



Development of The Professional Socialization Scale, Validity and Reliability Study



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Abstract

In this study, it was aimed to develop the scale of professional socialization scale, and its conduct a validity and reliability study. The study is a scale development study, and it was carried out on the data obtained by using a 21-Items professional socialization scale on a total of 320 students. Cronbach Alpha coefficient used for the validity, Explanatory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA) were used for the reliability in the analysis of the data obtained. Bartlett test and Kaiser-Meyer-Olkin (KMO) test were used for the suitability of the data to factor analysis. The KMO coefficient calculated within the scope of the construction validity was 0.958. As a result of Exploratory Factor Analysis (EFA), a three-factor structure with an eigenvalue over 1% and a cumulative variance of 69.7% emerged. It was seen that the first factor of the scale, the "values" dimension, had a reliability coefficient of 0.97, the second factor of the "competencies" dimension of the scale was 0.92, and the third "attitudes" dimension had a reliability coefficient of 0.90. In general, it was concluded that the scale has high reliability with a reliability coefficient of 0.95. The final factorial structure of the Professional Socialization Scale was validated, consisting of 21 Items and three factors. The professional socialization scale is a valid and reliable tool for students who are in a professional education process at the undergraduate level and can be used to evaluate the professional socialization processes of students.

Keywords: Professional socialization; scale development; validity; reliability

Profesyonel Sosyalizasyon Ölçeğinin Geliştirilmesi: Geçerlik ve Güvenirlik Çalışması

Özet

Bu çalışmada profesyonel sosyalizasyon ölçeğinin geliştirilmesi ve geçerlilik ve güvenilirlik çalışmasının yapılması amaçlandı. Araştırma bir ölçek geliştirme çalışması olup, toplam 320 öğrenci üzerinde 21 maddelik mesleki sosyalleşme ölçeği kullanılarak elde edilen veriler üzerinde gerçekleştirilmiştir. Elde edilen verilerin analizinde geçerlik için Cronbach Alpha katsayısı, güvenilirlik için Açıklayıcı Faktör Analizi (AFA), güvenilirlik için Doğrulayıcı Faktör Analizi (DFA) kullanılmıştır. Verilerin faktör analizine uygunluğu için Bartlett testi ve Kaiser-Meyer-Olkin (KMO) testi kullanıldı. Yapı geçerliliği kapsamında hesaplanan KMO katsayısı 0,958 olarak bulunmuştur. Açıklayıcı faktör analizi (AFA) sonucunda özdeğeri %1'in üzerinde ve kümülatif varyansı %69,7 olan üç faktörlü bir yapı ortaya çıkmıştır. Ölçeğin birinci faktörü olan "değerler" boyutunun güvenilirlik katsayısının 0,97, ikinci faktörü olan "yeterlikler" boyutunun 0,92, üçüncü faktörü olan "tutumlar" boyutunun ise 0,90güvenirlik katsayısına sahip olduğu görülmüştür. Genel olarak ölçeğin 0,95 güvenilirlik katsayısı ile yüksek güvenilirliğe sahip olduğu sonucuna varılmıştır. Profesyonel Sosyalizasyon Ölçeği'nin 21 madde ve üç faktörden oluşan son faktör yapısı doğrulandı. Profesyonel Sosyalizasyon Ölçeği; lisans düzeyinde mesleki eğitim sürecinde olan öğrenciler için geçerli ve güvenilir bir araç olup, öğrencilerin profesyonel sosyalizasyon süreçlerini değerlendirmek amacıyla kullanılabilir bir araçtır.

Anahtar Kelimeler: Profesyonel sosyalizasyon; ölçek geliştirme; geçerlik; güvenilirlik

1.Introduction

Professional socialization is defined as learning the attitudes and behaviors necessary for the acceptance and continuity of competence in the professional field (Dinmohammadiet al., 2017; Neto et al., 2017; Öhlen & Segesten, 1998; Sadeghi et al., 2019). In this process, some changes occur primarily in the thoughts, feelings, attitudes, goals, and mental state of the individual (Howkins & Ewens, 1990). The adaptation of the individual to the role of the profession takes place in the context of the social structure it is in. The professional socialization process first starts in the family (primary socialization) and continues with the adult socialization (secondary socialization) process (Miller, 2010). Socialization into a profession is recognized as an important component of secondary socialization (Sadeghi Avval Shahr et al., 2019). Individuals who go into the vocational training (undergraduate) process in professional socialization adopt the education, values, attitudes, and behaviors that are the requirements of the professional role and develop a professional identity (Howkins & Ewens, 1990; Miller, 2010). The professional socialization process starts with the beginning of the undergraduate program and continues throughout life with experiences and interactions in the theoretical and professional practice areas in the educational process (Dinmohammadi et al., 2017; Miller, 2010; Sadeghi Avval Shahr et al., 2019).

