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National Standardization of the Occupational Field Interest Inventory (OFII) for Turkish Culture According to Age and Gender

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Abstract

Problem statement: Interest can be defined as "when an individual pays attention to an object without special effort, maintains her/his attention for a long time, and is aware of and transforms this attentiveness into a response and an attitude." Vocational interests indicate an individual's feelings about employment, courses of study, hobbies, free time activities and life choices. A multitude of interest inventories are used for measuring vocational interest throughout the world. Currently in the Republic of Turkey, however, there are very few available interest inventories being utilized for educational and/or research purposes. Most of them are only used to established norms.

Purpose of the Study. The aim of this study is to create a standardization process which incorporates the values to be used as norms in Occupational Field Interest Inventories (Mesleki Alan İlgi Envanteri-OFII)'s for sub-dimensions according to age (13-19+ years old) and gender in Turkey.

Method: The application has been performed in Level 1 of Nomenclature of Territorial Units for Statistics (NUTS). Twelve provinces, one from each region, were used in this application. Within the research group, a sampling method based on probability was used. Participants ranged in age from 11 to 26, but most (98.8%) were between 13 and 20. The participants consisted of 3799 students, 51% men (n=1936) and 49% women (n=1863). The data for the study was collected online using the OFII during a period of approximately one month. In this study, independent samples t test and two-way ANOVA were used for the significance of mean difference.

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Findings and Results: There were significant differences favoring men in six sub-dimensions: mathematics, computer, agriculture-outdoor, engineering, political-financial sciences and sciences ($p<.001$). Seven sub-dimensions favored women: psychology, education, Turkish language, health ($p<.001$), fine arts, law ($p<.01$), and foreign language ($p<.05$). According to the common effect of gender and age, the differences in engineering ($p<.001$), mathematics, psychology, agriculture-outdoor ($p<.01$), foreign language, visual arts, sciences ($p<.05$) were significant but in computer, education, Turkish language, law, communication, political-financial sciences and sciences, they were not significant.

Conclusions and Recomendations: At the end of this study, it was determined that the younger age groups, in particular those from 13 to 15 years of age, had interests in many sub-dimensions, which significantly differed from the 16, 17, 18, and 19+ year old males and females. This is reasonable given the age borders clarified in the literature in order to support these results. By taking into consideration the gained results and literature, an individual's interest score for one of the 14 sub-dimensions should be calculated with the help of formulas. It is then suggested that a 60 t score be used as a cutoff point in order to identify in which area the individual has the greatest interest.

***Keywords**: standardization of Turkish culture, age norm, gender norm, Occupational Field Interest Inventory (OFII)*

Edward K. Strong (1943), a leader in research studies in the study of vocational interests, explored the word "interest" as a kind of reaction such as "liking," "not liking," or "being oblivious" to someone, something or an action (cited in Herr & Cramer, 1996). According to *A Comprehensive Dictionary of Psychological and Psychoanalytic Terms* the word "interest" is defined as differentiationing an object or a case, or a kind of approach or sense which comes spontaneously (cited in Savickas, 1999). Strong, a leader in studies related to surveying vocational interests, followed the definition of interest according to *Webster's Dictionary*, which defines the word interest as "a kind of attention or coming into action towards an object." Strong highlighted four key elements in this definition: the first and second are the continuity of attention and sense related to an object; the third is heading towards (an individual approaches or moves away from something liked or disliked); and the fourth is activity (an individual is active about that which s/he is interested).

Some sociologists and psychologists have opposed the preceding definitions of interest. For example, the *Harper Collins Sociology Dictionary* highlights possible benefits of interest defining it as, "beneficial results for a private person or group." The National Career Development Association (2007) defines the word interest as "activities which are going to be performed by a person because that person thinks that s/he is going to enjoy those activities or s/he may enjoy those activities."

According to Holland, (1985) vocational interests are indicators of personality in terms of job, courses of study, hobbies, free time activities and choices. An individual responds to particular vocational interests, general vocations and activities with responses such as "I enjoy," "I do not enjoy" or "It does not matter." (Savickas, 1999) Despite the different points of view, there are many common issues in regard to defining vocational interest. On the basis of those given above, vocational/occupational interests can be redefined as an inherent process in which an individual pays attention to an object willingly without a special effort, carries on this attention for a long time and is aware of and transforms this into a response and an attitude.

Vocational interests can be categorized as expressed and measured. Expressed interests are usually determined through answers which are derived from open-ended questions. Measured interests occur when individuals discover their career choice in a better way than through an inventory of vocational interest. Even though there are different methods utilized to measure one's vocational interests, the most widespread methodology used is the inventory of interest (Silvia, 2006). One reason that the inventory of interest is widely used is that an individual expresses his/her own interests noting and comparing different vocations.

Lokan (1997) explains that vocational interests were generally measured in a paper-based fashion. More recently, as a result of technological developments, most measuring scales are applied by computers, which allow us to gather information easily, often via the Internet. Previously, vocational interests were determined according to an individual's affinity toward the people who practiced the vocation. With current trends, however, vocational interests are now measured according to an individual's enjoyment, satisfaction and happiness. Today's vocational inventories, which are widely used, name specific vocational activities. Harmon (1999) divided the measuring scales used for vocational interest into two parts: those based on empirical and homogeneous items, and the other according to developing style. In empirical scales, some expressions are given to people who work in a vocational areas and they are queried about whether they like or dislike the expressions. Using this format the most liked expressions can be determined for each vocation. In order to measure the vocational interest, it is accepted that these expressions reflect that area. For example, the expression "playing chess" is given to two different vocational groups such as law and education and the like-dislike conditions are determined. Presuming that jurists liked the expression 75%, and educators liked the expression 20%, the vocational interest of people who choose the expression "playing chess" is then reconciled with law. This example can be seen as overly simplified, but the thinking style associated with playing chess can also be a guideline for determining interests. Some scales that exemplify this group include the Strong Vocational Interest Blank, the Strong Interest Inventory-SII and the Kuder Occupational Interest Scales-KOIS. In the other scales based on homogeneous items the item groups are constituted reasonably or with various statistical technics (such as factor analysis) or using both methods. According to the fixed factor structures, the factors that the research incorporates can be concluded. The first scale developed using this technique was the Kuder Preference Record which contains ten factors (Harmon, 1999).

