ATTITUDE SCALE TOWARDS CLOTHING PATTERNS COURSE: VALIDITY AND RELIABILITY STUDY

GİYSİ KALIPLARI DERSİNE YÖNELİK TUTUM ÖLÇEĞİ: GEÇERLİK VE GÜVENİRLİK ÇALIŞMASI[1]

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ABSTRACT

In this study, it was aimed to develop a valid and reliable measurement tool to determine student attitudes towards the clothing pattern course. For this purpose, data were collected from three different sample groups with simple random sampling technique. First, a literature review was conducted and interviews were conducted with the first study group regarding the attitude towards the clothing pattern course. After the creation of the item pool, the first application was made on the second sample group to determine the factor structure of the measurement tool. Exploratory Factor Analysis was applied on the data obtained and a 3-factor structure was reached. In order to test the resulting structure, data were collected from a separate sample group for confirmatory factor analysis. Confirmatory Factor Analysis was conducted on this data set. Then, in the context of reliability studies of the measurement tool, internal consistency coefficient calculation, average variance extracted, composite reliability and test-retest procedures were utilized. As a result, a valid and reliable scale consisting of 3 factors and 16 items was introduced to the vocational education literature to determine the attitude towards the clothing pattern course.

Keywords: *Vocational Training, Clothing Patterns Course, Scale Development*

ÖZET

Bu araştırmada Giysi Kalıp Dersine Yönelik öğrenci tutumunu belirlemeye yönelik geçerli ve güvenilir bir ölçme aracı geliştirilmesi amaçlanmıştır. Bunun için basit tesadüfi örnekleme tekniği ile üç ayrı örneklem grubundan veri toplama yoluna gidilmiştir. İlk olarak literatür taraması yapılmış ve birinci çalışma grubu ile Giysi Kalıp Dersine yönelik tutuma ilişkin görüşmeler gerçekleştirilmiştir. Madde havuzunun oluşturulmasından sonra ölçme aracının faktör yapısını belirlemek adına ikinci örneklem grubu üzerinde ilk uygulama yapılmıştır. Elde edilen veriler üzerinde Açımlayıcı Faktör Analizi uygulanmış ve 3 faktörlü bir yapıya ulaşılmıştır. Oluşan yapının test edilmesi adına doğrulayıcı faktör analizi yapılabilmesi için ayrı bir örneklem grubundan veri toplanmıştır. Bu veri seti üzerinde Doğrulayıcı Faktör Analizi yapılmıştır. Daha sonra ölçme aracının güvenirlik çalışmaları bağlamında iç tutarlık katsayısı hesaplama, çıkarılan ortalama varyans, kompozit güvenirlik ve test tekrar test işlemlerinden yararlanılmıştır. Sonuç olarak mesleki eğitim literatürüne 3 faktör ve 16 maddeden oluşan Giysi Kalıp Dersine yönelik tutumun belirlenmesi için geçerli ve güvenilir bir ölçek kazandırılmıştır.

Anahtar Kelimeler: *Mesleki Eğitim, Giysi Kalıpları Dersi, Ölçek Geliştirme*

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[1] This study was obtained from the master's thesis titled "Use of the Flipped Classroom Model in Teaching the Pattern Course of the Vocational High School Fashion Design Technology Department" written at the Kyrgyzstan Türkiye Manas University Department of Educational Sciences.

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INTRODUCTION

Since the 18th century, vocational education has been recognized as a professional education field and is considered as the acquisition of skills to prepare students for work and occupation (Aytaç, 2006). Vocational education supports the employment of young people by bringing individuals together with the labor market and providing them with the qualifications demanded by the market (Kısa, 2012). Another definition of vocational education is defined as "all education activities that are pre-planned for employees to acquire new skills and improve their skills, have a specific learning objective and are fully or partially paid for by the enterprise" (Yıldırım & Çarıkçı, 2017).

Vocational and technical education aims not only to instill in students the values of good citizenship, but also to prepare them for higher education or business life by providing them with a common general culture in line with their interests and abilities, to work in cooperation with social and economic sectors (Bınıcı & Arı, 2004), to train a qualified workforce with professional competence, professional ethics and professional values at national and international level, innovative, entrepreneurial, productive and contributing to the economy (Katz, 2001; Ojimba, 2013). This education system is built on a structure that offers learning opportunities in accordance with the interests, abilities and natural tendencies of individuals, emphasizes business and professional ethics, directs them towards employment and is designed in accordance with the specific needs of economic and social sectors. It is also aimed to create a vocational and technical education system that is continuously updated and developed in cooperation with stakeholders (Obidile, 2014; Olowe, 2024).