Professional socialization was seen by sociologists as a special form of adult socialization in which individuals acquired the necessary qualifications for membership in society through a learning process (cited by Barette, 2004 from Shuval). Merton (1957), one of the first theorists, stated that the professional socialization process begins before entering education. He defined this process as “anticipatory-predictive socialization” (cited by Ousey, 2009 from Merton.). However, anticipatory-predictive socialization is a process in which individuals feel the values and attitudes of a profession that they are not a member of but desire to belong to and perceive as a member of that group (Miller, 2010). In another definition, Light (1979) stated that the process of professional socialization is interactional and that society is decisive in its attitudes and behaviors towards the profession over the individual who continues vocational education. Cohen (1981), one of the important theorists of this concept, is professional socialization; it defines the process of making the values and norms of the profession of the individual as part of their behavior, in other words, the development of professional identity. Instead of the social pattern behavioral characteristics that exist in culture, the individual enters the process of learning and adapting to the culture-specific to the profession, internalizing it (Cohen, 1981). Professional socialization is a nonlinear, continuous, interactive, transformative, developmental, personal, and psychosocial process in which the individual strengthens himself (Sadeghi Avval Shahr et al., 2019).

Howkins and Ewens (1999) stated that at the end of the educational process based on the theory of professional socialization, students had an increase in awareness, empowerment, sense of competence, problem-solving and critical thinking (Howkins & Ewens, 1999; Nesler et al., 2001). In this process, there may be several undesirable learnings as well as the desired ones. Different factors such as curriculum, educational environment, experiences, role models, educators, students (peers), motivation level, family, socio-economic factors, culture and social interactions can determine the quality of this process (Dinmohammadi et al., 2017; Sadeghi Avval Shahr et al., 2019). It is important how the professional socialization process is experienced in the professional identity development of the student. Otherwise, if this process does not progress as desired, it may lead to student dissatisfaction, academic failure and even dropping out of school (Sadeghi Avval Shahr et al., 2019). In this

context, the process needs to be evaluated. In evaluating the outputs of the professional socialization process, the evaluation of areas such as active participation in learning, positive attitude towards the profession, learning motivation, social solidarity, good relations with colleagues and other individuals with whom they interact and acceptable role performance can be guiding (Sadeghi Avval Shahr et al., 2019).

When the national and international literature was examined, it was seen that there were more nursing and teacher-specific scales development studies such as professional socialization process scale (Du Toit DLitt, 1995), professional nursing estimations (Weis & Schank, 2000), professional attitude inventory in the profession (Erbil & Bakır, 2009), professional self-concept scale in student nurses (Sabancıogulları & Dogan, 2011) and teacher identity measurement scale for evaluation of professional identity of primary teachers (Hannaa, et al., 2020), professional identity scale of the classroom teacher (Girgin & Şahin, 2019), and more. In this context, it has been observed that there is no valid and reliable measurement tool for evaluating the professional socialization of students who are in the process of professional vocational education in higher education in Turkey and abroad. There is a need for a professional socialization scale to evaluate the educational outputs of higher education to understand how much students internalize the profession they receive their education and to develop a unique knowledge, skill, attitude, value and to review the education in parallel with this. The professional socialization scale to be developed will also provide an evaluation of the student's professional identity development process and will provide objective data in terms of empirical research in the field and the evaluation of this aspect of education.

This study, it is aimed to develop the scale of professional socialization, which will be used to evaluate the process of professional socialization, which is important in the formation of professional identity according to the theory of professional socialization and to conduct a study of validity and reliability. This study asked to answer the following study question;

- (1) Is the professional socialization scale to be developed a valid and reliable tool?

2.Method

2.1 Research model

Research is a scale development (methodological) study. Within the scope of the scale development work, the scale development stages determined by Erkuş (2014) and listed below were followed:

According to Erkuş (2014), in the scale development process, (1) comprehensively revealing the target structure (professional socialization process) in the light of the literature and defining this concept in a versatile way, (2) creating an Items pool related to the study subject, (3) obtaining expert opinions, (4) correlation and factor analysis studies between articles, and analyzes covering dimensionality, reliability and construct validity.