In Niles and Haris-Bowlsbey's (2002) opinion, in the twenty-first century people's choices of vocation will differ from the choices of the twentieth century. When some vocations disappear, other unknown vocations come to light and some vocations likely undergo big changes. As a result, the vocational expectations of individuals are sure to change, and for this reason the developed scales must be frequently updated.

There are some interest inventories which are currently used in Turkey, such as the Kuder Preference Record-Vocational, theKuder Career Search – KCSonline, the Self-Directed Search-SDS, the Academic Conceit Search, the Self-Rating Inventory, and Newspaper Reports Testing. However, there have not been any updated studies conducted on these scales. Additionally, none of the inventories have been standardized to reflect the Turkish culture.

The standard scores or cut scores are determined from the raw scores after the administration of the scale. Standard scores enable interpretation of the scores obtained from different ranges. When the tests having standard scores are administered, the results of the person's performance on the test are interpreted as norm-referenced (APA, 1999). Any standardization study should incorporate the norm values of the culture in question. While establishing such values, it is extremely important that the population that is being targeted by the scale be selected from throughout the country using a random sampling method based on probability. Although it has been determined that standardization studies have been conducted on certain scales that are used in social sciences throughout the Republic of Turkey, there are very few real standardizations. The studies that have been performed by collecting purposeful sampling cannot be deemed real standardization studies.

Hovardaoğlu and Sezgin (1997) and APA (1999) concur that it is very difficult and expensive to establish national norms. Therefore, the norms of some scales are generated by using the scores of a particular sample calculated in a certain period. According to APA (1999), these norms are named as user norms or program norms. There are some studies in which user norms have been used, e.g., Löwe et al., 2010; Löwe et al., 2008; Polat, 2006; Kılıç, Irak, Koçkar, Şener & Karakaş, 2002; Karakaş, Erdoğan, Sak, Soysal, Ulusoy, Ulusoy & Alkan, 1999.

The aim of this research is to create a standardization process which incorporates the values which will ultimately be used as norms in Occupational Field Interest Inventories (Mesleki Alan İlgi Envanteri-OFII)'s for specific sub-dimensions, according to age (13-19+ years old) and gender in the Republic of Turkey.

Method

Research Model

The research design for this study is considered survey research because the OFII was administered online. In addition, the study is quantitative in nature with the data being easily accessible.

Population and Sample

Within the scope of this research, a cluster sampling technique has been used. Cluster sampling is a probability sampling technique, a method by which samples are gathered in a process that gives all the elements in the population an equal chance of being selected. It is used when "natural" but relatively homogeneous groupings are evident in a statistical population. It also may be used when it is either impossible or impractical to compile an exhaustive list of the elements that make up the target population. In this technique, the total population is divided into groups (clusters/subpopulations) and a simple random sample of the groups is selected. Then the required information is collected from a simple random sample of the elements within each selected group. This may be done for every element in these groups or a subsample of elements may be selected within each of these groups. The research group sampling method was based on probability sampling.

The application has been performed in Level 1 of the Nomenclature of Territorial Units for Statistics (NUTS). In this application there were 12 provinces with one province from each region, and there were 24 counties bound to those 12 provinces (Artvin [Merkez, Borçka], Bitlis [Merkez, Tatvan], Hatay [Merkez, Dörtyol], İstanbul [Bakırköy, Pendik], Kars [Merkez, Sarıkamış], Konya [Hüyük, Meram], Manisa [Merkez, Gördes], Samsun [Havza, Atakum, İlkadım], Tekirdağ [Merkez, Malkara], Yozgat [Merkez, Akdağmadeni], Yalova [Merkez, Çiftlikköy] ve Kilis [Merkez]). Additionally, 184 schools were used. The distribution of the sample according to NUTS for Turkey is shown in Table 1.

Table 1.

Distribution of the Sample for Turkey According to NUTS

Codes of regions	*NUTS 1 (12 regions)*	*NUTS 2 (26 sub-regions)*	*NUTS 3 (81 provinces)*	*n*
TR1	İSTANBUL	İSTANBUL	İSTANBUL	313
TR2	BATI MARMARA	TEKİRDAĞ	TEKİRDAĞ	383
TR3	EGE	MANİSA	MANİSA	320
TR4	DOĞU MARMARA	KOCAELİ	YALOVA	304
TR5	BATI ANADOLU	KONYA	KONYA	233
TR6	AKDENİZ	ADANA	HATAY	335
TR7	ORTA ANADOLU	KAYSERİ	YOZGAT	356
TR8	BATI KARADENİZ	SAMSUN	SAMSUN	370
TR9	DOĞU KARADENİZ	TRABZON	ARTVİN	298
TRA	KUZEYDOĞU	AĞRI	KARS	333
TRB	ORTADOĞU ANADOLU	VAN	BİTLİS	334
TRC	GÜNEYDOĞU	GAZİANTEP	KİLİS	220
Total				3799

Table 1 indicates that a total of 3799 participants were distributed equally throughout 12 regions, which constitute the first level. The region with the most participants was Batı Marmara with 383 people, and the region with the least participants was Güneydoğu Anadolu with 220 people.

The participants were students from classrooms ranging from the 7th to the 12th grade. The number of students and grades were similar. Distribution of participants according to grades were as follows: 7th grade, 12% (n=447); 8th grade, 12% (n=450); 9th grade, 19% (n=730); 10th grade, 20% (n=782); 11th grade, 19% (n=708); and 12th grade, 18% (n=682).

A total of 184 schools participated including 68 primary schools (n=925) and 116 high schools (n=2874). The distribution of 116 high schools were according to types: basic high schools, 22 (n=571), anatolian high schools, 22 (n=602); vocational and anatolian vocational high schools, 21 (n=555); vocational religious and anatolian vocational religious high schools, 20 (n=441); girls' vocational and anatolian vocational high schools, 16 (n=396); science high schools 8 (n=125); tourism and hotel vocational high schools, 4 (n=103); and fine arts high schools, 3 (n=81).