Vocational and technical schools carry out their activities in formal and non-formal types so that students can receive education in accordance with their abilities and needs (Uluğ, 2013). Within these types of education, formal activities are carried out in three ways: multi-program Anatolian high schools, vocational and technical Anatolian high schools and vocational training centers. The other type of vocational education, non-formal education, is organized in the form of vocational open education high schools (Gül & Eriş, 2023).

Within the scope of the Project for Strengthening Vocational and Technical Education in Türkiye, vocational education was started to be realized with a modular system in 2005 (MEGEP, 2006). In the process of vocational and technical education, different sources such as occupational analysis, national/international classifications, legislation and different sources are taken as reference in the determination of the fields in which children will study within the framework of occupational standards. The field of fashion design technologies is one of the many vocational education fields in Türkiye (MEB, 2018).

In this study, it was aimed to develop an attitude scale towards the clothing patterns course (CPCS). When the literature on clothing patterns is examined, it is seen that garment design is mostly related to draping (Bedük & Yıldız, 2004), 3D unfolding systems (Tama et al., 2016), posture problematic bodies (Ünal, 2019), clothing design process (Melek & Sözüer Doğan, 2023), basic clothing pattern drawing (Ozlu, 2009), basic concept (Sharipova & Madaminjonova, 2022), interactive clothing design (Ogata & Onisawa, 2008), optimization of dynamic fit parameters (Ganiyeva et al., 2015). There is no quantitative study in the literature in which a measurement of this course was made. The researchers attribute this to the lack of a measurement tool in this field. Therefore, contributing to the quantitative literature and empirical studies on clothing patterns has been the starting point of this study. The basic assumption of this study is that there is no attitude scale for the clothing patterns course in the literature. This assumption led the researchers to develop a measurement tool for the clothing pattern course.

Fashion Design Technologies Area

The field of fashion design technology is one of the fields taught in vocational and technical secondary education institutions and vocational training centers. In the field of Fashion Design Technology, it is aimed to train qualified professionals with advanced professional competencies in parallel with scientific and technological advances in line with sector demands.

In this direction, a formal education program in accordance with national and international standards is applied in the field of Fashion Design Technologies and the professions under the field (Eriş, 2024). In this program, students; Vocational Development Workshop, Workshop, Model Analysis and Model Development, Clothing Pattern Design and Production Workshop, Basic Art in Fashion, Clothing Accessories, Vocational Training in Business courses are given. Especially in the field of fashion design technology, which is rapidly developing in Türkiye, modeling, men's and women's tailoring, leather clothing, underwear modeling, ready-to-wear model machining, garment maintenance and repair is the field of study to gain the competencies of areas such as (MEB, 2018).

As of the 2018-2019 academic year, the name of the department, which was previously Clothing Production Technology, was changed to Fashion Design Technologies, and with the regulation made in 2020, the existing branches were removed and organized as "Tailoring" and "Clothing Design and Pattern Production" branches. The framework program of the "Women's Tailoring" branch in the field of Clothing Production Technology, which is being implemented in Kyrgyz Turkish Anatolian Girls Vocational High School until the 2022-2023 academic year, is based on the decision no. 52 in the Communiqués Journal dated 15.07.2015 and numbered 2695 (MEB, 2015). As of the 2023-2024

academic year, the program name has been updated as fashion design technologies and training has started to be given in Tailoring as a branch.

1.2. Clothing Patterns Course

This course is a course in the field of women's clothing in which information about basic and model applied clothing patterns is given. The aim of this course is to provide students with the competence to create basic and model applied clothing patterns related to women's clothing. The teaching methods applied in the process of teaching the course are methods such as lecture, problem solving, group work, demonstration, discussion, practical work, application, observation in textile enterprises, following innovations, research. While the learning environments of this course are textile-ready-to-wear enterprises and mold workshop, the course equipment consists of projection, drawing tables, computer and drawing tools (Eriş, 2024). Measurement and evaluation is done with measurement tools at the end of the course. The courses are given by teachers in the field as well as masters and technicians with experience in the sector (MEGEP, 2006).