2.2. Participants

The study group of the research consisted of students studying at the Faculty of Nursing, Faculty of Education (Preschool Teaching, Classroom Teaching and Guidance, and Psychological Counseling Programs) of a university located in the Western Region of

Turkey in the spring semester of 2018-2019 academic year. The number of students attending the Faculty of Nursing in the spring semester of 2018-2019 is 1085, and the number of students attending the above-mentioned departments in the Faculty of Education is 1168, with a total number of 2253 students. A general rule in scale development studies is that the sample size to be taken should be at least five times or even ten times the number of items. During determining the number of students that should be in the study group, the rule of having at least five people for each Items was taken into account (Cohen & Swerdlik, 2009). In methodological research, Comrey and Lee (1992) classified the formations of absolute observational widths as follows; For sample size, 50 and below are defined as very weak, 100 weak, 200 medium, 300 good, 500 very good and 1000 excellent. The sample consisted of a total of 320 students selected from this population by a randomly disproportionate element sampling method. 59.7% (n=191) of the students who constituted the working group consisted of nursing faculty students, 31.9% (n=102) were students of the psychological counseling and guidance program, and 8.4% (n=27) students of preschool and classroom teaching in the faculty of education. 78.1% (250) of the students in the study group were female and 21.9% (70) were male. 64.1% (205) of the students are in the third grade and 35.9% (115) are in the fourth grade. The mean age of the students is $\bar{X} = 21.26 \pm 0.05$. In this study, the draft scale consists of 21 items, and the sample size is 320. A sample size of approximately 15 times the number of Items was reached.

2.3 Data Collection Tools

The data were collected using the "personal information form" on sociodemographic characteristics and the "Professional Socialization Scale Draft", which was created based on the literature on the concept of professional socialization (Becker Hentz, 2005; Howkins & Ewens, 1999; Miller, 2010; Neto et al., 2017; Sabancıoğulları & Doğan, 2011; Sadeghi et al., 2019; Shinyashiki, et al., 2006; Valutis et al., 2012; Weis & Schank, 2000).

2.3.1 Personal Information Form: The personal information form consisting of a total of 5 questions such as the students' age, gender, faculty/department, and place of birth was used.

2.3.2 Professional Socialization Scale: Professional Socialization Scale (PSS) developed by researchers was used as a data collection tool in the research. It has been observed that there are no measurement tools that measure the process of professional socialization of students studying at the university level.

The students who continue their undergraduate education need a scale to evaluate the process of professional socialization. Based on this requirement, it is primarily attempted to develop a scale that measures the knowledge, skills, attitudes and worth of university students for the profession.

2.4 Development of Scale

At the first stage of scale development, the literature was examined and competencies, attitudes, and behaviors were determined to evaluate the professional socialization process of students. This scale study was based on Cohen's (1981) theory of professional socialization.

In this context, studies carried out in this field at home and abroad (Becker Hentz, 2005; Howkins & Ewens, 1999; Miller, 2010; Neto et al., 2017; Sabancıoğulları & Dogan, 2011; Sadeghi et al., 2019; Shinyashiki et al., 2006; Valutiset al., 2012; Weis & Schank, 2000) and identified expressions that can be used on the scale. In this way, an Items pool of 46 Items was created. It was decided that the scale should be for the self-evaluation of individuals, that the scale should be rated in the type of five Likert ((1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree.) and the Items on the sorting scale.

Expert opinion has been consulted to determine the content validity of the items pool. A 4-point grading was used to obtain the opinions of the experts. In the prepared form, experts were expected to choose one of the options “quite suitable”, “suitable”, “suitable but requires changes” and “not suitable” for each Items. With the help of feedback from experts, a candidate scale was tried to be created. All expert forms are combined into a single form and it is determined how many experts have approved the possible options of each Items. The Items pool consisting of 46 Items was examined by a total of 9 experts, including 4 sociology specialists, 3 nursing specialists, 1 Psychological Counseling and Guidance Specialist, 1 Statistics specialist. The content validity ratios of the Items were calculated based on the Lawshe (1975) technique in line with the opinions of the experts in this process.