Participants ranged in age from 11 to 26 but most of them (98.8%) were between 13 and 20. Students' age mean was 16.17 (median=16) and standard deviation 1.84. In addition, skewness 0.03 and kurtosis -0.35. It can be said that the sampling was distributed normally in terms of age. Fifty-one percent of the participants were men (n=1936) and 49% women (n=1863).

Research Instrument

Occupational Field Interest Inventory (Mesleki Alan İlgi Envanteri [MAİ], OFII).

This inventory was developed by Deniz (2009) and comprised of 14 dimensions, namely mathematics, computer, foreign language, visual arts, psychology, education, Turkish language, law, agriculture-outdoor, communication-mass media, engineering, political-financial sciences, sciences, and health. The OFII has two different applicable forms: a short form (72 items) and a long form (156 items). In this research the long form with 156 items was utilized. A description of the OFII sub-dimensions is given in Table 2.

Table 2.

Description of OFII Sub-Dimensions

OFII Fields	*Description of Interest Fields*
Education (Edu.)	Individuals willing to work in this field are keen on sharing their knowledge with other people as well as imparting information. They like to communicate with people and to deliver public speeches.
Agriculture-outdoor (Agr.)	Individuals eager to work in this field enjoy working in nature. They are fond of undertaking work that is related to soil and agricultural products and working outdoors.
Political-Financial Science (PF.)	Individuals enthusiastic to work in this field are keen on guiding, governing and leading the community. They like carrying out work associated with money and monetary policy, addressing crowds, and directing the masses.
Health (H.)	Individuals who enjoy working in this field love people and animals. They are interested in subjects related to human and animal health. They enjoy working in places such as hospitals and clinics for a long period of time.
Communication-Mass Media (Com.)	Individuals willing to work in this field like to communicate with people. They are fond of interviewing people and sharing the obtained information. They enjoy reaching people and the masses either through face-to-face communication or via mass media such as TV, radio and newspapers. They like to interpret people's ideas and to share their own.
Foreign Language (FL.)	Individuals enthusiastic to work in this field are interested in different languages and cultures. They are fond of finding out about various languages and cultures, learning more than one language, and making verbal and written translations among languages.
Turkish Language (TL.)	Individuals who are keen on working in this field enjoy investigating, learning and teaching Turkish language and culture. They are sensitive about the proper usage of the Turkish language.
Psychology (P.)	Individuals willing to work in this field have a very warm and understanding approach toward people. They find pleasure in taking care of people's psychological problems and in helping them. They also like to listen to people with patience and to show them a way out.
Law (L.)	Individuals eager to work in this field like to persuade people to their own ideas and beliefs. They are fond of seeking solutions to people's legal problems. They take pleasure in making contributions to proper realization of law in order to make the society equal and harmonious.
Computer (Comp.)	Individuals willing to work in this field enjoy working with computers. They prefer working with computers rather than communicating with people face-to-face. They prefer creating computer systems, working with mathematical codes, and writing computer programs.
Mathematics (Mat.)	Individuals who are keen on working in this field like to work alone and to deal with numbers. They enjoy spending extended hours working to solve problems that other people have difficulty in solving.
Science (Sci.)	Individuals enthusiastic to work in this field are keen on working in nature or in laboratories. They prefer completing their work alone to communicating with people. They like to conduct research, to perform experiments, and to work with plants, animals, chemical formulas and mechanical tools.
Engineering (Eng.)	Individuals willing to work in this field prefer working in industry facilities such as factories, mines, construction areas and open fields. They prefer working with machines, electronic and mechanical devices rather than people. They enjoy designing and drawing things.
Visual Arts (Vis.)	Individuals willing to work in this field are fond of reflecting their emotions and imagination through works of art such as paintings, sculptures and graphics. They like to work alone. They attach great importance to art and aesthetics.

Retrieved from Deniz (2009)

Validity and Reliability

The validity and reliability of the results obtained during the development period of OFII. Validity was conducted through an inventory of opinions from 88 academicians who have earned a PhD, all of whom were queried as to if the items reflected their areas of study. Also an exploratory factor analysis was completed and oriented toward the OFII's construct validity. At the end of this analysis the conclusion was that these 14 factors explained 49% of total variance. Confirmatory factor analysis was conducted and it was determined that fit indexes have values between 0.87 and 0.99. Other construct validity, inter-correlations between the 14 sub-dimensions of the inventory, have been examined and the values were between -0.43 and 0.50 including the median of calculated correlations r=0.07.

The estimated Cronbach α value for every dimension of the inventory changes between 0.79 (agriculture-outdoor) and 0.95 (law), and it was shown that the median value of reliabilities was 0.89. With the result of test/retest it was observed that reliability values changed between 0.79 (agriculture-outdoor) and 0.95 (law) and that the median value of reliabilities was 0.89. According to these results it was accepted that this inventory was reliable and valid. Also, because this inventory can be administered in 15-20 minutes, it has been accepted that this inventory is useful (Deniz, 2009).

In practice, this inventory can be answered in two different methods. In the first method, the participant chooses one item from each trio group and rates the chosen item (1 = Interests me very little, 5 = Interests me very much). In the second answering method, the participant rates every item on a scale from1 to 5. In this study, the data was collected using the second answering style format.

The results of the validity and the reliability for OFII gathered in this study

In some of the scale development and adaptation studies only confirmatory factor analysis (Kocayörük, 2010) was used in order to determine validity, while in some others exploratory and confirmatory factor analyses (Baltacıoğlu-Göktalay & Cangür, 2008; Talepasand, Alijani, & Bigdeli, 2010; Eren-Gümüş, 2010; Kapıkıran & Kapıkıran, 2011; Wu, Valcke, & Keer, 2012) were performed. In the study for developing the OFII (Deniz, 2009) and in this study, both exploratory and confirmatory factor analyses were applied to the OFII. The results of validity of the inventory within the context of this study were that for the exploratory factor analysis it was observed that there were 17 factors with eigenvalues above 1. It was also observed that in three of them there was only one item number (cutoff point 0.40) which had enough value to constitute factors, so 14 factor styles were upheld. After reducing the factor numbers to 14, the factor analysis was repeated and at the end of this analysis the explained variance level increased to 65% difference from the result of the original factor analysis. It was also recognized that some items of the sub-science dimension were related to the health dimension. This difference may be associated with the answering method thatwas used in order to develop the inventory. This method has been explained previously; for example, there are trio-group items and the participants choose one item.