Table 1. Compulsory Courses Table for the Department of Fashion Design Technologies (EBA, 2022)

Branches	**Class**	**Anatolian Vocational Program**	**Anatolian Technical Program**
Garment Mold Design and Production	9	Workshop	Workshop
	10	Garment Mold Design and Production Workshop	Garment Mold Design and Production Workshop
	11	Garment Mold Design and Production Workshop	Garment Mold Design and Production Workshop
	12	Vocational Education in Businesses	-
Tailoring	9	Workshop	Workshop
	10	Tailoring Workshop	Tailoring Workshop
	11	Tailoring Workshop	Tailoring Workshop
	12	Vocational Education in Businesses	-

The need for fashion designers who can gain sectoral competitive advantage in the global economy, manage branding processes and respond effectively to rapidly changing market demands in fashion clothing production and use up-to-date technologies is increasing. In this context, Fashion Design Technologies field aims to train fashion designers who can produce contemporary, creative and original designs for textile, ready-to-wear and fashion sectors (EBA, 2022).

With the spread of internet technology, new learning and teaching methods have emerged. In the flipped learning model, which is one of these approaches, the teacher transmits the materials prepared in advance to the students before the course, and the teaching of the relevant subject is carried out outside the classroom in an asynchronous manner. In the classroom, interactive, active and

cooperative problem-solving activities and subject reinforcement activities are applied (Deveci Topal & Akhisar, 2018).

When the course information forms of the garment pattern preparation course are examined, as stated in the explanations, the method aims to reach the gains by using lecture, demonstration, demonstration, discussion, question and answer, group work and more than one application activity (EBA, 2022). When the course is taught with the traditional method, basic information is given in the course, and homework is given when more than one application is required. However, when the course is taught with the flipped learning model, basic knowledge and skills can be gained through video lectures, and activities such as reinforcing the achievements of the course, eliminating misconceptions, and making the information permanent with activities that require visual-spatial intelligence can be carried out during the in-class course process. In this sense, it is thought that this study will contribute to the field of vocational education by teaching the garment patterning learning unit with a technological, new learning model, the flipped learning model.

METHOD

Research Model

In this study, the survey method, which is one of the quantitative methods belonging to the positivist tradition, was used (Aliaga & Gunderson, 2002; Creswell, 2003; Gul, 2023). In addition, since scale development studies have an exploratory feature in terms of their purpose (Carpenter, 2018), this study was conducted in accordance with the nature of scale development studies.

Study Group

More than one sample was used in the study. First of all, 3 Clothing Patterns Course teachers were interviewed in order to enrich the item pool during the development phase of the Attitude Scale Towards Clothing Patterns Course. Then, it was applied to a total of 409 students from 3 different vocational high schools operating in Türkiye in the 2022-2023 academic year. In this direction, data were collected from 2 different samples. The first sample group consisted of 200 students, while the second sample group consisted of 209 students. Exploratory Factor Analysis (EFA) was performed on the data obtained from the first sample group within the scope of the validity and reliability studies of the measurement tool, and Confirmatory Factor Analysis (CFA) was performed on the data obtained from the second sample group to ensure the construct validity of the measurement tool.

Table 2. Study Groups Participating in the Research

Study Groups	Scale Applied	Statistical procedures

First Working Group	Interview form	Interviews were conducted with this sample group to enrich the pool of items expected to measure attitudes towards the Clothing Patterns Course.	
Second Study Group	CPCS	Ensuring construct validity and applying EFA	Calculation of Cronbac's Alpha reliability coefficient over the data set resulting from the combination of the first and second study groups
Third Working Group	CPCS	Performing CFA to test construct validity and calculating composite reliability coefficients	

