



## Teacher Tolerance Scale: Validity and Reliability Study

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### Abstract

This study aims to develop a reliable and valid measurement tool for the assessment of teacher tolerance. The stages of developing a scale can be broadly listed as follows; creating the items, seeking expert opinion, pre-testing, validity study, factor analysis, and reliability study. The study for the development of the scale was carried out on a total of 654 teachers. The Teacher Tolerance Scale has a rating of "Not suitable at all", "Slightly suitable", "Adjustable", "Very suitable", "Totally suitable" and a 5-point scale. As a result of the exploratory factor analysis performed to examine the construct validity of the scale, a 3-factor structure consisting of 17 items was obtained. These factors are respectively; ignorance, forgiveness, mercy. For the validity and reliability studies of the teacher tolerance scale, the Cronbach's alpha reliability coefficient was found to be 0.84. The KMO sample fit coefficient of the scale was found to be 0.87 and Bartlett's test ( $\chi^2=233.160$ ;  $p < 0.05$ ). These results show that the Teacher Tolerance Scale is a valid and reliable measurement tool. As a result, as a result of exploratory factor analysis and confirmatory factor analysis, a valid and reliable scale consisting of 17 items and 3 factors with a Cronbach's Alpha value of 0.84 and model fit index values expressed as "excellent" was obtained.

**Keywords:** Tolerance scale, validity, reliability, scale development.

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### Öğretmen Tolerans Ölçeği: Güvenirlik ve Geçerlik Çalışması

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#### Özet

Bu çalışmanın amacı, öğretmen toleransının değerlendirilmesine yönelik güvenilir ve geçerli bir ölçeği geliştirilmesidir. Bir ölçeğin geliştirilmesi aşamaları genel olarak şöyle sıralanabilir. Maddeleri oluşturma, uzman görüşüne başvurma, ön sinama, geçerlik çalışması, faktör analizi ve güvenilirlik çalışması olarak sıralanabilir. Ölçeğin geliştirilmesi çalışması toplam 654 öğretmen üzerinde yürütülmüştür. Öğretmen Tolerans Ölçeği “Bana hiç uygun değil”, “Biraz uygun”, “Uygun”, “Çok uygun”, “Tamamen uygun” şeklinde ve 5’li Likert tipinde bir derecelendirmeye sahiptir. Ölçeğin yapı geçerliliğini incelemek için yapılan açımlayıcı faktör analizi sonucunda 17 maddeden oluşan 3 faktörlü bir yapı elde edilmiştir. Bu faktörler sırasıyla; cehalet, bağışlayıcı, merhamet olarak sıralanabilir. Öğretmen tolerans ölçeğinin geçerlik ve güvenilirlik çalışmaları için cronbach alfa güvenirlilik katsayısı 0,84 olarak bulunmuştur. Ölçeğin KMO örneklem uygunluk katsayısı 0,87 ve Bartlett testi ( $\chi^2=233,160$ ;  $p < 0,05$ ) olarak bulunmuştur. Bu sonuçlar Öğretmen Tolerans Ölçeğinin geçerli ve güvenilir bir ölçeği olduğunu göstermektedir. Sonuç olarak yapılan açımlayıcı faktör analizi ve doğrulayıcı faktör analizi neticesinde Cronbach’ın Alpha değeri 0.84 model uyum indeks değerleri “mükemmel” olarak ifade edilen 17 maddeden ve 3 faktörden oluşan geçerli ve güvenilir bir ölçek elde edilmiştir.

**Anahtar Kelimeler:** Tolerans ölçeği, geçerlilik, güvenilirlik, ölçek geliştirme

## Introduction

Tolerance is one of the positive humanistic concepts that bring about the renaissance of human history and give it more peace in this world full of anxieties, and it's an important humanitarian value. It comes before justice, integrity, pardon, generosity, and honesty. Therefore, tolerance can be seen as a quick effect of psychotherapy. If the heart is full of tolerance, the mind becomes complacent and tolerates the mistakes of others.

Tolerance is an important step to restoring broken relations and mutual trust. It also contributes to solving many problems, among others. It prevents many future problems. Trust, cooperation, and belonging, which are all very important for the establishment of satisfactory and meaningful social relations, improve the quality of life (Muldoon et al., 2011).