Cronbach α coefficients of internal consistency regarding the sub-dimesions of the inventory were between 0.92 and 0.96. Health had the least coefficients of internal consistency, and mathematics and computers had the highest. It is expected that this value should be over 0.70 for inventory affective domain. It can be said that these values were adequately high.

Procedure

The data for this study was collected online from schools bound to the Turkish Ministry of Education. Meetings about the online usage of the inventory were arranged with managers of each of these schools. Whenever possible the inventory was performed in dedicated computer laborataries within the school. In schools which did not have computer laboratories the study was performed in the Counselor Researching Center accompanied by the counselor and school managers. A substructure of this online system was prepared and administered by the Ministry of Education General Management of Education Technologies(Eğitim Teknolojileri Genel Müdürlüğü). The system was open for nearly a month and the applications were completed within this time frame. A total of 3799 participants who fully completed the inventory were included in the study.

Analysis of Data

From the collected data, descriptive statistics were obtained for every sub-dimension according to gender and age. In order to designate the significance of the difference between the means of inventory scores of gender groups, an independent samples t test was used. In order to designate the significance of the difference between age and gender groups two-way ANOVA was used.

The OFII scores regarding the age and sex of individuals was calculated with the help of t score. The mean and the standard deviation values belonging to each sub-dimensions were used for calculated t score. T score was used for the level of a person's interest:

$$Z = \frac{Individual's\ score - \bar{X}}{S_x} \quad \text{(formula 1)} \qquad t = 10.z + 50 \quad \text{(formula 2)}$$

An example. An individual who is 13 years old and a male. The raw score of mathematics sub-dimension is 52. When Table 4 has been analyzed, it has been seen that $\bar{X}$=36,2 S_x=12 is belong to 13 years old men.

$$z = \frac{52 - 36,2}{12} = 1,32 \qquad t = 1,32*10+50 = 63,2$$

Findings and Results

According to gender, the descriptive statistics related to the 14 sub-dimensions were calculated. The results of the t test directed towards comparisons of means for every independent group were gathered. It was observed that there was no important deviation from the normal distribution for every sub-dimension.

Descriptive statistics of the 14 sub-dimensions of the OFII according to gender have been provided in Table 3.

Table 3.

Descriptive Statistics of The 14 Sub-Dimensions of the OFII According to Gender

OFII's sub-dimensions		Men (n=1936)					Women (n=1863)				
		M	*Mdn*	S_x	*S.*	*K.*	*M*	*Mdn.*	S_x	*S.*	*K.*
1	M	3	3	1	0	-	2	29,00	13,	0	-
2	C	3	4	1	-	-	3	30,00	12,	0	-
3	F	3	3	1	0	-	3	34,00	14,	0	-
4	V	3	3	1	-	-	3	36,00	11,	-	-
5	P	3	3	1	-	-	3	39,00	11,	-	-
6	E	3	3	1	-	-	4	42,00	11,	-	-
7	T	3	3	1	-	-	3	35,00	12,	-	-
8	L	3	3	1	-	-	3	37,00	12,	-	-
9	A	3	3	1	-	-	2	27,00	11,	0	-
1	C	3	3	1	-	-	3	35,00	11,	-	-
1	E	3	3	1	-	-	3	31,00	11,	0	-
1	P	3	3	1	-	-	3	33,00	11,	0	-
1	S	3	3	1	-	-	3	32,00	12,	0	-
1	H	3	3	1	-	-	3	39,00	11,	-	-

M: Mean, Mdn:Median, S:Skewness, K:Kurtosis

When Table 3 has been analyzed it is seen that agriculture has the lowest mean both men and women (M_{men}=32,17, M_{women}=27,71), and for women education has the highest mean (*M*=40,01) for men computer has the highest mean (*M*=39,47). It has been seen that means and medians in every sub-dimension are similar. In addition co-efficients of skewness and kurtosis are generally between -1; +1 which is accepted as standard normal distribution. The results of t test related to if there is a significant difference in sub-dimensions according to gender are provided in Table 4.

Table 4.

The Results of t Test According to Gender

		Men(n=1936)			Women(n=1863)			
		M	***Md***	S_x	***M***	***Mdn***	S_x	***t***
1.	Mathematics	32,6	33	12,5	29,60	29	13,2	7,20***
2.	Computer	39,4	41	11,8	30,63	30	12,4	22,42***
3.	Foreign Language	33,7	34	12,6	34,74	34	14,1	-2,30*
4.	Visual Arts	34,7	35	10,4	35,73	36	11,2	-2,77**
5.	Psychology	32,3	33	10,7	37,97	39	11,1	-
6.	Education	36,3	37	10,8	40,01	42	11,1	-10,35***
7.	Turkish Language	32,9	33	11,2	34,64	35	12,4	-4,36***
8.	Law	34,7	35	11,5	35,88	37	12,7	-2,90**
9.	Agriculture-Outdoor	32,1	32	10,9	27,71	27	11,2	12,39***
1	Communication-Mass	34,0	34	10,3	34,62	35	11,4	-1,70
1	Engineering	37,5	39	10,2	31,40	31	11,1	17,61***
1	Political-Financial	37,0	37	11,2	34,01	33	11,9	8,11***
1	Sciences	34,5	35	11,3	31,91	32	12,2	6,92***
1	Health	34,9	36	10,5	37,54	39	11,0	-7,35***

****p<.001; **p<.01; *p<.05*

When Table 4 is analyzed, it is evident that there is an significant difference in the 13 sub-dimensions with the exception of communication-mass media. There were significant differences in favor of men in six sub-dimensions such as mathematics, computers, agriculture-outdoor, engineering, political-financial sciences and sciences (p<.001). To the contrary, there were significant differences in favor of women in seven sub-dimensions such as psychology, education, Turkish language, health (p<.001), fine arts, law (p<.01), and foreign languages (p<.05). The results of two-way ANOVA related significant differences in sub-dimensions according to gender, age and common effect of gender and age. These are listed in Table 5.

Table 5.