Therefore, the opinions of the experts regarding any Items were collected and content validity rates were obtained. Content validity rates (CVR) are obtained by 1 short of the ratio of the number of experts who express the "Required" opinion on any Items to the total number of experts who express opinions on the Items. The rates in question were determined by establishing the ratio of the total number of experts who responded positively to each article to the total number of experts. The minimum values for the number of experts, in addition, convey the statistical significance of the Items. When looking at the table of minimum values for their CVR at the $\alpha: =0.05$ significance level, the minimum value=0.75 is taken when the number of experts is 9. In this case, since the critical value of CVR for 9 experts is determined as 0.778 in the table, the Items that do not fulfill this condition are 4-5-6-7-8-16-17-20-21-23-26-29-34-35-42. These Items are included in the calculation for the Content Validity Index. Following the content validity calculations obtained, some Items (15 items) were removed from the scale, and some Items were included in the regulations to increase transparency. As a result of these procedures, a 31-Items trial form was created. The draft scale, which was formed in line with professional opinions, was applied to 20 students in the pilot study. 20 students who took part in the pilot application were not included in the sample. In this way, it is attempted to evaluate the items in terms of "significance, transparency, readability, clarity and comprehension of expressions, length of sentences." According to the feedback received, the expression forms of some items were replaced and some items were eliminated. After these studies, a 29-items draft scale form was created. Students were expected to express their perceptions on a 5-point Likert-type scale rating from completely unsuitable (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree.

2.5 Data Collection

The personal information form created within the scope of the research and the draft professional socialization scale were applied between March 2019 and March 2020-March 2021 after obtaining application permissions and ethics committee approval from the

relevant faculties. The pilot study was conducted with 20 students with face-to-face training in the 2019 academic year. The personal information form and draft professional socialization scales created within the scope of the research were applied online due to the COVID-19 pandemic. The draft scale form created was sent to the students with informative e-mail containing information about the research and a link address was given to them to participate in the study. Students who agreed to participate in the study filled out the scale via this link. Since there is no possibility of harm to participants in terms of the content of the research, the participant consent form (informed consent form) was not used. The draft scale forms filled out by 320 students were evaluated after the implementation.

2.6. Data Analysis

Once the data had been collected, the corresponding analysis was carried out using the SPSS program, version 25 and AMOS 21 program. Scale validity analysis was evaluated with Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The reliability coefficient (Cronbach's Alpha) of the scale was calculated. Kaiser-Mayer-Olkin (KMO) statistics and Barlett Sphericity test was used for sample convenience. $KMO > 0.70$ and Bartlett test of Sphericity ($p < 0.001$) were considered significant (Friel et al., 2007). The factor structure of the scale was determined by using the principal component analysis estimation method and the varimax rotation method for EFA. Limit values for factor structure were accepted as factor loadings value of 32% and above, eigenvalue of 1%, variance of 5%, and cumulative variance of 52% (Seçer, 2015; Henson & Roberts, 2006). CFA was performed after EFA and the Maximum Likelihood analysis method was used to assess the goodness of fit. Chi-square/degree of freedom (CMIN/df), Root-Mean-Square-Mean (RMSEA), Standardized Root of Square Mean Error (SRMR), Comparative Goodness of Fit Index (CFI) were used to assess model fit. If the criteria for $CMIN/df < 5$, $RMSEA < 0.1$, $SRMR < 0.1$, $CFI > 0.90$ are met, an acceptable fit decision has been reached (Gürbüz, 2019; Munro, 2005).

2.7. Ethical considerations

For the study, Ethics Committee approval was obtained from the non-interventional clinical research ethics committee of the Nursing Faculty with protocol number 2019/081. In addition, institution permissions were obtained from the Dean of the Faculty of Nursing and the Dean of the Faculty of Education to conduct the research.

1. Results

4.1. Findings on Validity

4.1.2. Construct Validity

The KMO coefficient is 0.958, and the Bartlett Sphericity test is significant ($p < 0.001$). The KMO coefficient reveals that the common variance is excellent and the adequacy of the sample.

4.2. Exploratory Factor Analysis (EFA)

Factor analysis was performed to reveal the construct validity of the scale and to dimension the items by determining the factor loads. As a result of EFA, a three-factor structure with an

eigenvalue over 1% and a cumulative variance of 69.7% emerged. There is no items with a factor loading value below 32%. The factor loads of the items included in the scale ranged from 0.46 to 0.90. Each item was included in the factor with the highest factor load value. There is no overlapping items in the factor distribution. The items placed on the factors, factor loadings, eigenvalues and variance values are shown in Table 1.