There is no doubt that the common goal of all nations is to create a society that embraces its values, embraces universal values, and makes every effort to ensure that these values survive and to make all citizens live together in peace under one flag. Regardless of different religions, colours, or beliefs, how can we get this goal obvious? Education is an area that has a huge impact on society and the progress of all civilizations. Ethical values can be established in individuals through education. In particular, in today's world, it is necessary to adopt this basic principle in education and to educate the new generation in line with it.

Education, which is the second cultural and social centre mission to develop the concepts of democracy and freedom of expression within the classroom and also to promote cooperation and exchange of ideas between pupils on the one hand and between students and educators on the other hand, and to promote love, justice, cooperation, and tolerance, comes only through the curriculum and teachers, and education is the most successful means to prevent intolerance, and the first step to tolerance; is to teach people their rights and freedoms. The educational process consists of three main elements: the teacher, curriculum, and learner, and the most important element is the teacher. Teachers play multiple roles in the educational process and have a great role in the renaissance of society. Therefore, the Educational Ministry should give special attention to preparing good teachers (Diener, 1995).

Living together in peace in this world is the hope of every nation, and social relations have an important place in human life. It can be said that the basic dynamics of society are proportional to the desire to live together. In today's modern societies, the desire to live together is reflected. It can be said that wars, riots, internal conflicts, and racial murders in recent years are examples of this situation. Based on the idea that mankind will not live apart from society, we can conclude that at least we should endeavor to live together by agreeing on different common denominators with different ones, in this context, attitudes, and behaviors such as tolerance, anger, and forgiveness. It is possible to say that the feeling of being loved, respected, and welcomed is always present in human life. People who expect these feelings from society should incorporate tolerance into their attitudes and behaviors. It can be thought that the person who reflects tolerance as an essence of behavior will make a significant contribution to living together in peace and trust in society.

While cultural differences were seen as the cause of hostility in the past, they are now trying to become bridges of friendship. At this point, it is clear that tolerance is what will allow different cultures to merge and enrich each other, thereby bridging cultural differences (Zeybek, 2003). As it can be seen, the necessity of individuals from different cultures to come together reveals the need for these individuals to understand and respect each other and to approach each other with tolerance. Schools have become important institutions for individuals with different backgrounds, traits, and cultures to understand each other and to approach each other more positively (Brown, 2004).

Many methods can be used in education. It is accepted that it is more effective to use these methods together than to use them individually (Halstead, 2000). Through the researcher's knowledge of the theoretical literature on tolerance, the researcher believes that tolerance is a positive human value.

The individual, and especially the teacher, must be characterized by this value. This contributes to the teacher's having a heartfelt tolerance in general, which earns him the quality of his performance and high psychological health. It also contributes to building a tolerant generation that can live with others and respect the freedom of others.

As a result, the teachers' tolerance scale aims to measure the tolerance levels of teachers against undesirable behaviors seen in students during their education and training processes. The undesirable behaviors of the students handled within the scope of the scale were handled in a way to cover all kinds of undesirable behaviors that can be seen frequently at school, both related to educational activities and towards their friends or educational materials and equipment. While creating the scale items, behaviors frequently observed in school environments were determined based on both literature reviews and face-to-face interviews with teachers, and teacher tolerance scale items were created regarding these behaviors.

### **What is tolerance?**

The word "tolerance" derives from the Latin word "tolere", which means "to suffer or bear." And from "tolerantia", which means "leniency," and in the English language, there are two terms for this word: "tolerance" and "toleration. And the roots of the English word "toleration" are derived from the Latin roots "tolerate, which means "endurance," which means living with something unloved and undesirable and forcing one to deal with it positively. This leads to differences in multiple variations of opinions and judgments between them. Tolerance is defined in the English Oxford Dictionary as action, or practice with pain, or suffering, which is also known as strength, or the ability to endure pain (Williams & Jackson, 2015).