The Results of Two-Way ANOVA According to Gender, Age and Common Effects of Gender and age

	Men (n=1936)				Women (n=1863)			Two-way ANOVA				
	Age	*n*	*M*	S_x	*n*	*M*	S_x	*Source*	*Sum of squares*	*df*	*Mean square*	*F*	
Mat.	13	166	36.2	12.0	173	36.8	13.0	G	9772.2	1	9772.2	61.4	***
	14	224	35.3	12.1	226	32.4	13.2	A	24172.5	6	4028.8	25.3	***
	15	292	33,9	12,4	300	31,1	12,8	G*A	2389,4	6	398,2	2,5	**
	16	335	33.0	12.6	365	29.5	13.1	Error	601937.4	3785	159.0		
	17	354	31.7	12.6	341	26.4	12.1	Total	637100.3	3798			
	18	352	30.1	12.3	331	27.6	13.3						
	19+	213	30,3	12,3	127	25,4	12,4						
Comp.	13	166	41.6	11.2	173	34.6	12.0	G	76422.3	1	76422.3	529.0	***
	14	224	42.1	10.6	226	32.6	12.6	A	10469.3	6	1744.9	12.1	***
	15	292	40,4	10,9	300	31,0	11,9	G*A	1152,4	6	192,1	1,3	
	16	335	39.6	11.5	365	30.9	12.4	Error	546828.2	3785	144.5		
	17	354	39.0	12.2	341	28.5	12.6	Total	632540.8	3798			
	18	352	37.8	12.6	331	30.1	12.5						
	19+	213	37,2	12,6	127	27,3	11.5						
F.L.	13	166	37.4	11.8	173	40.2	13.9	G	661.0	1	661.0	3.8	
	14	224	35.4	12.3	226	37.2	14.3	A	17787.3	6	2964.6	17.0	***
	15	292	35.2	12.7	300	36.6	13.3	G*A	2477.5	6	412.9	2.4	*
	16	335	33.0	12.4	365	35.5	14.4	Error	661181.4	3785	174.7		
	17	354	32.8	12.8	341	31.2	13.7	Total	682391.5	3798			
	18	352	32.1	13.1	331	32.8	14.1						
	19+	213	32.6	12.2	127	30.8	12.9						
Vis.	13	166	36.3	10.3	173	38.9	10.3	G	771.2	1	771.2	6.7	**
	14	224	36.4	10.1	226	36.3	11.5	A	3851.4	6	641.9	5.5	***
	15	292	33.9	9.8	300	35.4	11.2	G*A	1689.6	6	281.6	2.4	*
	16	335	34,2	10,3	365	36,4	10,7	Error	438463,1	3785	115,8		
	17	354	34.5	10.4	341	34.0	11.2	Total	444900.6	3798			
	18	352	34.5	10.9	331	36.2	11.4						
	19+	213	34,6	11,1	127	32,9	11,6						
P.	13	166	34.8	9.6	173	37.5	11.1	G	30154.5	1	30154.5	253.0	***
	14	224	32.9	10.4	226	37.7	11.4	A	553.6	6	92.3	0.8	
	15	292	31,6	10,7	300	37,9	11,4	G*A	2542,3	6	423,7	3,6	**
	16	335	30.9	10.4	365	39.1	10.9	Error	451043.7	3785	119.2		
	17	354	32.3	10.5	341	38.1	11.1	Total	484369.6	3798			
	18	352	32,0	11,5	331	37,6	11,0						
	19+	213	33.6	11.1	127	36.7	11.3						

Edu.	13	166	38.7	9.9	173	44.2	9.0	G	13108.0	1	13108.0	110.1	***
	14	224	37.6	10.6	226	40.3	11.9	A	5543.9	6	924.0	7.8	***
	15	292	35,2	10,9	300	39,9	10,7	G*A	1078,6	6	179,8	1,5	
	16	335	34.7	10.5	365	39.5	11.3	Error	450813.7	3785	119.1		
	17	354	36.3	10.5	341	38.9	11.3	Total	470337.2	3798			
	18	352	36,3	11,0	331	39,2	11,5						
	19+	213	37.5	11.6	127	40.6	10.7						
T.L	13	166	35.8	10.2	173	37.7	10.9	G	2596.0	1	2596.0	18.7	***
	14	224	35.4	10.0	226	36.8	12.4	A	7198.9	6	1199.8	8.6	***
	15	292	32.6	11.4	300	34.8	12.5	G*A	694.7	6	115.8	0.8	
	16	335	31.0	10.8	365	34.2	12.8	Error	525733.8	3785	138.9		
	17	354	32.8	11.2	341	33.7	12.2	Total	536307.6	3798			
	18	352	32.5	12.1	331	33.2	12.5						
	19+	213	32.9	11.8	127	34.0	12.7						
Law	13	166	36.9	10.8	173	37.4	12.0	G	1197.1	1	1197.1	8.1	**
	14	224	36.0	10.6	226	37.6	12.6	A	3067.7	6	511.3	3.5	**
	15	292	34.2	11.4	300	36.7	12.9	G*A	987.7	6	164.6	1.1	
	16	335	33.4	11.0	365	35.7	12.8	Error	557121.0	3785	147.2		
	17	354	34.5	11.8	341	34.5	13.1	Total	562420.7	3798			
	18	352	34.8	12.4	331	35.2	12.6						
	19+	213	35.0	11.8	127	34.8	12.8						
Agr.	13	166	33.1	10.5	173	32.0	11.2	G	19240.4	1	19240.4	158.7	***
	14	224	33.7	10.0	226	29.4	11.4	A	5533.1	6	922.2	7.6	***
	15	292	32.4	10.9	300	28.1	11.4	G*A	2177.7	6	363.0	3.0	**
	16	335	31.6	11.3	365	28.1	11.4	Error	458788.5	3785	121.2		
	17	354	31.4	10.8	341	25.8	10.5	Total	485377.2	3798			
	18	352	31.6	11.4	331	26.5	11.1						
	19+	213	32.8	11.1	127	25.2	10.6						
Com.	13	166	35.1	9.9	173	37.4	11.0	G	285.4	1	285.4	2.4	
	14	224	35.7	10.2	226	35.9	11.0	A	3151.2	6	525.2	4.4	***
	15	292	33.4	10.2	300	34.5	11.2	G*A	865.7	6	144.3	1.2	
	16	335	33.2	10.6	365	34.6	11.4	Error	449006.5	3785	118.6		
	17	354	33.9	10.0	341	33.6	11.3	Total	453368.5	3798			
	18	352	34.1	10.8	331	34.4	11.8						
	19+	213	33.7	10.7	127	32.4	12.2						
Eng.	13	166	38.2	10.0	173	35.8	10.5	G	36658.4	1	36658.4	326.1	***
	14	224	38.4	9.7	226	33.5	11.5	A	6020.9	6	1003.5	8.9	***
	15	292	38.2	10.0	300	31.1	10.8	G*A	2808.3	6	468.1	4.2	***
	16	335	37.7	10.0	365	32.1	10.9	Error	425505.9	3785	112.4		
	17	354	36.9	10.6	341	29.1	10.8	Total	469913.7	3798			
	18	352	36.8	10.8	331	31.0	11.2						
	19+	213	37.0	10.6	127	27.8	10.6						

