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A validation and reliability study of community service activities scale in Turkey: A social evaluation

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The purpose of this study is to test the reliability and validity of Community Service Activities Scale (CSAS) developed by Demir, Kaya and Taşdan (2012) with a view to identify perceptions of Faculty of Education students regarding community service activities. The participants of the study are 313 randomly chosen students who attend six different departments in Faculty of Education, Kafkas University. The data were analysed through exploratory and confirmatory factor analysis to enhance the construct validity. Internal consistency (Cronbach Alpha) co-efficiency was evaluated for the reliability of the instrument. A 33-item instrument with “Thinking Processes and Skills”, “Awareness” and “Benefit” subscales was developed as a result of the analyses conducted. Cronbach Alpha internal consistency co-efficiency that explains 55,046 % of the total variance was found .93, .90 for the first factor, .92 for the second factor and .73 for the third factor. Some fit statistics calculated with the same analysis are: (X²/df)= 2,54; RMSEA= 0,070; RMR= 0,085; GFI= 0,81; AGFI= 0,78; NNFI= 0,97; NFI= 0,96; CFI= 0,98.

Key words: Community service activities; learning; thinking; reliability; confirmatory factor analysis.

INTRODUCTION

Community Service Activities are experimental practice that students are required to apply to the theoretical knowledge of the lessons in non-profit community organizations. Educators, researchers, and legislators believe that Community Service Activities bring very important experiences in students (Nathan and Kielsmeier, 1991 cited in Shiarell et al., 2000; Rubin and Matthews, 2013). Community Service Activities gives the students an opportunity to develop various skills in issues such as team building, leadership, problem solving, communication, organization and how to make use of their time. (Tucker et al., 1998 cited in Shiarell et al., 2000; Simons et al., 2011).

Community Service Learning also prepares the

students for adulthood and citizenship by exposing them to be sensitive to the needs of the society and by showing them that they could make a difference when they use their time and skills for the benefit of the society (Smith, 1994 cited in Shiarell et al., 2000). Service learning provides students and instructors with additional means for reaching course objectives while applying content in community or school settings. In a teacher education program, it is much more effective to require students to apply course objectives in real life contexts and make relevant theoretical concepts, pedagogical techniques, and methodology concrete as opposed to the abstract concepts found in textbooks (Bernadowski et al., 2013). “Service-learning offers powerful opportunities to

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acquire the habits of critical thinking; that is, the ability to identify the most important questions or issues within a real-world situation" (<http://www.servicelearning.org> cited in Bernadowski et al., 2013; Kelly, 2013). In conclusion, Community Service Activities are usually an important part of the mission of universities and a property that they try to give their students in time (Cohen, 1994; Markus et al., 1993 cited in Shiarell et al., 2000).

Service-learning, is a way of teaching and learning where students participate in activities that respond to current human and community needs along with organized reflection opportunities that are purposefully designed to foster student learning and development (Jacoby and Associates, 1996 cited in Lamberton, 2012). Drawing from the vast data from the National Survey of Student Engagement, Kuh (2008 cited in Lamberton., 2012) presented ten high impact practices, which according to educational research, increase the student retention rate as well as student engagement both inside and outside of the classroom during the college years. Among the high impact practices are service-learning, learning communities, collaborative projects, diversity/global learning and internships. In addition to promoting and/or fostering the spiritual development of college students, these practices promote the overall health and wellness of the institutions that serve them (Lamberton, 2012). There are scales which are developed in foreign and domestic fields to measure Community Service Activities. One of those scales is Community Service Activities Scale (CSAS), which is developed by Shiarella et al. (2000). The scale has been switched with a more general term, in a way that Schwart's (1977) model fit volunteering. The volunteering here usually involves continuously helping people. Shiarella et al. (2000, cited in Shiarella et al., 2000) explain 65% of eight-factor variance in the scale of community service they developed. The Cronbah Alfa reliability coefficients related to the subscales of the scale are Awareness (Alfa=.78), Actions (alfa .83), Skill (alfa .82), Rules (alfa: .84), Empathy (alfa: .83), Costs (alfa: .85), Benefits (alfa: .80), Seriousness (alfa: .86) and Intention to participate in community service (alfa: .89).