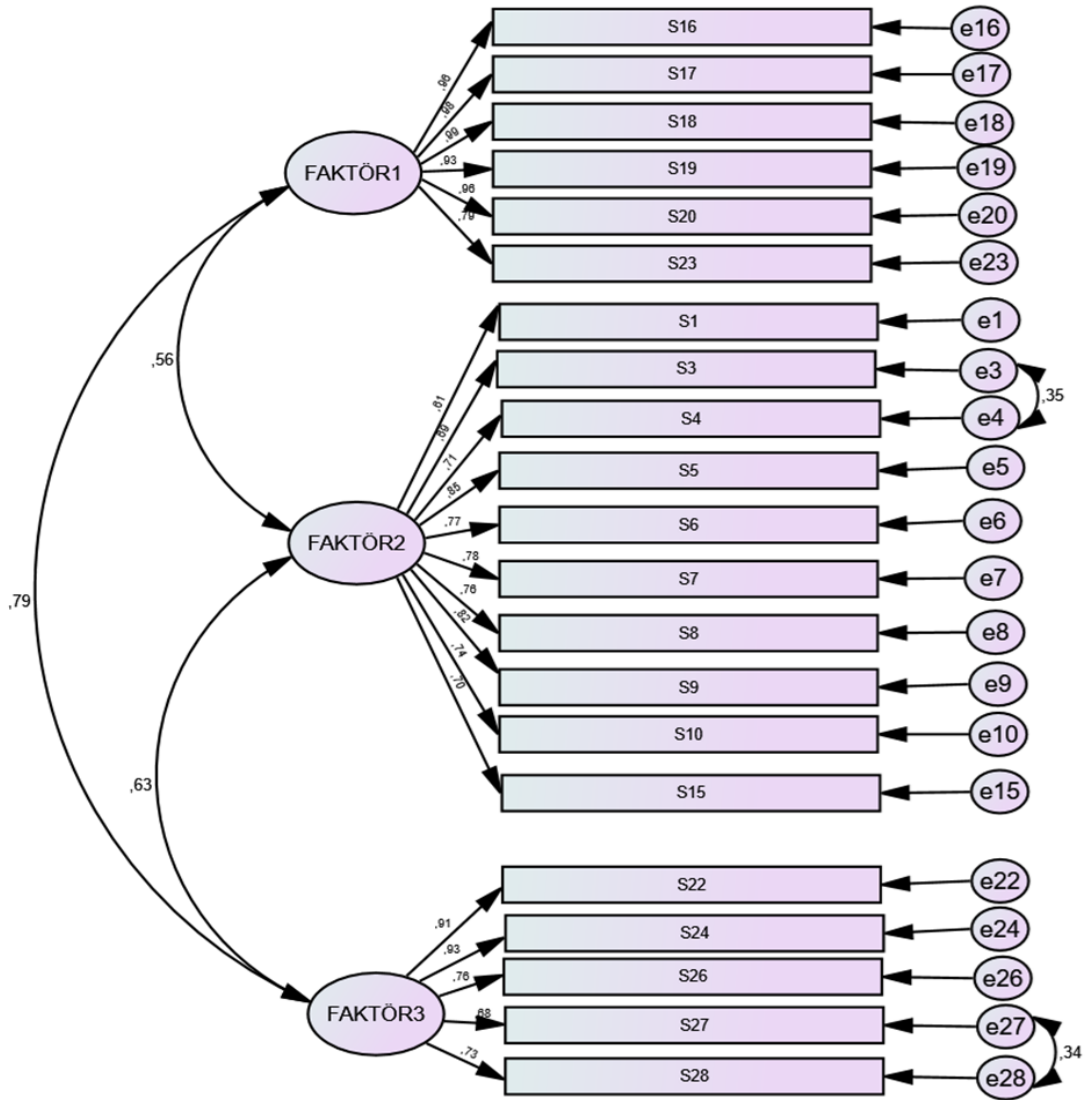
Table1. Factor loadings, eigen values and explained variance values of professional socialization scale items