Table 5 continue…

P.F.	13	166	38.8	10.6	173	36.5	11.6	G	8934.5	1	8934.5	66.6	***
	14	224	37.8	10.5	226	35.6	12.5	A	3293.1	6	548.9	4.1	***
	15	292	36.3	11.1	300	34.4	12.3	G*A	1197.0	6	199.5	1.5	
	16	335	35.6	11.0	365	33.3	11.6	Error	507721.7	3785	134.1		
	17	354	37.3	11.5	341	32.6	11.8	Total	521102.4	3798			
	18	352	37.4	11.9	331	34.2	11.8						
	19+	213	37.3	11.5	127	32.2	11.8						
Sci.	13	166	39.4	10.4	173	38.3	11.4	G	7733.7	1	7733.7	59.3	***
	14	224	37.7	10.6	226	36.2	11.8	A	29896.2	6	4982.7	38.2	***
	15	292	35.7	10.5	300	33.8	11.8	G*A	1783.1	6	297.2	2.3	*
	16	335	34,5	11,4	365	31,8	11,8	Error	493991,8	3785	130,5		
	17	354	33.1	11.3	341	28.9	11.6	Total	532319.9	3798			
	18	352	32.0	11.9	331	29.3	12.1						
	19+	213	32.8	11.0	127	26.6	11.2						
H.	13	166	38.4	9.4	173	40.6	10.6	G	5802.1	1	5802.1	50.9	***
	14	224	36.6	9.9	226	40.3	10.6	A	11221.0	6	1870.2	16.4	***
	15	292	35,6	10,4	300	39,5	10,8	G*A	1428,8	6	238,1	2,1	
	16	335	34.3	10.8	365	37.7	10.4	Error	431048.9	3785	113.9		
	17	354	34.0	10.3	341	35.5	11.5	Total	450019.9	3798			
	18	352	33.3	11.0	331	35.4	11.5						
	19+	213	34.9	10,6	127	34.6	10,4						

*G:Gender, A:Age, G*A:Gender *Age; ***p<.001; **p<.01; *p<.05*

Note: In this study 19+ is utilized as meaning 19-26 age groups

In Table 5, the differences according to gender in mathematics, computer, psychology, education, Turkish language, agriculture-outdoor, engineering, political-financial sciences, sciences, health (p<.001), visual arts and law (p<.01) are significant, but in foreign language and communication the differences are not significant.

The differences according to age in mathematics, computer, foreign language, visual arts, education, Turkish language, agriculture, communication, engineering, political-financial sciences, sciences, health (p<.001) and law (p<.01) are significant, but in psychology the differences are not significant. If it is necessary to summarize the comparisons of post-hoc in addition to these results.

It is seen that:

- In the mathematics sub-dimension, 13 year old individuals differ from all the other age groups except 14 year old individuals; 14 and 15 year old individuals differ from 16, 17, 18, 19+ year old individuals;

- In computer sub-dimension, 13 year old individuals differ from17, 18, 19+;
- In foreign language sub-dimension, 13, 14, 15 year old individuals differ from 17,18,19+;
- In visual arts sub-dimension, 13 year old individuals differ from 17 and 19+;
- In education sub-dimension, 13 year old individuals differ from 15, 16, 17 and 18;
- In Turkish language sub-dimension, 13 year old individuals differ from 16, 17 and 18; 14 year old individuals differ from 16 and 18;
- In agriculture sub-dimension, 13 year old individuals differ from 17 and 18;
- In engineering sub-dimension, 13 year old individuals differ from all the other age groups except 14; 14 year old individuals differ from 16, 17, 18 and 19+; 15 year old individuals differ from 17, 18 and 19+;
- In health sub-dimension, 13 year old individuals differ from 16, 17, 18 and19+; 14 year old individuals differ from 17, 18 and 19+; 15 year old individuals differ from 17 and 18.

According to the common effect of gender and age, the differences in engineering ($p<.001$), mathematics, psychology, agriculture-outdoor ($p<.01$), foreign language, visual arts, sciences ($p<.05$) are significant, but in computer, education, Turkish language, law, communication, political-financial sciences and sciences the differences are not significant. In summary, without mentioning post-hoc comparisons because there are hundreds of them, it can be seen that in engineering, mathematics, psychology and agriculture sub-dimensions in parallel with the results of age variability both men and women who are 13 and 14 years old usually have significant differences when they were compared to upper age groups. Also, there are significant differences both in the same or near age groups and the opposite sex in engineering and mathematics sub-dimensions which are significant in terms of gender. In some sub-dimensions such as agriculture-outdoor and psychology the significant differences are usually from the opposite sex.

Discussion Conclusion

In this study, research findings related to the OFII, which were obtained from the responses of 3799 students who study in public schools and are between 13-20 years old, have been shared. The aim of this study, by administering this inventory to these age groups and different genders, was to constitute standard values in order to put forth for consideration the level of vocational interest.