Community Service Activities combine learning and teaching in classroom with service learning by integrating them within the boundaries of university (Zlotkowski, 1996; in Shiarella et al., 2000). It also enable the students to improve some of their skills such as teamwork, leadership, problem solving, communication and time management (Tucker et al., 1998). After the students attend the Community Service Activities, they become more interested and more knowledgeable about their works, they enjoy much more learning process, they improve their communication skills, and they raise their interest in community involvement (Bringle and Hatcher, 2009; Draper, 2004; Hatcher-Skeers and Aragon, 2002; Kalivas, 2008; Rizzolo et al., 2013). In literature review, it is seen that Community Service Activities in Turkey are

Examined with different perspectives by various researchers. Those sides are: "social responsibility" by Yılmaz (2011); "gaining the opinions of social studies teacher candidates on Community Service Activities lesson" by Sönmez (2010); "the perception related to Community Service Activities lesson" by Elma et al. (2010); "operation process of Community Service Activities lesson and views on its acquisitions" by Uğurlu and Kıral (2011); "development of social responsibility" by Saran et al. (2011: 28); "its contribution social life in the context of community service" by Öğülmüş (2006); "the evaluation of social studies teacher candidates on "Community Service Activities" by Gökçe (2011); and "Community Service Activities and authentic learning" by Horzum and Bektaş (2012).

In their study which they try to determine the individual and social results of Community Service Activities, Simons and Cleary (2006) establish that the students have improved themselves from the beginning of the term to the end in some issues such as sensitivity to the social differences, political awareness, social self-efficacy and citizenship relations (Elma et al., 2010). As for the results of some studies related to Community Service Activities, it is pointed out that it raises social and cognitive skills (Klute and Billig, 2002 cited in Stewart, 2012), social and cultural heritage are contacted (Billig et al., 2003 cited in Stewart, 2012), it also provides awareness for social problems and contribution to the rise of civil participation information (Melchior and Bailis, 2002 cited in Stewart, 2012), it improves problem-solving skills and moral evaluation (in reasoning) (Eyler et al., 1999 cited in Stewart, 2012), it raises more love and respect to different races (Stewart, 2009; Stewart and Bai, 2010 cited in Stewart, 2012), it raises political participation and political competence expectation (Billig et al., 2005 cited in Stewart, 2012), it raises the civil competence productivity expectations (Kahne and Westheimer, 2006 cited in Stewart, 2012), it improves advanced proficiency participants and skills which are required for civil engagement (Althof and Berkowitz, 2006 cited in Stewart, 2012), it improves the abilities which could connect interpersonal civic participation problems and social problems to academic learning (Eyler et al., 2001 cited in Stewart, 2012).

Developing the social awareness and participation skills of university students are closely associated with the effective use of awareness, understanding of individual and social benefits, thinking processes and skills of individuals. Individuals who are aware of learning skills of self-learning (planning, organization and evaluation) and people who develop them can contribute to social development. The general aim of the research, based on the above, is to develop an assessment instrument, the intent of which is to determine the level of suitability of learning and teaching environments at the level of Faculty of Education to improve service learning and to determine the awareness of teacher candidates on

Community Service Activities.

METHODOLOGY

Research model

The study is a research in which the development of "Community Service Activities Scale (CSAS)" at the level of Faculty of Education, and its validity and reliability are examined. In the process of measuring instrument development, these are respectively monitored as a way; preparing scale materials, receiving expert opinion for content validity, trial application, exploratory factor analysis and confirmatory factor analysis in data analyses, validity and reliability.

Population and sample

The research is constituted by the teacher candidates who received education at Kafkas University in 2011 to 2012 school years and who took the lesson of Community Service Activities. Of this population, 313 fourth-grade students who receive education in six departments (Classroom Teaching, Turkish Language Teaching, Science Teaching, Preschool Teaching, Psychological Counseling and Guidance and Social Sciences) determined with cluster sampling method, which is not based on probability, compose the sample of the research. Students who received community service course in different departments were included in the sample and thus enhanced "maximum variation". The purpose of this sampling method is to find the common points and similarities between various cases and to reveal different aspects of the problem according to this variation. Therefore, the present study made use of non-probability sampling method. 126 (40.3%) of the students are female, 175 (55.9%) of them are male and 12 (3.8%) of them didn't indicated their genders.

The process of preparing community service activities scale

The following steps, which are suggested by De Vellis (2003; cited in DeVellis, 2003), are applied in the process of preparing Community Service Activities Scales. Preparation of Item Pool: The process of developing Community Service Activities has been started with the studies related to the preparation of the item pool. First of all, related literature has been scanned and the information about which features these practices should have has been examined to improve community service learning in teacher candidates.