It should be noted that there are numerous definitions of tolerance; it is one of the most contentious concepts in social scientific research; the word tolerance means openness to diversity and variety in various forms. philosophical literature means the reaction of a person to something he finds difficult or problematic for what he embraces and knows, such as ideas, opinions, people, groups, values, and behaviors related to them. Tolerance as a political term means accepting different individuals, giving them the right to participate in political life, and accepting political opponents with different opinions (Abdelzadeh, 2017).

Karl Popper (1966) defined tolerance as "a moral and mental position that stems from the recognition that we are not sinless, that humans often make mistakes all the time, contrary to the attitude of intolerance that stems from the certainty of the validity of opinions and adherence to them." The concept of tolerance is difficult to define and differs according to culture (Reardon, 2001).

Definitions of tolerance in different languages;

- Tolerancia is the ability to accept other opinions and ideas from their ideas and opinions.
- Tolerantnost" is to be able to endure something or a person, which means accepting the existence of another person, compromising with a person, being a person to a person.
- "Tolerance" is an attitude that recognizes that others can think or understand differently from you.
- showing endurance, or toleration, acting, conducting, and allowing a person to have a denomination or opinion without interference or harassment,
- Turkish is endurance, tolerance, understanding, permitting, and suffering (Aslan, 2001).

Tolerance emerges as an important life skill, a recipe in civilized societies where man does not abide by traditions and habits that govern his view of others; he is open to people of different persuasions, leading to peaceful coexistence among different groups in society. Tolerance applies to many things, such as ethnic tolerance, occupational tolerance, gender tolerance, sexual orientation, and religious tolerance (Corneo & Jeanne, 2007).

Corneo & Jeanne (2007) explain that tolerance does not mean full conviction of the beliefs of the other person but rather a skill that requires no intolerance, respect for differences with others, focusing on commonalities instead of focusing on differences, and even defending others if they are harassed because of their differences (Corneo & Jeanne, 2007).

The concept of tolerance is suggested as a value that is suggested for the coexistence of differences on common ground and is needed where the differences lead to conflict or where the probability of causing conflict appears (Kuyurtar, 2000). Walzer is another person who evaluates tolerance by the dimension of difference. According to Walzer (1997), while tolerance differences are possible, difference tolerance is mandatory. Living side by side requires political stability and a morally legitimate regulatory framework. Beyond the rules of tolerance, no principles govern all regimes of tolerance or require, in any case, any time and everywhere, favoring a certain set of political or constitutional arrangements. In this respect, tolerance does not require the necessity of adhering to a certain type of tolerance virtue and standing at some point along the line of each participant (Svanberg, 2014).

### **The importance of tolerance**

As a social being, one has to live with other people in society. Tolerance has a positive impact on people's lives; people who are more tolerant of others are more likely to improve their economic situation than less tolerant people. Tolerance is a measure of how well an individual is prepared for life. Stimulates rationality in people and thus increases their ability to see others who differ from them as potential partners. (Muldoon et al., 2011).

Socially, tolerance contributes to reducing bullying, especially among children. Tolerance is a moral obligation to others, which promotes respect for oneself before respecting others. Tolerance has great importance in the preservation of human rights, and to achieve peace, democracy, and reducing violence, conflicts, and wars. And the significance of tolerance: it is necessary to understand how to raise people to be tolerant from childhood. As the child begins to acquire the moral qualities of the parents at home, if the parents are tolerant with others, the child will be a reflection of what he sees in the house, which requires careful use of negative words, racism in front of the child. Also, children can be taught to appreciate the cultures and ideas of others and be pushed to share activities with friends who are different from them. When a child is open to different cultures, people, and religions, it will be easier for him to accept the differences of others when he grows up (Abdelzadeh, 2017).

The school has a great role in educating children to respect others, preparing educational programs, and raising awareness about tolerance to increase integration among children. They can be involved in field trips and summer camps (UNESCO, 1994). The study by Lawler and Piferi (2006) found that the most tolerant individuals are less depressed, anxious, more religious, happier, more satisfied with life, self-esteem, and mental health. Today, more than ever, we urgently need to be tolerant. It is one of the great human values that are about to be forgotten by humans as they engage in this life, Tolerance has many psychological, physical, and mental benefits, and the teacher is considered the bearer of morality in society. Therefore, teachers must be characterized by these noble qualities so that they are qualified to teach the younger generations.