Items Code	Items	Factor Loadings		
		F1	F2	F3
e1	I have the basic knowledge required by my profession.	.331	.527	
e2	I keep up with publications specific to my profession.		.461	.363
e3	I have the basic skills required by my profession.		.672	
e4	I feel competent to practice my profession.		.765	
e5	I have the ability to solve possible problems in the professional field.		.848	
e6	I can give advice on professional issues when necessary.		.737	
e7	I can make independent decisions about possible problems in the professional field.		.790	
e8	I can manage conflicts in professional environments.		.723	
e9	I can make correct and fast decisions while fulfilling my profession.		.813	
e10	I am aware of my professional qualifications.	.502	.618	
e11	I question myself about my professional qualifications.	.681	.459	
e12	The areas of my profession are obvious.	.557	.400	
e13	I can take responsibility for the development of the profession.	.611	.483	
e14	I can defend my profession in different environments.	.630	.463	
e15	I am ready to be a good professional member with my professional roles and responsibilities.	.466	.532	.352
e16	I believe that I should not harm people in the performance of my profession.	.903		
e17	I protect human dignity while practicing my profession.	.904		
e18	I respect people when I do my job.	.903		

e19	I act in accordance with scientific and ethical values in my professional work.	.895		
e20	I care about privacy when I practice my profession.	.884		
e21	Proud to be a member of my profession.	.712		.523
e22	I love my profession.	.572		.641
e23	I am aware of the importance of professional organization.	.731		.358
e24	I'm ready to give my heart to my profession.	.596		.607
e25	If I chose again, I would choose the same profession again.			.852
e26	I participate in all kinds of work for the development of the profession.	.462		.649
e27	Members of my profession make me feel valuable in the profession.			.676
e28	I want to do my profession for many years.			.838
e29	I believe that those who perform this profession should be members of a professional organization.			.503
Eigenvalue (Initial Eigenvalue)		15.50	2.95	1.75
Variance (%)		53.46	10.20	6.06
Cumulative variance (%)		53.46	63.66	69.72

4.3. Confirmatory Factor Analysis (CFA)

The first-level multifactorial structure of the draft professional socialization scale, consisting of three sub-dimensions and a total of 29 items, was tested with CFA. In the first analysis, fit indices were $CMIN/df=5.72$, $RMSEA=0.12$; $CFI=0.82$; The SRMR is 0.110 and is not within the acceptable range of fit. Correction indices were examined and eight items (2, 11, 12, 13, 14, 21, 25, 29) in the draft scale were excluded from the model because they burdened different dimensions. Covariance was applied between the 3rd items and the 4th items, and between the 27th items and the 28th items. When the analysis was repeated with these corrections, $CMIN/df=3.87$, $RMSEA=0.09$; $CFI=0.92$; SRMR is 0.08 and is within acceptable limits. The final factorial structure of the Professional Socialization Scale was validated, consisting of 21 items and three factors. When the post-correction model diagram is examined, the covariance between factors is between 0.56 and 0.79. The factor loadings of the items ranged from 0.61 to 0.98 (Figure 1).



CMIN=712,985; DF=184; p=.000; CMIN/DF=3,875, RMSEA=.095; CFI=.926; SRMR=0,08

Figure. 1. Professional Socialization Scale Model Diagram

4.4. Reliability Statistics

As a result of the analysis carried out, the reliability coefficient (Cronbach's Alpha) calculated as the 21-items internal consistency indicator of the professional socialization scale was found to be $\alpha = 0.955$. The obtained 0.955 Alpha value gives the result that the scale is quite reliable.

Table 2: Reliability results for the Professional Socialization Scale

Items	Item-Total Correlations	Deleted Items Cronbach's Alpha Value
S1	0.614	0.954
S3	0.630	0.954
S4	0.580	0.955
S5	0.672	0.953
S6	0.650	0.954
S7	0.604	0.954
S8	0.638	0.954
S9	0.640	0.954
S10	0.731	0.953
S15	0.751	0.952
S16	0.782	0.952
S17	0.790	0.952
S18	0.802	0.952
S19	0.768	0.952
S20	0.784	0.952
S22	0.779	0.952
S23	0.739	0.953
S24	0.794	0.952
S26	0.679	0.953
S27	0.650	0.954
S28	0.602	0.955

Table 2 reveals the reliability results for the Professional Socialization Scale. When the results were examined, it was seen that the items-total correlations varied between 0.580 and 0.955. (The ready-to-use version of the scale form can be viewed in Annex-1).