In the direction of these determinations, first draft articles have been written. The draft articles have been written in the way it would contain the behaviors which improve service learning and application environment sizes within the scope of the concept of "Community Service Activities", which are defined as operational. Those prepared items have carefully been reviewed and a pool of 65 items has been formed. Expert Opinion Studies of the Article Pool: The item pool has been reached to three experts to get expert opinion. While one of those experts is a person who works as a teacher in primary schools and who took the lesson of Community Service Activities within the scope of the schedule of his master degree; other two experts are academicians who work in the Department of Education Sciences at Kafkas University Faculty of Education, who lecture about Community Service Activities, and who are experts on the process of learning-teaching.

The Pilot Study of Community Service Activities Scale: 60-item trial scale, which has been prepared accordingly, has been applied on a 35-person group, who are the students of Social Sciences

Department, and it has been checked in terms of language and understanding. In line with the recommendations, some required arrangements have been made on the items in terms of statement and page layout. The 60-item trial scale, which has been finalized as a result of those studies, has been applied to 130 students of Faculty of Education, who were selected from the departments, in one session of the classroom and the actual application of the scale has been made. At the beginning of the factor analysis which is made to determine the factor structure of the Community Service Activities scale, Kaiser-Meyer-Olkin (KMO) coefficient and Barlett Sphericity test results have been examined to clarify whether the data are suitable to factor analysis, and those values have been seen to be statistically meaningful (KMO=0.89; Barlett Sphericity test $\chi^2 = 1,878$ df = 300 p<.001). In consequence of the pilot application of Community Service Activities Scale with 136 students, the Cronbach Alfa reliability value of a 25-item form is .89 in total, in the first sub-factor (14 items) .94, in the second sub-factor (6 items) .72 and in the third sub-factor (5 items) .48.

Confirmatory factor analysis has been applied to test the accuracy of the three-factor structure. Though there are many statistics for the data suitability of the model (Jöreskog and Sorbom 1993; in Çokluk et al., 2010), the indicators are usually χ^2 , χ^2/df , RMSEA, NNFI, CFI and GFI values (Çokluk et al., 2010). Confirmatory factor analysis, which has been made to examine how much the three-factor model is adjust with the data gathered, and chi-square value, which is calculated for model-data alignment, have been found meaningful ($\chi^2 = 1704.62$, df= 857, p<.01). When the four-factor model was examined, it was proved in consequence of DFA, conformity index values obtained RMSEA=.086 and $\chi^2/df=1.98$ value and RMR=0.069, STRMR=0.083, GFI=.063, AGFI=0.59, NFI=0.57, NNFI=0.71, CFI=0.73 and the values are seen to be appropriate with the suggested criteria. The standardized coefficients, which show the relations of the items with their factors change between .87 and .43 and all of them are meaningful at the level of .01. In general, analyzing the conformity indices of model, the model shows a good conformity by RMSEA=.086, $\chi^2/df=1.98$ (Tabachnick and Fidell, 2001), though it catches a conformity at a medium level.

Studies for criterion validit

Community Service Activities Scale, which was improved by Elma et al. (2010), has been dealt to examine the criterion-related validity of Community Service Activities Scale. The scale by Elma et al. has been applied to 415 students of Faculty of Education, Kaiser-Meyer-Olkin (KMO) coefficient and Barlett Sphericity test results have been examined and these values have statistically been found to be meaningful (KMO=0.687; Barlett Sphericity test $\chi^2 = 1732,474$, df = 378 p<.001). Cronbach Alfa value of the scale is also .88 in total. For this study, Community Service Activities Scale by Elma et al. (2010) has been applied to a 47-person group, Kaiser-Meyer-Olkin (KMO) coefficient and Barlett Sphericity test results have been examined, these values have statistically been found to be meaningful (KMO=0.62; Barlett Sphericity test $\chi^2 = 727,027$, df = 378 p<.001) and Cronbach Alfa value has been calculated as .87 in total.

Data analysis

Within the scope of the validity and reliability analyses of Community Service Activities Scale, consistency analysis on the data gathered has been made with Cronbach Alfa analysis for reliability, expert opinion for the content validity, exploratory and confirmatory factor analysis for construct validity and Community Service Scale for criterion validity.