Therefore, people and societies have to learn about the culture of living together. Differences can be described as wealth based on the common denominator of being human. If the culture of living together can be learned and put into practice, the world of the future can be transformed into the happy, peaceful, and safe environment that individuals and communities are looking for. Individuals must make a serious effort for this to happen.

Together with the globalizing world, societies have faced certain problems such as human rights, pluralism, democracy, freedom of religion, and conscience. The problems mentioned in the modern world are discussed, and there is increased sensitivity to living together. While the discussion of these issues is not very old, the existence of these problems has not yet been discovered. There are differences in beliefs and opinions among the members of the same society as well as between societies. What is important here is how to live together in an atmosphere of peace. There are two options in this regard.

One of them is that the strong in society suppresses the other by force and imposes their own beliefs and thoughts on the other. This option means a restriction of personal rights and freedoms. It also causes deterioration of social peace and trust. A second option is to accept others' differences and learn how to live together (Güneş, 2005).

To establish a certain order in society, people have to live by certain rules. Moral and tradition-based behavior is the basis of these rules. At this point, the importance of the concept of tolerance emerges. Tolerance is one of the moral behaviors. Because tolerance allows people to live together in peace by developing the love and respect, they need (Duck, 2000).

### **Tolerance and education**

People have not inherited negative qualities such as prejudice, intolerance, and disrespect towards people or societies that are different from themselves in various ways, such as language, religion, and thought. Considering this element, the place and importance of education in the formation of a tolerance culture can be better understood. In other words, intolerance is a learned behavior. The fact that intolerance is a learned behavior means that these behaviors can be turned into tolerance through education (Kaymakcan, 2007).

To spread the understanding of tolerance, which is regarded as one of the rising values of our age in society, it is necessary to adopt it as a basic principle in education and to educate the new generation in line with this principle. The necessity of tolerance as a value makes itself felt in all areas of social life. Tolerance is an important element in maintaining an optimistic life based on trust and respect. Tolerance reflection in educational activities can be defined as a necessity in today's world, where differences in beliefs and thoughts are seen as a source of discrimination because living conditions are not fully and healthily fulfilled, and there are violence and conflict events (Yılmaz, 2004).

In every society, the question of knowing others and teaching tolerance is part of the problem. This is to shape the character of our children by teaching them those morals and values for their lives. As Jacques Delors (1996) described in the UNESCO report "Learning: The Treasure Within," the four main pillars of education are: (1) learning to know, (2) learning to become, (3) learning to practice, and (4) learning to live together. In today's world, living together has become an increasingly important lifestyle thanks to the rapid development of communication technology and the effects of globalization. Such developments have transformed our world into a global village where each person knows the other and performs all business and cooperation together as a group. Thus, it can be said that success in today's and tomorrow's worlds depends on understanding, evaluating, and working with others (Kouchok, 2008).

### **Relation between school and tolerance**

Tolerance can be instilled in the minds of individuals through family and school upbringing, which includes the responsibility of raising them, directing and guidance, and the consolidation of love and interaction between individuals. The school, which is the second centre of culture after the family, develops the concepts of democracy and freedom of expression within the classroom and also promotes cooperation and exchange of ideas between students on the one hand and between pupils and educators on the other hand. And that the promotion of this love and tolerance comes only through the curriculum and methods of dealing with educators in the classroom. Awareness of tolerance is a fundamental possibility of man, but it does not function on its own. Training can develop methods and techniques based on the theoretical necessity of functioning within this opportunity. Although this responsibility does not only belong to schools, with the change in society and family structure, schools have been pulling the rope alone to fulfill this task (Delice, 2011).

Tolerance is an understanding and a way of life. To transform this understanding into behavior, an appropriate environment is needed. Tolerance should be included in schools where a planned and programmed process is operated as a goal of the education programs, and it should be tried to be gained. In the education of tolerance as a value, families are involved in the informal process, while schools are

in the formal part of this process. The most important element to develop at school is the teacher's attitude towards the tolerance gained by individuals in the family. Because the teacher will adopt the value of tolerance that is planned to be gained together with the other objectives in the program and adapt it to the children. It is the most important element of the school. As a result, teachers must be more sensitive to tolerance (Büyükkaragöz, 1996).