Table 3. The sub-dimensions determined as a result of the factor analysis, the items that take load from these dimensions and the Cronbach Alpha values of the dimensions

Factor	Number of Items	Item Number	Cronbach α
1	6	16, 17, 18, 19, 20, 23	0.97
2	10	1, 3, 4, 5, 6, 7, 8, 9 10, 15	0.92
3	5	22, 24, 26, 27, 28	0.90
Factor- 1 Values			
16	I believe in not harming people while doing my profession.		
17	I protect human dignity while practicing my profession.		
18	I respect people while doing my profession.		
19	I act in accordance with scientific and ethical values in my professional work.		
20	I care about confidentiality while practicing my profession.		
23	I am aware of the importance of professional organization.		
Factor- 2 Competencies			
1	I have the basic knowledge required by my profession.		
3	I have the basic skills required by my profession.		
4	I feel competent to practice my profession.		
5	I have the ability to solve potential problems that may arise in the professional field.		
6	I can give advice on professional matters when necessary.		
7	I can make independent decisions about possible problems that may arise in the professional field.		
8	I can manage conflicts in professional settings.		
9	I can take correct and fast decisions while performing my profession.		
10	I am aware of my professional qualifications.		
15	I am ready to be a good professional member with my professional roles and responsibilities.		
Factor- 3 Attitudes			
22	I love my profession.		
24	I am ready to commit to my profession.		
26	I participate in all kinds of work for the development of the profession.		
27	Members of my profession make me feel valued in the profession.		

28	I want to do my profession for many years.
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Cronbach Alpha values of the factors were 0.97, respectively; 0.92; 0.90 (Table 3). As seen in the table, the first factor determined was composed of 6 items (16, 17, 18, 19, 20, 23); The second factor consists of 10 items (1, 3, 4, 5, 6, 7, 8, 9, 10, 15); The third factor consists of 5 items (22, 24, 26, 27, 28). There is no item in the scale that is reverse-scored in terms of the factor it is in. In its final version, the scale consists of 21 items. The sub-dimensions formed by examining the items included in each factor were named. While naming these sub-dimensions, the items collected in each factor and the opinions of three academicians who are experts in the literature and subject area were formed. In this context, the first sub-dimension is called “Values”, the second sub-dimension is called “Competencies” and the third sub-dimension is called “Attitudes”. The highest possible scores from the sub-dimensions in the scale were calculated as 30 points from the values sub-dimension, 50 points from the competencies sub-dimension, and 25 points from the attitudes sub-dimension, respectively. The scores that individuals received from each item were collected and the total scores of the scale were calculated. The highest score on the professional socialization scale was 105 and the lowest score was 21. In all factors and total scores, the increase in scores is evaluated as an effective development of the professional socialization process.

2. Discussion and Conclusion

This study is a scale development research designed to evaluate the professional socialization processes of university students. Along with university education, a proper understanding of the professional socialization process has a crucial place in the development of competent professionals in the professional field. Determining the level of professional socialization processes of students will make meaningful contributions to the review of the education program and the evaluation of determining outcomes (Barretti, 2004; Dinmohammadi et al., 2017; Howkins & Ewens, 1999; Neto et al., 2017).

Three sub-dimensions were named: “competencies”, “values” and “attitudes” in this scale, which were developed to evaluate the professional socialization processes of students continuing their university education. The naming of scale sub-dimensions is based on the relevant literature and expert opinion. High scores obtained from the scale indicate that the level of professional socialization is high. The Kaiser Meyer Olkin (KMO) coefficient of the Professional Socialization Scale, consisting of a total of 21 items, was calculated and the Bartlett Globality test was applied to determine the suitability of the data for factor analysis before the explanatory factor analysis was performed. KMO coefficient was 0.958 and Bartlett Sphericity test was found significant. While the Bartlett test of Sphericity examines the existence of a correlation between variables by comparing the observed matrix with the unit matrix, the KMO coefficient, which determines the adequacy of the sample, is used to measure the common variance of the items (Beavers et al., 2013; Hair et al., 2014). Finding a significant Bartlett test result indicates its factorability (Beavers et al., 2013) and that the data come from a multivariate normal distribution. The KMO coefficient shows that the common variance is excellent and the sample adequacy (Beavers et al., 2013). Factor analysis was performed to reveal the construct validity of the scale and dimension of the items by determining the factor loads. As a result of exploratory factor analysis (EFA), a three-factor structure with an eigenvalue over 1% and a cumulative variance of 69.7% emerged. When scale development studies were examined, it was observed that EFA values were compatible with the literature (Sabancıoğulları & Doğan, 2011). There is no item with