The arithmetic average and standard deviation of the substances

and substance-total point correlations have also been examined; the resolving power of the substance has been calculated by t-test analysis. Arithmetic average, t-test, and one-way analysis of variance techniques have been used with the aim of comparing the data in terms of gender, participating the service learning activity before university education, participating the service learning activity during university education, the department variables.

FINDINGS

Findings in relation to structure validity and reliability of community service activities scale (CSAS)

In the analyses; coefficient of skewness and pointedness, correlation between item and total point, values of correlation matrix of items, mutual variance, factor loadings (at least 30), and the differences between factor loadings of items that are loaded to more than one factor (at least 29), of the items that have been taken into extent of scale, have been examined and 27 items have been needed to be taken out of the scale at the end of series of analysis. These processes have been done by using factor subtraction method orthogonal (varimax) turning gear operation of main components.

At the head of factor analyses done in order to specify factor structure of CSAS, the results of Kaiser-Meyer-Olkin (KMO) coefficient and BarlettSphericity test have been examined with the aim of specifying whether data are suitable for factor analysis.

These values are clearly seen to be statistically meaningful KMO= .94; BarlettSphericity test $X^2= 6.540$ $df= 528$ $p<.001$). As a consequence of application, of the Community Service Activities Scale (CSAS), done with 313 students; the values of three-dimensional 33 point form are in total like; Cronbah Alpha reliability value is .93, .93 in the first sub-factor (18 items), .92 in the second sub-factor (10 items), and .73 in the third sub-factor (5 items). The initial results of factor analysis have shown that the scale has 5 components whose eigen values are above 1.00. However; it has been clearly seen that items, collected under factors out of the first 3 components whose eigen values are above 2.00, are either very few in number (1 or 2 items) or they have got factor loading above .30 under the other components and charges under 2 components are so close to each other. When the line of Table eigen values (scree plot) has been examined, it is sighted that the most clear crash is in the third factor. In the process of deciding total factor number; eigen value, contribution percentage to total variance and scree plot are the most frequently used scales (DeVellis, 2003; Kalaycı, 2009). Cattell (cited in Akt et al., 2003) claims that factor number, until point that scree plot takes a horizontal shape, may be used to specify appropriate factor number. In addition to these values, item pool is generally prepared under these 3 main headings such as process and ability of thinking, awareness, and benefit. By taking this fact into consideration; factor analysis has been applied again by

being limited with these 3 factors. Below are shown on Table 1;

1. Factors that are obtained from factor analysis and reliability analyses reached at three iterations and resulted with a structure of 3 factors,
2. Factor loadings,
3. Factor eigenvalues,
4. Variance percentages and Cronbah Alpha values that factors explains,
5. Corrected item-total point correlation belonging to items,
6. Mutual variance,
7. t values.

The factor structure of CSAS has been analyzed with exploratory factor analysis (EFA) and Confirmatory Factor Analysis (CFA). Exploratory factor analysis aims to discover the factor structure based upon relations between variables. Confirmatory Factor Analysis examines model-data agreement, tests hypotheses established about relations between variables (Klein, 1998; Tabachnick and Fidell, 2001).

The first component obtained at the end of analyses is the aspect of "Thinking, process and skills" that consists of the items 19, 18, 21, 20, 23, 17, 26, 25, 27, 22, 24, 30, 31, 13, 5, 16, 15, and 8 which are related expressions that are necessary for thinking, process and skills. Some items taking part in this scale are such as; "I develop my abilities of organization/organizing by joining social services", "I develop my abilities of solving problem by joining social services", "I provide the conditions that learning opinions get into actions by joining social services". Factor loadings of 18 items being this sub-scale are between .34 and .79; their item-total point correlation is between .28 and .75; Cronbah Alpha coefficient of internal consistence is .90.

According to the results of exploratory factor analysis; the second component in CSAS consists of 10 items (item pool no: 11, 1, 10, 7, 12, 2, 9, 3, and 35) connected with aspect of awareness of social service applications such as; "There are people whose needs are not satisfied in the society." and "It is so important to develop societies in order to have a qualified society." Factor loadings belonging to items in this group are "Awareness" is between .54 and .81; item-total point correlation is between .57 and .69. However, Cronbah Alpha coefficient of internal consistence is .92. The third factor taking part in CSAS in the results of analysis consists of 5 items that deal with the aspect of benefit of service applications of university students, such as; Even if I join social service, I don't believe that something will change in this society." and "I think that I am conscious in learning by serving the society". This factor is named as "Benefit". Cronbah Alpha coefficient of internal consistence of these items in sub-scale (item no: 37, 38, 36, 42, and 43 items) is determined as .73; their factor loadings are between .59 and .80; however, item-total point correlation is between

Table 1. Factors in the community service activities scale (CSAS), factor loadings, variance percentages that factors explain, values of item-total point correlation (r).