At the conclusion of this study, a significant difference was observed in the younger age groups' interests in many sub-dimensions, as 13, 14 and 15 (especially 13), significantly differed from the opposite sexes who were 16, 17, 18, and 19+ years old. So it can be said that there are serious differences between pre-15 year olds and post-15 year olds when determining interests. This is an important finding for Turkey in terms of high school types and area choices. Therefore, vocational interests can change after selecting an area of study in high school. The results noted that the first year in high school is early to choose a domain. In addition to this finding, it has

been seen that in every sub-dimension the interests of 17, 18, and 19+ year old individuals do not significantly differ from each other. This finding is concurrent with the age border which has been clarified in the literature in order to make interests clear or stable (Hansen, 2005; Rottinghaus, Coon, Gaffey, & Zytowski, 2007). The results of this study are the results of a cross-sectional study; however, according to Rottinghaus et al. the longitudinal studies that have been conducted in this field support these results (Hansen & Swanson, 1983; Lubinski, Benbow, & Ryan, 1995). Low, Yoon, Roberts, and Rounds (2005) have analyzed the stability of interests in different age groups with meta analysis which is a combination of 66 studies. It has been said that even the interests of early adolescents (for example, between 12-14) are very stable, yet after 18 the interests are very fixed throughout the rest of one's life. In another study, which supports Yoon et al.'s study, regarding stability of interest, Roberts and Delvecchio (2000) have compared the stability of interests and personalities. The study indicates that in all of different age groups between 12 and 40 interests give more permanent results than personalities. According to the findings of this study, the results of the OFII calculated as 19+, can be used for the individuals who are between 20 and 25 years of age.

According to gender comparisons, it was evident that men show interest in numerical and asocial areas (such as mathematics, computer, engineering, sciences) and women show interest in verbal and social areas (such as psychology, education, health, law), so these results can be viewed as concurring with Tay, Drasgow, Rounds, and Williams (2009); Su, Rounds, and Armstrong (2009); Deng, Armstrong, and Rounds (2007); Lippa (1998 and 2005); Low et al. (2005); Sayın, (2000); Rounds (1995). In a study that was conducted on children of ages 5-6 in Turkey, it was concluded that girls are more social than boys (Gülay, 2011). This is also consistent with the fact that girls tend to choose more social professions.

The significant differences in terms of age, gender and the common effect of age and gender reveal that there should be seperate reference scores according to age and gender groups in vocational interest inventories. The main statistics are mean and standard deviation, and they are used as reference scores in the studies of standardization. In these studies the critical border is used in order to display if they are decomposed or not in terms of the named feature. The cutoff point is $\bar{X}$ +1,5S_x(z score=1,5; t score=65) in some research (Nyenhuis et al., 1998; Butcher, 2011; Greene, 2011). For example, 65 t score has been chosen as the cutoff point for the Minnesota Multiphasic Personality Inventory-2 (MMPI-2), which has a standardization study, but many researchers say that in some special groups which have generally low values, this cutoff point can be reduced to 60 or 55. Also, Macmillan and Harpur (2003) point out that Kovacs (1992) used a 65 t score in the Children Depression Inventory and Reynolds and Richmond (1985) used a 66 t score as cutoff point in the Revised Children Manifest's Anxiety Scale. It is also cited that some researchers have used a 60 t score as cutoff point (Black et al., 2002; Achenbach, 1991).

By considering the obtained results and literature, an individual's interest score for one of 14 sub-dimensions should be calculated with the help of the formulas

below and from Table 5. First, the z score and then t score should be calculated. Then it is suggested that 60 t score should be used as the cutoff point in order to identify in which area the individual has more interest, but if the interests of the individual cannot be seperated clearly, the 65 t score should be used as the second cutoff point.

If we interpret the example of the method section (in analysis of data), it can be said that the person's interest in the mathematics sub-dimension is higher than the normal borders of his group. This comparison should be done in the other sub-dimensions. Those scores too which come from the other dimensions should be taken into consideration and then the individual should be informed.

There are many important points in interest inventories. One of them is that the results are not absolute. As a result, the individual should be informed that these results are flexible. Another point is that as with every inventory, the results of the OFII have some limitations. There should be another dimension other than 14 sub-dimensions of the OFII and this should be explained to the individual.

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(Özet)

Problem durumu

İlgi, bireyin isteği doğrultusunda, bir objeye karşı özel bir çaba olmaksızın dikkat ettiği, dikkatini uzun süre devam ettirdiği, farkında olduğu ve bunu tepki ve davranışa dönüştürmeye hazır olduğu içsel bir süreç olarak tanımalanabilir. Mesleki ilgi ise bir kişinin bir mesleğe ya da meslekle ilgili etkinliklere karşı gösterdiği hoşlanırım hoşlanmam veya fark etmez şeklindeki tepkileri olarak ifade edilmektedir. Yurt dışında yapılan pek çok çalışma ilgilerin cinsiyete ve özellikle ergenlik dönemindeki yaş aralıklarına göre farklılaştığını göstermektedir. Bu nedenle mesleki ilgi envanterlerinde cinsiyete ve ergenlik döneminin farklı yaş aralıklarına göre ayrı normlar oluşturulması gerektiği açıktır. Mesleki ilgilerin ölçülmesi konusunda Türkiye'deki ölçek sayısı oldukça sınırlıdır. Ayrıca bu ölçekler arasında güncel olanların sayısı daha da azdır. Bunun yanı sıra, bir ölçeği uyguladıktan sonra hangi değere göre ilgisi düşük ya da yüksek? Sorusuna yanıt olacak bir ölçüt değer de olması gerekir. Türkiye'deki en güncel ilgi envanterlerinden birisi araştırmacı tarafından 2008 yılında geliştirilen Mesleki Alan İlgi Envanteri (MAİ)'dir. MAİ 14 alt boyuta göre bireylerin ilgisini ortaya koyan bir ölçektir.

Araştırmanın Amacı

Bu çalışmanın amacı MAİ'nin yaş (13-19+ yaşları) ve cinsiyete göre norm olarak kullanılabilecek sınırlarını belirleyerek ölçeğin Türkiye genelinde, bu yaş aralığı için, standardizasyonunu yapmaktır.