Kaymakcan (2007) stated that intolerance stems from the fact that the person considers himself superior to the other in various respects; the main objective of tolerance education is to recognize and respect the dignity of all people. It is underlined that tolerance and respect towards others are emphasized in the education programs and socially oriented courses in our schools, and they are aimed at raising tolerant individuals. Of course, it is inconceivable to attain these goals by chance. For this, some elements need to be questioned and regulated, from school culture to the system.

### **The Importance of the Study**

First of all, the present study is one of the few studies that have been written about tolerance in Duhok, Iraq. This is despite the importance of tolerance, which unfortunately has not received adequate attention, especially in the education field. On the other hand, an attempt to connect the concept of tolerance to an important category in society, which is teachers, has a significant role in society because they have an impact on whole new generations and they teach them moral values, so they must have these values in themselves, and one of the most important values is tolerance. Therefore, this study is very important because it will make you realize the importance of tolerance to the teacher

### **Methodology**

In this section, the study group and the validity and reliability studies of the scale are given. This chapter also provides the goals of this research question, and the procedure for data collection tools is detailed and data collection is viewed.

### **Research Model**

The study was carried out using a descriptive approach, which is one of the screening models, and it is appropriate for quantitative research methods. Screening models are those that aim to define a previous or current event (event, person, or object) in its conditions (Karasar, 2005). Although this study is a development study of the Teachers' Tolerance Scale, descriptive research was used while developing the scale. Descriptive research is research that is used to investigate the event as it is and to determine the existing situation, and the scanning model is widely used in this type of research. According to the researcher, the survey model is accepted as research carried out on large groups to determine certain characteristics of a group, by determining the opinions and attitudes of the individuals in the group towards the phenomenon or events and trying to explain the phenomenon or events (Fraenkel & Wallen, 2006).

### **Participants and Sampling groups**

The validity and reliability studies of the “*Teacher Tolerance Scale*” were carried out in Duhok with a total of 654 teachers. In the study group, 324 (49.5%) of the teachers were females and 330 (50.5%) of them were males.

**Table 1.** Distribution of Classroom Teachers According to Gender

Gender	Frequency	Percent %
Male	330	50.5
Female	324	49.5
Total	654	100.0

Table 1 shows the distribution of teachers who participate in the study by gender. According to this study, 330(50.5%) of the group are male teachers and 324(49.5%) are female teachers. When the

distribution is examined according to gender, it is seen that male teachers and female teachers are nearly the same.

**Table 2.** Distribution of Classroom Teachers According to Marital Status

Marital Status	Frequency	Percent %
Married	502	76.8
Single	152	23.2
Total	654	100.0

Table 2 indicates the 654 teachers who participated in this study, 502 (76.8%) were married and 152 (23.2%) were single as it is seen in the table; married teachers were more than single teachers.

**Table 3.** Distribution of Classroom Teachers According to Age

Age	Frequency	Percent %
20-30	136	20.8
31-40	362	55.4
41-50	119	18.2
51-over	37	5.7
Total	654	100.0

Table 3 shows the distribution of the different ages of teachers, When the table is examined, those who participated in the study have 136 (20.8%) of the teachers who are between (20-30 years). The teachers who are (31-40) years are 362 (55.4%). and the teachers who are (41-50) are 119 (18.2%). The teachers 51 and over are 37 teachers (5.7%). According to this, classroom teachers constitute the highest percentage with (55.4%). Class teachers with 51 and over constitute the lowest percentage with (5.7%).

**Table 4.** Distribution of Classroom Teachers According to Their Branch

Branch	Frequency	Percent %
Language	209	32.0
Social	121	18.5
Science	230	35.2
Art	59	9.0
Total	619	100

According to table 4, all teachers didn't write the answer from 654 teachers who participate in the research, only 619 teachers gave their branch and others didn't write the answer, 209 (32.0%) of this teachers were language faculty teachers, 121 (18.5%) were graduated from social faculty, 230 (35.2%) of this teachers was graduated from science faculty and the last one is art faculty graduates accounting for 59 (9.0%), as shown in Table 8, the large category of the teachers was science faculty 203 (37.1%) and the small category was art faculty 59 (9.5%).