Item No	F 1	F 2	F 3	\bar{X}	T	SS	r*
19	.79			3,81	-15,91	1,04	,75*
18	.78			3,83	-15,86	1,05	,68*
21	.78			3,87	-14,18	1,06	,73*
20	.77			3,94	-11,45	1,06	,70*
23	.75			3,87	-12,55	,98	,74*
17	.74			3,86	-12,54	,97	,66*
26	.74			3,74	-13,96	1,01	,70*
25	.73			3,86	-12,82	1,03	,73*
27	.72			3,80	-13,53	1,05	,70*
22	.72			3,91	-13,53	1,06	,73*
24	.70			3,82	-10,69	,99	,64*
30	.66			3,86	-12,40	,96	,65*
31	.60			3,96	-12,80	1,01	,67*
13	.59			3,97	-12,36	,95	,64*
5	.51			3,65	-7,92	1,03	,47*
16	.35			4,04	-3,85	3,04	,28*
15	.35			3,96	-6,03	1,91	,33*
8	.34			3,45	-5,80	1,23	,28*
11	.24	.81		4,36	-7,38	1,00	,62*
1	.27	.79		4,27	-8,93	1,20	,65*
10	.21	.78		4,39	-7,66	1,00	,58*
7	.31	.75		4,28	-8,53	,96	,66*
12	.26	.74		4,34	-7,39	,93	,61*
2	.38	.74		4,24	-9,26	1,12	,69*
9	.28	.65		4,30	-8,98	1,04	,58*
3	.36	.64		4,06	-8,80	1,11	,62*
6	.33	.60		4,08	-9,13	1,06	,61*
35	.36	.54		4,17	-7,74	,94	,57*
37			.80	2,33	,-94	1,36	-,03
38			.71	2,83	-2,48	1,10	,15*
36			.68	2,58	-1,21	1,44	,01
42			.67	2,97	-2,66	1,32	,15*
43		.29	.59	3,38	-4,56	1,24	,26*
Range	.34 -.79	.54 -.81	.59 -.80	2.33- 4.39	-.94 – -15.91	.93 - 3.04	Total
Eigenvalue	2.351	7.124					55.046
Variance %	27.23	20.14	7.67				55.046
Cronbach Alfa	.90	.92	.73				.93

*r: Item-total point correlation * the mark is meaningful in the .05 level.

Note: in terms of tracing easiness, factor loadings that are below.20 are not shown on the Table. F1: Process and ability of thinking; F2: Awareness; F3: Benefit

.35 and .26. Three sub-scales explain 55.046% of total variance. Cronbah Alpha coefficient of internal consistence relating to the whole scale is .93. Guttman Split Half values, that is calculated as the method of test half with the aim of getting opinions about stability of scale or consistence between its 2 half, are .86 for sub-scale "Thinking, process and skills"; .88 for sub-scale "Awareness"; .58 for sub-scale "Benefit"; and .82 for the whole

scale. When Table 1 is examined in terms of factor loadings, it is seen that factor loadings changes between .54 and .81. When it is regarded in terms of items loaded to more than one factor, it is seen that items have been usually loaded to the related sub-scales with the clear differences (generally .30 and more). Moreover, total points that persons from whom data are collected, are gotten from 30 items which are separately ordered from

Table 2. Correlation matrix with regard to sub-scales and total point of community service activities scale (CSAS), values of arithmetic mean, values of standard deviation.

	Thinking Processes and Skills	Awareness	Benefit	x	ss
Thinking Processes and Skills		,679**	,013	69,31	14,20
Awareness	,679**		-,006	42,55	8,09
Benefit	,013	-,006		14,11	4,53
Total	,936**	,839**	,222**	1,25	21,10

N=313 **p<0.01, *p<0.05

Table 3. Correlation matrix for community service activities scale (CSAS) total point and subscale, and CSA (Elma) total point and subscale.