Data Collection Tool

In this section, the development of the item pool and form for the development of the Clothing Patterns Course Attitude Scale (CPCS) and the validity and reliability analyses are presented. While content validity and construct validity were utilized within the scope of validity of the measurement tool, Crombach Alpha internal consistency reliability, average variance extracted (AVE), composite reliability (CR) and item analysis techniques were utilized within the scope of reliability analysis. The factor loadings of the three-dimensional model obtained after CFA ranged between .52 and .82 in the first factor, .84 and 72 in the second factor, and .69 and .55 in the third factor, respectively. The Cronbach Alpha reliability coefficient of the measurement tool was calculated as .924 for the overall scale. The scale has 3 sub-dimensions and 16 items in total. The maximum score that can be obtained from the scale designed as a 5-point Likert scale is 80, while the minimum score is 16. Twelve of the items are positive and four are negative. The first sub-dimension of the scale is named as enjoyment of the course, the second sub-dimension is named as necessity of the course and the third sub-dimension is named as boredom of the course. A high score in the sub-dimensions of the scale emphasizes that the attitude level of that sub-dimension is high, while a low score emphasizes that the attitude level of that sub-dimension is low.

Data Analysis and Normality

SPSS 26 package program was used to analyze the research data. However, first of all, it was checked whether the data were normally distributed in order to determine which analysis technique would be applied. Because normal distribution is accepted as a basic assumption in statistical analysis and structural equation modeling (Hair et al., 2010). Outliers were first identified and removed from the data set to determine whether they fulfill the normal distribution condition. In order to determine the normal distribution, the results of Kolmogorov-Smirnov and Shapiro-Wilk tests were examined and it was seen that the results were not significant in both test types ($p \leq 0.05$). Afterwards, since in studies conducted in the field of Social Sciences, the normal distribution of the data is mostly determined by Skewness and Kurtosis values, these values were examined. It was determined that the kurtosis value of the data was .186 and the skewness value was .371. When the literature was examined, it was

observed that there was no consensus among the researchers. Some researchers (Burrell & Morgan, 1979) accept that if the kurtosis and skewness values are between +1 and -1, and some researchers (Field, 2009; George & Mallery, 2010) accept that if these values are between +2 and -2, the data fulfill the normality distribution condition. According to the kurtosis and skewness values of the research data, it was understood that the data fulfilled the normal distribution condition.

Ethical Statement

This research was conducted with the permission of the Scientific Research and Publication Ethics Board of Kyrgyzstan Türkiye Manas University with the decision numbered R.30.2023/BAYEK-16869.

FINDINGS

In this section, the development of the item pool and form for the development of the Clothing Patterns Course Attitude Scale (CPCS) and the validity and reliability analyses are presented. CPCS is a valid and reliable 5-point Likert-type scale with 16 items and 3 factors named Enjoyment, Necessity and Boredom. Considering the content of the items, the factors of the CPCS were named as "Enjoyment", "Necessity" and "Boredom". The items in the boredom sub-dimension are reverse scored. The maximum score that can be obtained from the scale is 80, while the minimum score is 16. A high score in the sub-dimensions of the scale emphasizes the high impact power of that sub-dimension and the positivity of the attitude, while a low score emphasizes the low impact power of that sub-dimension and the negative attitude. In other words, the effect of the sub-dimension on the scale increases as the items get closer to *Not Applicable at All*.

Since all of the scale items consist of negative statements, the total score obtained in each sub-dimension indicates that the perception towards the Clothing Patterns course is negative, while the low score indicates that the perception is positive. While the evaluation criterion of the scale is based on the total score averages, the evaluation of the impact power of the scale sub-dimensions is based on the arithmetic mean of the scores. Score ranges and evaluation criteria are *20-32 very negative, 33-44 negative, 45-56 neither positive nor negative, 57-68 positive, 69-80 very positive* in terms of perception.

Creation of the Item Pool

In order to create the item pool, the literature was first reviewed and domestic and foreign studies on clothing patterns were examined. As a result of the literature review, a pool of 24 items was formed. While determining the statements to be included in the item pool, care was taken to ensure that they exemplify all possible content that covers the quality in the light of other alternative assumptions

known about clothing patterns. Because the item pool should be more comprehensive than the theoretical framework in the target field (Clark & Watson, 1995). In addition, if the researcher inadequately samples the variables in the relevant field, it may cause an important factor not to be formed (Fabrigar et al., 1999).

