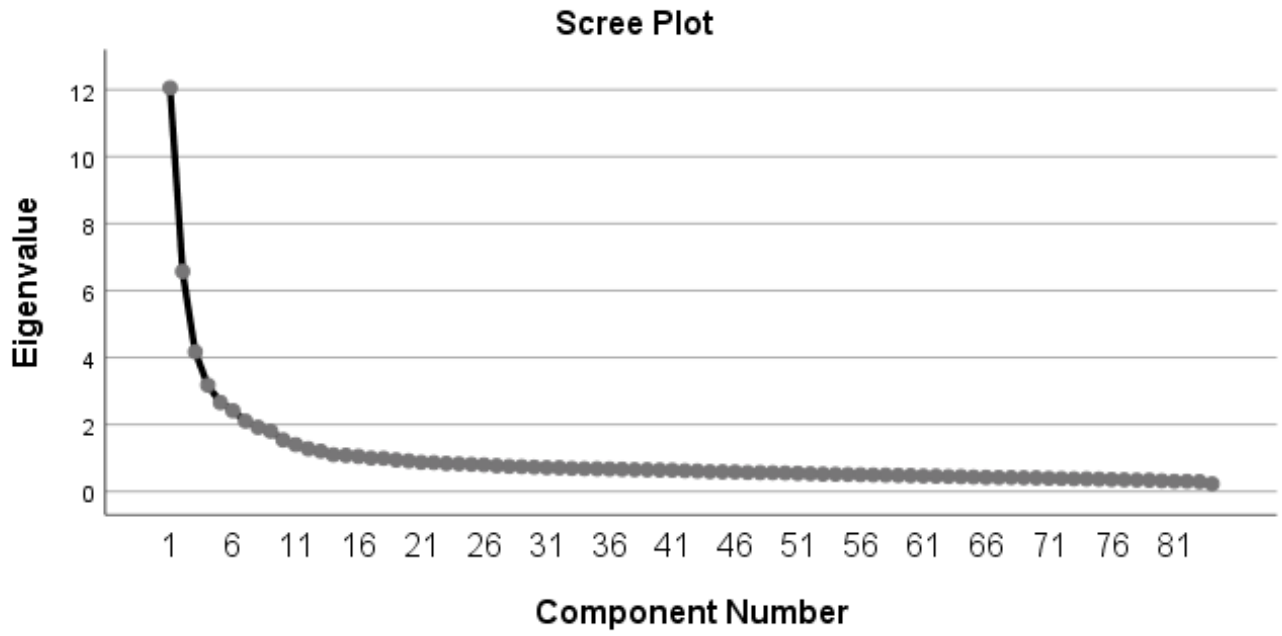

Figure 1. Scree plot for data that most likely have 16 underlying factors.

CONCLUSION

The results of the exploratory analysis showed that 15 factors can be used to explain 52.85% of the variance of UAE middle and high school scores variation on ESVI-R. In other words, 52.85% of the total variation of UAE students' data on ESVI-R is accounted for by those 15 extracted factors or components. Such a percentage might be considered acceptable or satisfactory. However, the observed percentage was below the target explained variance as some researchers reported that the minimum acceptable variance explained in factor analysis

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for a construct to be valid is 60% (Hair, Black, Babin, and Anderson, 2013). In this regard, according to Stevens (1996), if an appropriate method of determining the number of components or factors to retain is used, it should be able to retain as many factors as will account for a specified amount of total variance. However, in general, "one would want [the extracted components] to account for at least 70% of the total variance (Stevens,1996, p.367).

Based on the Exploratory factor analysis results of the present study the items of ESVI-R can be classified into 15 dimension or types of vocational interests. having a specific domain that reflects UAE students 'vocational interests related to jobs in the field of energy was interesting results, from the researchers' point of view. as these results revealed UAE students' interests in getting jobs in the most essential sector in their country., as the economics of UAE like most Gulf countries rely heavily on that field. The second impressing result was related to students' awareness about the importance of dealing with people who need special education. The last result indicates for a satisfactory level of humanity and tolerance among UAE middle and high school students. However, educators and curriculum designers shouldn't consider that level as a peak, so they must offer UAE students more knowledge and skills to be able to contribute significantly to this national and worldwide task. Moreover, the results of the present study revealed Archaeological vocational interests among UAE students. In other words, UAE students realize the critical role of that field for their country although it might not be the best filed in terms of the financial outcome.

Finally, Although ESVI-R has a reasonable and acceptable level of construct validity, still, it needs more serious work, either in terms of clarifying the language or the words of the different items (via using simple and familiar words) or in ensuring that these items are represented in specific dimensions or areas and in a way that accurately measures the UAE students vocational interests.

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