	Thinking	Awareness	Benefit	CSAS Total	Socialization	Personal development	The way of lecture perception	Institution	Consultant	X	Ss	n
Thinking process and skills		,679**	,013	,936**	,550**	,633**	,622**	,532**	,383**	69,31	14,20	313
Awareness	,679**		-,006	,839**	,651**	,583**	,539**	,474**	,122	42,55	8,09	313
Benefit	,013	-,006		,222**	,233	,216	,085	,431**	,109	14,11	4,53	313
CSAS Total	,936**	,839**	,222**		,747**	,767**	,713**	,683**	,343*	1,25	21,10	313
Socialization	,550**	,651**	,233	,747**		839**	639**	689**	110	17,27	4,57	124
Personal development	,633**	,583**	,216	,767**	839**		637**	583**	213	13,45	4,04	124
The way of lecture perception	,622**	,539**	,085	,713**	639**	637**		555**	323*	19,33	4,15	124
Institution	,532**	,474**	,431**	,683**	689**	583**	555**		122	9,74	2,36	124
Consultant	,383**	,122	,109	,343*	110	213	323*	122		4,70	1,84	124
CSA Total	,701**	,650**	,256	,855**	908**	,897**	843**	758**	352*	64,50	13,72	124

**p<0.01, *p<0.05

the lowest to the highest for each item; and groups of 27% for both up and down have been formed; then it has been examined if items can distinguish these 2 groups from each other or not. At the end of this examination, it has been seen that all the items, except for 36th and 37th items, could distinguish groups meaningfully ($p<0.01$). Arithmetic mean belonging to the remaining 33 items changes between 2.33 and 4.39, standard deviations changes between .93 and 3.04. The following are shown on Table 2;

1. Correlation matrix with regard to sub-scales and total point of Community Service Activities Scale (CSAS),
2. Values of arithmetic mean,
3. Values of standard deviation.

As seen on Table 2; the first one of sub-scales in CSAS shows meaningful relations ($p<0.01$, $p<0.05$) with the second and total point, the total aspect of scale correlates with all the sub-scales ($p<0.01$, $p<0.05$). The sub-scale "Thinking, process and skills" shows a meaningful relation with the other second scale as .679 and with the total point as .936. The total also shows a meaningful relation with the sub-scale "Awareness" as .839 and with

the sub-scale "Benefit" as .222. The values of arithmetic mean with regard to total and sub-scales of CSAS changes between 69,31 and 1,25. The values of standard deviation with regard to total and sub-scales of CSAS changes between 14,20 and 21,10.

Findings in relation to validity of CSAS connected with standard

In order to examine the validity of similar scales of CSAS, CSA (Elma, 2010 cited in 10) has been applied to 47 students in Faculty of Education with CSAS and the correlation between points got from each two scale has been analyzed. Findings reached at the end of this analysis are presented on Table 3.

As seen on Table 3, Elma et al. (2010) Community Service Activities Scale (CSA) and the ones also developed by others (2010) do not show a significant relation in the 3rd subscale Demir and Community Service Activities Scale (CSAS), in total. However, it shows significant relations ($p<0.01$, $p<0.05$) with the total grade in the 1st and 2nd subscales. At the same time, Elma et al. (2010) Community Service Activities Scale (CSA) and

Table 4. Summary of fit indices from confirmatory factor analysis.

X2	df	X2/df	RMSEA	SRMR	NNFI	GFI	CFI	AGFI
1244.73	489	2.54	0.070	0.085	0.97	0.81	0.98	0.78

Note: CFI = comparative fit index; GFI = goodness of fit index; RMSEA = root mean squared error of approximation. $p < .01$.

the ones developed by others shows a significant relation ($p < 0.01$, $p < 0.05$) with socialization, personal development, perception method of lesson, institution and consultant subscales of the same scale. Subscale of socialization shows a significant relation with thinking, process and skills, awareness; total subscales and subscale of personal development shows a significant relation with thinking, process and skills and awareness with the total subscales positively. Whereas subscale of perception method of lesson shows a significant relation with thinking, process and skills, awareness and the total subscales positively; subscale of institution shows a significant relation with thinking, process and skills, awareness, benefit and the total subscales positively.