Validity and reliability studies

In order to ensure the content validity of the created item pool, three faculty members with doctoral degrees in the fields of measurement and evaluation, psychological counseling and guidance, and program development were given to evaluate the items in terms of representing the feature to be measured. Davis (1992) technique was utilized in the evaluation of content validity and expert opinion form. According to this technique, expert opinions are evaluated as (a) the item represents the characteristic, (b) should be corrected a little, (c) should be corrected a lot, and (d) the item does not represent the characteristic. The sum of the a and b values in the forms received from the experts is divided by the number of experts to calculate the content validity index. Items where this value is more than 0.80 are considered to be sufficient in terms of content validity, while items below this value are removed from the form. Accordingly, as a result of the feedback from the experts, 2 items with a value less than 0.80 were removed from the scale and a total of 22 items remained. In addition, the agreement percentages of the forms received from the experts were calculated as 91%.

In order to conduct validity and reliability analyses of the scale with the remaining items in the scale form, a pre-application form was created before it was applied to the target group. The scale was designed as a 5-point Likert scale and options such as "Not at all appropriate", "Not appropriate", "Undecided", "Appropriate", "Appropriate" and "Very appropriate" were determined. For the scoring of the scale items, each option was given a number from 1 to 5 starting from "Not at All Appropriate". The scale was then administered to a group of 28 vocational high school students to determine whether the items were understood and whether there were any difficulties in understanding. In addition, the total score of each student was calculated based on the application time of the scale. As a result of the pilot application, the process of transforming the scale into an appropriate format that facilitates statistical procedures and prevents confusion was completed.

Construct validity

In scale development studies, validity studies are conducted to determine how accurately the trait to be measured is measured. Büyüköztürk et al. (2016) define validity as the extent to which it is able to measure the characteristics to be measured without confusing them with other characteristics. One of the techniques frequently used in validity studies to determine the scale structure is exploratory factor analysis (EFA). According to Büyüköztürk (2002), Factor Analysis is a multivariate statistic

that aims to find a small number of conceptually meaningful new dimensions by combining a large number of interrelated variables. For this reason, EFA and CFA tests were applied to test the construct validity of the data obtained from the GTTBS, respectively.

Exploratory Factor Analysis (EFA): EFA is conducted to test whether there is an order between the responses of the respondents to the items of the scale being developed and to determine the factor structure of the measurement tool (Tavşancıl, 2002). Prior to EFA, the KMO value was calculated as 894 to test the fit of the data for factor analysis and Bartlett's test results were statistically significant ($\chi 2$=1038.953, *df=120*). As a result of the first EFA, a 5-factor structure explaining 65.60% of the total variance was reached. However, it was determined that there were items that formed factors alone or with two items. The items that formed a factor with a single item or two items and the items that had loading values in more than one factor were removed from the measurement tool. Then, in the repeated EFA, as a result of the factorization technique and direct oblimin rotation (delta=0, kappa=4), a 3-factor structure explaining 62.00% of the total variance was obtained.

Table 3. Factor Structure and Factor Loadings of the CPCS

No	**Item**	**Factor Loadings**		
		Factor 1	**Factor 2**	**Factor 3**
Item4	Boş zamanlarımda Giysi Kalıpları dersini çalışmaktan hoşlanırım (I enjoy studying Clothing Patterns in my spare time)	.820		
Item 9	Giysi Kalıpları dersi sınavlarına çalışmaktan zevk alırım (I enjoy studying for the Clothing Patterns course exams)	.746		
Item 6	Giysi Kalıpları dersi beni rahatlatır (Clothing Patterns class relaxes me)	.743		
Item 5	Giysi Kalıpları dersini eğlenceli buluyorum (I find the Clothing Patterns class fun)	.733		
Item 10	Giysi Kalıpları dersi bitince üzüntü duyarım (I will be sad when the Clothing Patterns class ends)	.697		
Item 7	Giysi Kalıpları dersini saatlerce çalışsam bıkmam (I wouldn't get bored even if I studied Clothing Patterns class for hours)	.610		
Item 1	Giysi Kalıpları, sevdiğim bir derstir (Clothing Patterns is a class I like)	.609		
Item 17	Arkadaşlarımla Giysi Kalıpları konuları hakkında konuşmaktan zevk alırım (I enjoy talking about Clothing Patterns with my friends)	.552		
Item 12	Giysi Kalıpları dersinde öğrendiklerimi tekrar etmekten hoşlanırım (I like to repeat what I learned in Clothing Patterns class)	.529		
Variance Explained		**44.72**		