#### Data collection tools

The data collection tools consist of two parts, used as the questionnaire. In the first part, the personal information form was used to identify the descriptive features. In the second part, a tolerance scale used in the research was given. To collect demographic information, the Personal Information Form and Tolerance Scale were used to measure the relationship between teachers and students in class.

### **Demographic information form**

This form is developed by the researcher. The form, which consists of 10 questions, was prepared by the researcher to obtain information about the personal and professional characteristics of the teachers. The Personal Information Form consists of questions that are related to gender, age, marital status, experience years, branch, satisfaction with life; the relationship between teachers and students, economic situation, school level, and having or not having a child.

### **Teachers' tolerance scale**

This scale aims to measure the level of tolerance of teachers against undesirable behaviors frequently observed in students and schools. The scale consists of a total of 23 items, consisting of both positive and negative items. 16 of the items were designed to measure non-tolerance and 7 items to measure tolerance towards teachers' undesirable behaviors. In this respect, high scores on the scale indicate a high level of tolerance for teachers' undesirable behaviors, and low scores indicate a low tolerance level. Item numbers 1, 3, 6, 7, 9, 10, 11, 13, 14, 15, 18, 19, 20, 21, 22 and 23 are scored in reverse order. Besides, items number 2, 4, 5, 8, 12, 16, and 17 are included in the scoring in line with the evaluations of the participants.

Since it is a Likert-type scale, individuals mark one of the numbers 1 to 5 next to each item. These numbers correspond to the expressions 1 "Not suitable at all", 2 "Slightly suitable for me", 3 "Adjustable for me", 4 "Very suitable for me" and 5 "Totally suitable for me. 13 items were negative. Some of the items on the scale are as follows: I do not tolerate violent students, even to defend themselves. I warn students who speak slang that I tolerate the negative behavior of students who have to think that their intentions are good. I tolerate the negative behavior of students who have to think that their intentions are good (see Appendix 1).

### **Scale Development Process**

In the process of developing the scale, the studies carried out to ensure the validity of the scale will be explained. Firstly, the scale development process for the data collected and literature review was conducted, and after that, we wrote the scale items and gave them to experts for scope validity, and then the results of the Exploratory and Confirmatory Factor Analysis were given for construct validity. The following steps are followed in the large-scale development process.

To develop the data collection tool, firstly, a literature review was conducted. In particular, the concept of tolerance was examined. Teachers and experts working in the field of teachers' tolerance were asked to provide examples that reflect traditional and egalitarian perspectives on women and men within the professional framework. While creating the expressions, attention was paid to using simple language. The verbs do not consist of the same expressions consecutively, and the ethically disturbing expressions were not present on the scale. After the pool of scale items, the research on scale development was examined and expert opinions were taken, and a 5-item Likert-type scale form consisting of 38 items was prepared. The items on the scale were arranged to have a 5-item Likert-type rating.

The opinions of the experts in the fields of measurement and evaluation, teachers, psychological counseling, and guidance were obtained about the clarity of the expressions of the scale items that were formed and their degree of relevance to the subject. The pool of substances prepared for this purpose was sent to experts working in universities. Developing a scale to investigate the teacher's tolerance in the school within the scope of the 38-item scale thesis. A literature review was conducted to measure the tendency to choose the teachers' tolerance, and traditional and egalitarian items, including obvious empathy, have been written following the target. The form was prepared with the directive of Psychological Counselling and Guidance. Evaluating the responses of experts, required corrections were made on the scale. The experts were content in the distressed and appropriate scale, which was created as 32 items based on expert opinions, as well as forms translated to Turkish again to evaluate the language between the scale's items.

After the scale was ready to be applied, the application was made to the Dohuk Provincial Directorate of National Education to carry out the application in more than 100 schools, and the necessary application permission was obtained. It was decided to collect data from more than 100 schools to allow for the collection of data to be used in exploratory factor analysis and reliability calculations with permission. This will be applied to the school administration with the permission of the school.