Confirmatory Factor Analysis (CFA)

Lots of fit indexes are used in order to evaluate validity of model in CFA. Chi-square Fit Testing, Goodness of Fit Index (GFI), Amended Goodness of Fit Index (AGFI), Square Root of Average Error (RMR or RMS) and Average Square Root of Approximate Errors (RMSEA) are the most frequently used ones among them. In literature, the fact that (x^2/df) rate calculated by CFA is less than 5 may be seen as a demonstration of the good fit with real data of model (35). It is expected that rates of GFI and AGFI are to be more than 0.90 and rates of RMS or standardized RMS and RMSEA are to be less than 0.05. On the other hand, GFI rate's being more than 0.85, AGFI rate's being more than 0.80 and RMS rate's being less than 0.10 are accepted as a criterion for the model's fit with real data (Anderson and Gerbing, 1984; Cole, 1984; Marsh et al., 1988 cited in Gülbahar and Büyükoztürk, 2008).

During research, confirmatory factor analysis has been applied to test the accuracy of three-factor structure identified as a result of exploratory factor analysis. Confirmatory factor analysis, which has been done with the aim of analyzing how much three-factor model of CSAS adjusts with the acquired data, and the rate of chi-square, which is calculated for fit between model and data, have been claimed to be significant, $X^2 = 1310.77$, $df = 492$, $p < 0.01$. Some fit statistics calculated with the same analysis are like these: (X^2/df) = 2,66; RMSEA = 0,073; RMR = 0,085; GFI = 0,81; AGFI = 0,77; NNFI = 0,97; CFI = 0,97. Confirmatory factor analysis of three-factor model and the rate of chi-square calculated for model-

data fit have been proved to be significant with the first modification (done between M2 and M1), $X^2 = 1238,81$, $df = 491$, $p < 0.01$. Some fit statistics calculated with the same analysis are like these: (X^2/df) = 2,52; RMSEA = 0,070; RMR = 0,068; GFI = 0,81; AGFI = 0,78; NNFI = 0,97; NFI = 0,96; CFI = 0,97.

Confirmatory factor analysis of three-factor model and the rate of chi-square calculated for model-data fit have been proved to be significant with the second modification (done between M24 and M23) $X^2 = 1174,66$, $df = 490$, $p < 0.01$. Some fit statistics calculated with the same analysis are like these: (X^2/df) = 2,39; RMSEA = 0,067; RMR = 0,085; GFI = 0,81; AGFI = 0,79; NNFI = 0,97; NFI = 0,96; CFI = 0,98. Confirmatory factor analysis of three-factor model and the rate of chi-square calculated for model-data fit have been proved to be significant with the third modification (done between M21 and M20) $X^2 = 1244,73$, $df = 489$, $p < 0.01$. Some fit statistics calculated with the same analysis are like these: (X^2/df) = 2,54; RMSEA = 0,070; RMR = 0,085; GFI = 0,81; AGFI = 0,78; NNFI = 0,97; NFI = 0,96; CFI = 0,98. As shown in Table 4.

Thinking, process and skills, awareness and results of t-test of given answers with respect to benefit aspect according to gender variable of teacher applicants who have attended to the research are given on Table 5.

According to the results of analysis; in terms of gender, it is seen that perception of social service applications of teacher applicants, thinking, process and skills ($(t_{251}) = 1.73$; $p < 0.01$), awareness ($(t_{259}) = 1.83$; $p < 0.05$) and ($(t_{227}) = 2,04$; $p < 0.05$) in total have become different. When the arithmetic means are analyzed, it is seen that female students have had higher marks in terms of thinking, process and skills ($x = 72,10$), awareness ($x = 44,29$) and ($x = 1,31$) in total. Therefore, a significant difference has been revealed in these three aspects for the benefit of female students. ANOVA results of thinking, process and skills, awareness and the answers regarding to benefit aspects of the teacher applicants who have joined research are presented on Table 6 according to the variable of department where they have studied.

As seen in Table 6, according to the departments where students have studied; the levels of social service perceptions that they perceive, the thinking, process and skills $F(5,239) = 2,710$; $p < 0.05$, awareness $F(5,247) = 5,571$; $p < 0.05$, benefit $F(5,267) = 2,447$; $p < 0.05$, and in total $F(5,217) = 3,688$; $p < 0.05$ shows a significant difference. According to results of LSD test that has been done in order to learn what groups differences between

Table 5. The results of t-test with regarded to gender according to sub-dimensions of community service activities scale (CSAS).