Item 11	Giysi Kalıpları, gerekli bir derstir (Clothing Patterns is a required course)	.843	
Item 20	Giysi Kalıpları dersinde öğrendiklerimin gelecek yaşamımı kolaylaştıracağına inanırım (I believe that what I learned in the Clothing Patterns course will make my future life easier)	.752	
Item 14	Giysi Kalıpları dersinin önemli bir ders olduğuna inanırım (I believe that Clothing Patterns course is an important course)	.721	
Variance Explained		**9.71**	
Item 18	Giysi Kalıpları dersi sınavlarına çalışmaktan hoşlanmam (I don't like studying for Clothing Patterns course exams)		.694
Item 22	Giysi Kalıpları dersinde sık sık saate bakma ihtiyacı hissederim (I often feel the need to look at the clock during Clothing Patterns class)		.670
Item 16	Giysi Kalıpları dersi konularını çalışırken yorgunluk hissederim (I feel tired while studying Clothing Patterns course topics)		.656
Item 19	Giysi Kalıpları dersi konularıyla ilgili araçlar hazırlamaktan hoşlanmam (I do not like to prepare tools related to Clothing Patterns course topics)		.556
Variance Explained			**7.56**
Total Variance Explained			**62.00**

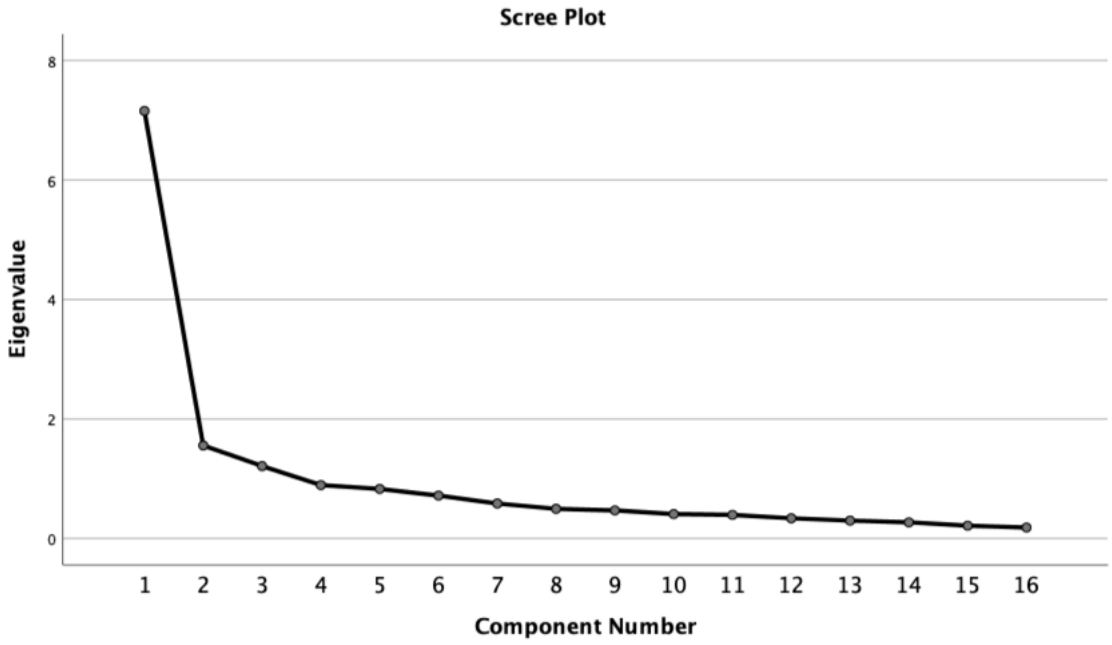

Figure 1. Scree Plot Curve for Items

Table 4. Sub-dimensions Determined as a Result of Factor Analysis and Items Included in These Dimensions

Factor	Items count	Item Number
Enjoying the Class	9	4, 9, 6, 5, 10, 7, 1, 17, 12
Course Requirement	3	11, 20, 14
Boredom in Class	4	18, 22, 16, 19

As seen in Table 4, a 16-item structure with 3 factors consisting of 12 positive and 4 negative items was obtained. The first factor consisted of 9 positive items (4, 9, 6, 5, 10, 7, 1, 17, 12); the second factor consisted of 3 positive items (11, 20, 14) and the third and last factor consisted of 4 negative items (18, 22, 16, 19). The items that loaded on the factors were analyzed and the factors were given a name appropriate to the literature. Accordingly, the first sub-factor was named as *Enjoyment of the Course*, the second sub-factor as *Necessity of the Course*, and the last sub-factor consisting of all negative items as *Boredom of the Course*.