Araştırmanın Yöntemi

Uygulama, Türkiye İstatistiki Bölge Birimleri Sınıflandırmasına göre (Nomenclature of Territorial Units for Statistics NUTS – Türkiye İBBS) düzey 1 içinden, her bölgeden bir il olmak üzere, 12 il'e bağlı 24 ilçede, kur'a yöntemiyle seçilen ve 184 devlet okulunda yapılmıştır. Uygulama yapılan 184 okuldan 68'i ilköğretim okulu ve 116'sı lisedir. Araştırma kapsamında olasılığa dayalı küme örnekleme yöntemi kullanıldığı için sonuçlar Türkiye'de 13-19+ yaşları arasındaki devlet okullarında eğitim gören bireylere genellenebilir. Katılımcıların yaşları 11 ile 26 arasında değişmekte olup çoğunluğu (%98,8) 13 ile 20 yaşları arasındadır. Araştırmaya katılan öğrencilerin yaş ortalaması 16,17 (medyan=16) ve standart sapması 1,84'tür. Katılımcıların %51'i (n=1936) erkek, %49'u (n=1863) kız öğrencilerden oluşmaktadır. Araştırmanın verileri MEB'e bağlı okullarda rehber öğretmen ve/veya okul yöneticisi eşliğinde bilgisayar ortamında toplanmıştır. Veriler 2009 yılında toplanmış olup, EĞİTEK tarafından oluşturulan sistem yaklaşık bir ay boyunca açık kalmış ve araştırmaya katılan öğrenciler 14 alt boyuttan oluşan MAİ'nin 156 maddelik formunu doldurmuşlardır. Çalışmada MAİ'nin geçerlik ve güvenirlik değerleri de test edilmiş ve MAİ geliştirme çalışmasındaki sonuçlarla uyumlu olduğu gözlenmiştir. Verilerin analiz edilmesinde betimsel istatistiklerin yanı sıra dağılımların normalliğinin test edilmesinden sonra bağımsız gruplar için t testi ve iki faktörlü ANOVA kullanılmıştır.

Araştırmanın Bulguları

MAİ alt boyutlarına göre iletişim dışındaki 13 alanda anlamlı bir farklılık olduğu gözlenmiştir. Matematik, Bilgisayar, Ziraat, Mühendislik, Siyasal-Mali Bilimler ve Fen Bilimleri($p<.001$) olmak üzere altı alanda erkekler lehine yüksek anlamlı fark varken, Psikoloji, Eğitim, Türk Dili, Sağlık($p<.001$), Görsel Sanatlar, Hukuk($p<.01$), Yabancı Dil($p<.05$) olmak üzere yedi alanda kızlar lehine yüksek anlamlı fark elde edilmiştir. Yaşa göre Matematik, Bilgisayar, Yabancı dil, Görsel sanatlar, Eğitim, Türk dili, Ziraat, İletişim, Mühendislik, Siyasal-Mali bilimler, Fen bilimleri, Sağlık ($p<.001$) ve Hukuk ($p<.01$) alanlarındaki fakların anlamlı olduğu, Psikoloji alanında ise anlamlı olmadığı görülmektedir. Cinsiyet ve yaşın ortak etkisine göre Mühendislik ($p<.001$), Matematik, Psikoloji, Ziraat($p<.01$), Yabancı dil, Görsel sanatlar, Fen bilimleri($p<.05$) alanlarındaki farkların anlamlı olduğu, Bilgisayar, Eğitim, Türk dili, Hukuk, İletişim, Siyasal-Mali bilimler ve Fen bilimleri alanlarında ise ortak etkinin anlamlı olmadığı görülmektedir. Ortak etki konusunda post-hoc karşılaştırmalarını özetlemek gerekirse, Mühendislik, Matematik, Psikoloji ve Ziraat alanlarında yaş değişkeni sonuçlarına paralel olarak 13 ve 14 yaşındaki hem kız hem de erkeklerin üst yaş gruplarındaki hemcinsleriyle ve karşı cinsleriyle çoğunlukla anlamlı farklılık gösterdiği gözlenmiştir.

Sonuç ve Öneriler

İlgilerin tespitinde 15 yaş öncesi ile sonrası dönem arasında ciddi değişikliklerin olduğu sonucuna ulaşılabilir. Bu durum Türkiye'de sıkça tartışılan lise türleri ve alan seçimi konusu için oldukça önemli bir bulgudur. Bu bulguya ek olarak 17, 18 ve 19+ yaş gruplarındaki bireylerin tüm alanlardaki ilgilerinin birbirlerinden anlamlı bir şekilde farklılaşmadığı sonucuna ulaşılmıştır. Bu da ilgilerin durağanlık ya da netleşmesi için literatürde (boylamsal ve kesitsel çalışmalarda) belirtilen yaş sınırıyla tutarlı görünmektedir. Cinsiyet açısından kadınların mesleki ilgilerinin sosyal alanlarda, erkeklerin ise nesne veya soyut kavramlarla çalışma gerektiren alanlarda anlamlı olarak yüksek çıktığı gözlenmektedir. Bu sonuca göre mesleki tercih yapacak olan kişiler cinsiyetlerini de dikkate almalıdır. Yaşa, cinsiyete ve yaş*cinsiyetin ortak etkisine göre elde edilen bu anlamlı farklılıklar mesleki ilgi envanterlerinde yaş ve cinsiyet gruplarına göre ayrı birer referans noktası olması gerektiğini ortaya koymaktadır. Standardizasyon çalışmalarında referans noktası olarak kullanılan iki temel istatistik aritmetik ortalama ve standart sapmadır. Bu istatistikler ve kişinin puanı kullanılarak önce z sonra da t puanı hesaplanır. Daha sonra o boyuta ilişkin ilgisinin yüksek olup olmadığını ortaya koyacak bir ölçüt (kesme puanı) belirlenir. Bazı çalışmalarda bu ölçüt 65 t puanı iken bazılarında ise 60 t puanıdır. Bu çalışmada kullanılması önerilen ölçüt 60 t puanıdır. Yani birey MAİ'nin hangi alanlarında 60 t puanından yüksek aldıysa o alanlarda ilgisi yüksek demektir. Çalışma sonunda Tablo 5'e dayanarak bir kişinin Türkiye ortalamasına göre cinsiyet ve yaş açısından MAİ'ye ait t puanının nasıl hesaplandığı ve yorumlandığı örnekle gösterilmiştir.

Anahtar Sözcükler: Mesleki Alan İlgi Envanteri(MAİ), ulusal standardizasyon, yaş normu, cinsiyet normu,