Sub-dimension	Gender	N	X	S	df	t	p
Thinking process and skills	Female	110	72,10	16,65	251	1.73	.084
	Male	143	69,03	11,50			
Awareness	Female	109	44,29	6,73	259	1.83	.068
	Male	152	42,55	8,06			
Benefit	Female	119	13,92	4,78	280	-0.70	.944
	Male	163	13,96	4,43			
CSA Total	Female	99	1,31	21,99	227	2.04	.042
	Male	130	1,26	17,69			

Table 6. The results of ANOVA regarded to the of the department according to sub-dimensions of community service activities scale (CSAS)

Sub-dimensions	The source of	KT	df	KO	F	P	Difference (LSD)
Thinking process and skills	Inter-groups	2638,049	5	527,610	2,710	,021	
	In-group	45555,685	234	194,682			Science T.T.*-Primary School T. T.
	Total	48193,733	239				
Awareness	Inter-groups	1400,665	5	280,133	5,571	,000	
	In-group	12168,303	242	50,282			Primary School T. T. - Pre-school T. T.
	Total	13568,968	247				
Benefit	Inter-groups	247,775	5	49,555	2,447	,034	
	In-group	5305,628	262	20,250			
	Total	5553,403	267				
Total	Inter-group	6730,091	5	1346,018	3,688	,003	Science-Primary School T. T.
	In-group	77368,038	212	364,944			Social T. T.- Primary School T. T.
	Total	84098,128	217				Primary School T. T.- Turkish Language T. T. Primary School T. T.- Pre-school T. T.

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departments are among, it is understood that there is a significant difference on behalf of Classroom Teaching.

RESULT AND DISCUSSION

In the process of Social Service Applications (SSA), a lot of fit indexes are used. These fit indexes are; Chi-Square Fit Test (X²), Goodness of Fit Test (GFI), Amended Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), Normalized Fit Index (NFI), Non-Normalized Fit Index (NNFI), Average Square Root of Approximate Errors (RMSEA) (Hoe, 2008; Sanders et al., 2005; Şimsek, 2007). These below are indicators that structure of factor is consistent in general:

- Chi-Square Fit Index is not meaningful
- The rates of CFI, NNFI, NFI are higher than .90
- The rates of GFI, AGFI are higher than .75
- The rate X²/df is 3 or less than 3
- The meaningfulness level of RMSEA is 0, 07

In consequence of analysis of third modification in DFA, the rates X²= 1244.73, df= 489, X²/df= 2.54, RMSEA= 0.70, NNFI= .97, CFI= .81 and AGFI= .78 have been acquired. It has been proved that 33 items in scale shows a valid structure on students in Faculty of Education according to the results of confirmatory factor analysis done for examining authentic factor structure, supported with expert opinions, of CSAS. These rates shows that data suitability of model is sufficient (Kahn, 2006;

Kelloway, 1998; Klein, 1998; Corral and Calvet, 2000; Heubeck and Neill, 2000; Sümer, 2000; Lewis et al., 2002; Olivares et al., 2004; Sanders et al., 2005; Ingles et al., 2005; Şimsek, 2007; Hoe, 2008). According to Klein (1998) and (Wiersma 2000 cited in Johnson et al., 2007), reliability is consistency of assessment instrument in any measurement. The method of reliability that is mostly used in researches is the calculation of cronbach alpha (7, 32, 18). At the end of the study, a reliable assessment instrument of 33 items, which includes 3 factors in total and in which croncach alpha reliability coefficient calculated as 0,93, is obtained.

CONCLUSION

In the direction of features of items in factors, it is stated that the first factor is "thinking, process and skills", the second factor is "awareness" and the third factor is "benefit". This scale is reliable and valid with its obtained results. In addition, it has the quality to be the first assessment instrument whose confirmatory factor analysis has been done and developed in our country with the aim of identifying perception of students in Faculty of Education about social service applications.

According to the results of validity and reliability studies that have been done in research with students in Faculty of Education; the scale has got such features that it can measure, with a structure of 3 factors, how students in Faculty of Education perceive the ability of social service applications. When it is taken into account;

1. It has a valid and reliable structure,
2. The results obtained in the main practices of the scale can provide necessary feedbacks on the subject in which the students perceive themselves in relation to social service applications,
3. The developed assessment instrument may be analyzed at a meta-analytic level in practices and studies in different samples that will be done in future,
4. It is thought that CSAS may be used in experimental and descriptive studies in order to identify that students in Faculty of Education perceive themselves in terms of social service applications.

Conflict of Interests

The authors have not declared any conflict of interests.

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