Confirmatory Factor Analysis (CFA): CFA was applied to determine whether the data obtained from the application on the second sample group confirmed the structure consisting of 16 items and 3 factors obtained after EFA. Goodness of fit index (GFI), adjusted goodness of fit (AGFI), comparative fit index (CFI), normed fit index (NFI), Parsimony Normed Fit Index (PNFI), incremental fit index (IFI), root mean square error of approximation (RMSEA) and Parsimony Goodness of Fit Index (PGFI) were used to assess the fit of the model to the data (Tabachnick & Fidell, 2007). The fit indices and acceptable fit indices of this study are presented in table 5. The factor loadings of the three-dimensional model obtained after CFA ranged between .52 and .82 in the first factor, .72 and .84 in the second factor, and .55 and .69 in the third factor, respectively. In the literature (Browne & Cudeck, 1993; İlhan & Çetin, 2014; Kline, 2011), acceptable values for good model fit are; $2 \leq \chi 2/df \leq 3$, $.90 \leq GFI \leq 95$, $.85 \leq AGFI \leq .90$, $.90 \leq CFI \leq .95$, $.90 \leq NFI \leq .95$, $.50 \leq PNFI \leq .95$, $.90 \leq IFI \leq .95$, $.05 \leq RMSEA \leq .08$, and $50 \leq PGFI \leq .95$. The fit values for the data of this study are presented in Table 5.

Tablo 5. Confirmatory Factor Analysis Fit İndices of CPCS

	χ^2/df	GFI	AGFI	CFI	NFI	PNFI	IFI	RMSEA	PGFI
CPCS	2.219	.901	.881	.901	.910	.780	.903	.076	.763

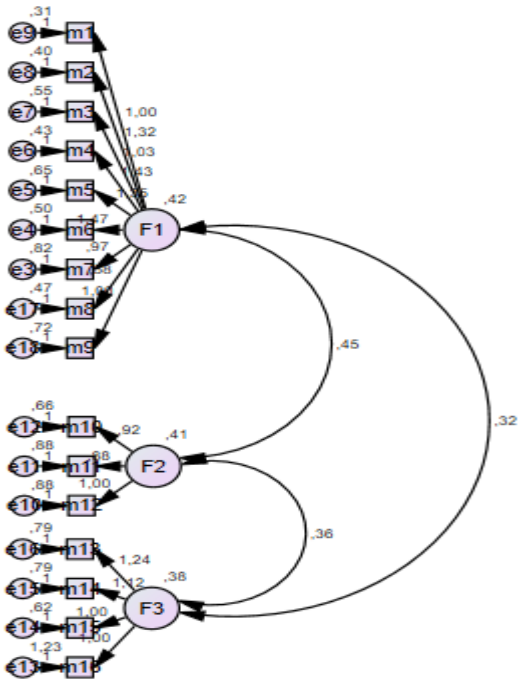

Figure 2. Structure after CFA

Reliability

Cronbach's Alpha, average variance extracted (AVE), composite reliability (CR) and test-retest methods were utilized to test the reliability of the measurements made with the CPCS. The Cronbach Alpha reliability coefficient of the measurement tool was calculated as .924 for the overall scale. The AVE and CR reliability values of the measurement tool are calculated based on the factor loadings obtained from CFA. It is recommended to calculate AVE and CR values especially in scale development studies (Hair et al., 2010). In order for the Cronbach Alpha and CR values calculated for the measurement tool to be accepted as reliable, the AVE value should be calculated as ≥0.70 and ≥0.50, respectively (Fornell & Larcker, 1981).

Table 6. Test Results for Scale Reliability

Sub-scales	Cronbach Alpha	CR	AVE
Factor 1	.90	1.624	.518
Factor 2	.80	1.190	.689
Factor 3	.72	1.087	.893

Item Analysis

In order to determine the prediction and discrimination levels of the items in the CPCS, the comparison of the 27% lower and upper groups was made. As a result of the analysis, the t value between the lower and upper groups of the scale was calculated as 22.86 (sd=66, p<.01) significant. In scale development studies, a significant t value for the difference between the lower and upper

groups is accepted as evidence for the discrimination of the items (Erkuş, 2012). Based on these results, it can be said that the scale items have distinctiveness.