a factor loading value below 32%. In the same way, when applying factor analysis, it is stated that the factor load value for each item should be 30 or higher in the analysis processes (Büyüköztürk, 2012; Costello & Osborne, 2005). As a result of the analyzes carried out, the reliability coefficient (Cronbach's Alpha) calculated as the 21-item internal consistency indicator of the professional socialization scale was found to be $\alpha = 0.955$. The Alpha value is expected to be at least 0.70 and above in social sciences (Altunışık et al., 2005). The obtained 0.955 alpha value generates the result that the scale is reasonably reliable. When the reliability results of the professional socialization scale were examined, it was noted that the item-total correlations were between 0.602 and 0.955. The fact that the substance-total correlation is greater than 0.40 indicates the distinguishing power of substances is excessive (Ebel, 1972). As a result of this research, it was observed that the scale maintains sufficient psychometric properties. It can be stated that this scale, developed to measure the level of professional socialization of students, is valid and reliable. The three sub-dimensions resulting from the analysis are determinants of the process of professional socialization (Cohen, 1981; Öner Altıok, 2016).

In the scale research developed to evaluate teacher professional development, sub-dimensions of self-image, self-efficacy, and task perception were determined (Hanna et al., 2020). Again, one of the three sub-dimensions of the student nurse professional self-concept scale developed by Sabancıoğulları & Doğan (2011) was determined as "professional competence". A sub-dimension of the developed professional socialization scale was defined as competencies. In this context, the scale sub-dimension is in parallel with the present studies in the literature. Another crucial fundamental component of professional identity is valued. Professional values constitute the core of professional development and are conceptualized as standards for defining professional behavior (Leea et al., 2020; Schmidt & McArthur, 2018). When the sub-dimension of values that emerged in this scale development study is evaluated, it is seen that it is compatible with the literature. Developed Professional Socialization Scale (PSS) with students' existing learning how reaches the goals of the vocational training process, and the necessary direction to provide an assessment on the development of professional identity case that can be used in the performance of a measurement tool can be used.

4.1.Limitations

The limitation of the study can be considered as the sample of this study, which consists of students studying in the departments of pre-school, classroom teaching and guidance and psychological counseling in the faculty of nursing and education faculty. Other limitations of the study include the collection of data during the pandemic period and the fact that the sample group consisted mostly of female students. Working with a more inclusive sample in different studies can increase the quality of the research.

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Appendix 1: Ready for Implementation of the Professional Socialization Scale

Dear participant,

This scale is designed for the development of the scale of professional socialization. The scale consists of 21 items. Please note that after careful reading of each item, we mark one of the following 5 options according to how well the phrase defines your vocational training process. It is important to answer the full scale for an accurate assessment.

Items	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. I believe that I should not harm people in the performance of my profession.	1	2	3	4	5
2. I protect human dignity while practicing my profession.	1	2	3	4	5
3. I respect people when I do my job.	1	2	3	4	5
4. I act in accordance with scientific and ethical values in my professional work.	1	2	3	4	5
5. I care about privacy when I practice my profession.	1	2	3	4	5
6. I am aware of the importance of professional organization.	1	2	3	4	5
7. I have the basic knowledge required by my profession.	1	2	3	4	5
8. I have the basic skills required by my profession.	1	2	3	4	5
9. I feel competent to practice my profession.	1	2	3	4	5
10. I have the ability to solve possible problems in the professional field.	1	2	3	4	5
11. I can give advice on professional matters when necessary.	1	2	3	4	5
12. I can make independent decisions about possible problems in the professional field.	1	2	3	4	5
13. I can manage conflicts in professional environments.	1	2	3	4	5
14. I can make correct and fast decisions while fulfilling my profession.	1	2	3	4	5
15. I am aware of my professional qualifications.	1	2	3	4	5
16. I am ready to be a good professional member with my professional roles and responsibilities.	1	2	3	4	5
17. I love my profession.	1	2	3	4	5
18. I'm ready to give my heart to my profession.	1	2	3	4	5
19. I participate in all kinds of work for the development of the profession.	1	2	3	4	5
20. Members of my profession make me feel valuable in the profession.	1	2	3	4	5
21. I want to do my profession for many years	1	2	3	4	5