CONCLUSION AND DISCUSSION

In this study, it was aimed to develop a valid and reliable measurement tool for attitudes towards Clothing Patterns Course. For this purpose, firstly, an item pool was created as a result of literature review and teacher interviews, then the content validity of the draft form was ensured in line with expert opinions and the first application was carried out to determine the factor structure of the measurement tool. Considering the compatibility of KMO and Bartlett tests for exploratory factor analysis of the data set, EFA was applied and a three-factor structure of the measurement tool was reached. Because in scale development, it is recommended to apply EFA first considering the possibility of researchers to be mistaken about the dimensionality of the scale (Carpenter, 2018). When we look at the scales developed to measure psychological constructs in the literature, it is observed that approximately 70% of them include sub-dimensions (Clark & Watson, 1995). In order to test the accuracy of the three-factor structure, CFA was conducted on the data obtained from a new sample group. In the studies in the literature. It is recommended to use a separate sample group for CFA (Costello & Osborne, 2005; Kline, 2013; Worthington & Whittaker, 2006). As a result of CFA, it was found that the fit index values were adequate.

Within the scope of reliability studies, Cronbach Alpha internal consistency coefficient was calculated and it was observed that this value was at a good level. Within the scope of reliability studies, AVE, average variance extracted and CR composite reliability coefficients were also calculated. It was determined that the CR and AVE values calculated based on the factor loadings obtained from CFA were at an adequate level. Finally, an independent samples t-test was performed on the data between the lower and upper groups to determine the discrimination feature of the measurement tool and the difference was found to be significant.

As a result, a valid and reliable measurement tool consisting of 16 items with three sub-dimensions was developed. A high score on the scale emphasizes a positive attitude towards Clothing Patterns Course and a low score emphasizes a negative attitude. Since the scale development process is a complex and multi-step process, researchers need to pay great attention. The Clothing Patterns Course Attitude Scale was the result of a process in which the researchers handled each step with great seriousness and attention. This scale has made a contribution by examining the attitude towards the Clothing Patterns Course and providing a scale to this field. One of the important issues to be considered here is that the construct measured is exploratory and the resulting measurement is open

to development over time. The measurement results should be brought to the attention of not only educational researchers but also policy makers.

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Giysi Kalıpları Dersine Yönelik Tutum Ölçeği (GKDYTÖ)

Faktör	No	Madde	Hiç uygun değil	Uygun değil	Kararsızım	Uygun	Çok uygun
Hoşlanma	1	Boş zamanlarımda Giysi Kalıpları dersini çalışmaktan hoşlanırım					
	2	Giysi Kalıpları dersi sınavlarına çalışmaktan zevk alırım					
	3	Giysi Kalıpları dersi beni rahatlatır					
	4	Giysi Kalıpları dersini eğlenceli buluyorum					
	5	Giysi Kalıpları dersi bitince üzüntü duyarım					
	6	Giysi Kalıpları dersini saatlerce çalışsam bıkmam					
	7	Giysi Kalıpları, sevdiğim bir derstir					
	8	Arkadaşlarımla Giysi Kalıpları konuları hakkında konuşmaktan zevk alırım					
	9	Giysi Kalıpları dersinde öğrendiklerimi tekrar etmekten hoşlanırım					
Önem	10	Giysi Kalıpları, gerekli bir derstir					
	11	Giysi Kalıpları dersinde öğrendiklerimin gelecek yaşamımı kolaylaştıracağına inanırım					
	12	Giysi Kalıpları dersinin önemli bir ders olduğuna inanırım					
Sıkılma	13	Giysi Kalıpları dersi sınavlarına çalışmaktan hoşlanmam					
	14	Giysi Kalıpları dersinde sık sık saate bakma ihtiyacı hissederim					
	15	Giysi Kalıpları dersi konularını çalışırken yorgunluk hissederim					
	16	Giysi Kalıpları dersi konularıyla ilgili araçlar hazırlamaktan hoşlanmam					