Finally, after the pilot application, the scale was revised and finalized, and the actual application was started. The scale applied to 654 teachers who work in public schools in the province of Dohuk, Iraq. After the application, all scales filled out were examined. Some incorrect or incomplete forms were excluded from the assessment, and scale development analyses were started by entering data from 654 forms. In chapter three, scope validity and reliability are discussed, and then the results of the exploratory and confirmatory factor analysis are given for the construct validity

### Data analysis

The statistical SPSS 20.0 package program was used in the evaluation and analysis of the data collected from the field research. After data analysis, a .05 significance level was determined. Frequency and percentage distributions of all questions in the questionnaire and the answers given to the propositions on the scale were calculated, and these distributions are shown in tables and graphs. In addition, descriptive statistics such as mean, standard deviation, median, minimum and maximum values were used. And for validity, the Kaiser-Meyer-Olkin measure of sampling adequacy was conducted to ensure that there was adequate variability in the collected data. Also, for the reliability test, Cronbach's alpha was conducted to find internal consistency among the items, and principal component analysis with varimax rotation was conducted on the collected data.

### Ethical Approval

The research was carried out with the approval of the Van Yüzüncü Yıl University Scientific Research and Ethics Committee dated 28.12.2021 and numbered 2021/23-05.

### Findings

In this section, the findings obtained as a result of the validity and reliability studies of the scale are given.

#### The construct validity of the tolerance scale

Kaiser–Mayer–Olkin (KMO) coefficient and Barlett Sphericity test are used to determine whether the data are suitable for factor analysis. If the KMO coefficient is higher than 0.60 and the Barlett test is found to be significant, it can be concluded that the data obtained are suitable for factor analysis (Büyüköztürk, 2008).

**Table 5.** KMO and Bartlett's Test after Exploratory Factor Analysis Results

Kaiser-Mayer-Olkin measure of sampling adequacy	.878
Approx. chi-square	2335.16
Df	136
Sig	.00

As a result of preliminary analysis of the data obtained from the research; KMO Kaiser-Meyer-Olkin (Sampling Suitability Measurement) value is 0.878. Barlett test result is significant, ( $p < 0.05$ ). Chi-square value = 2335.160. In the light of this information, the data are suitable for exploratory factor analysis (Table-5).

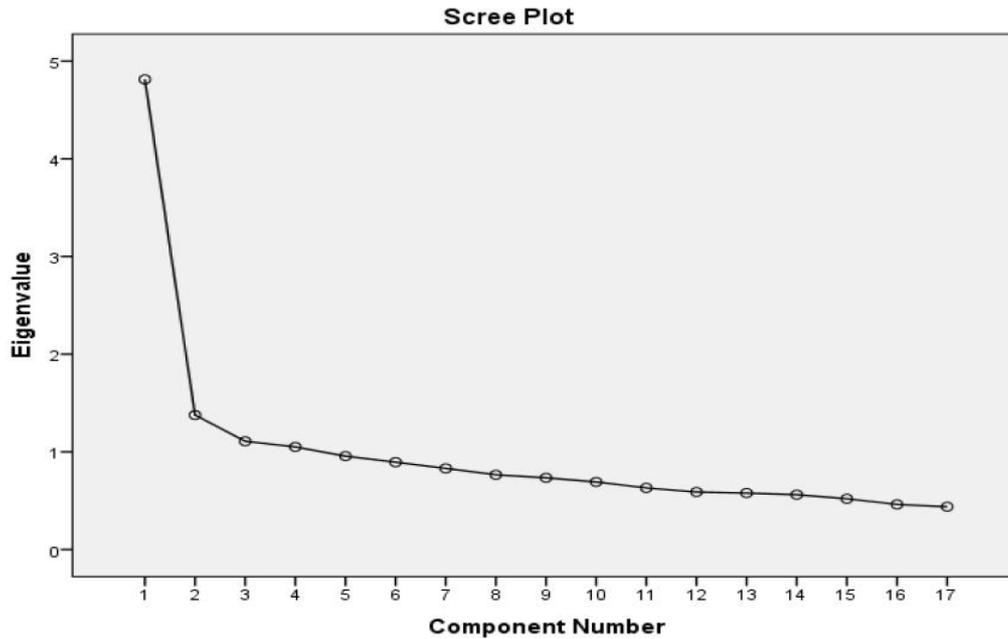
**Table 6.** Explained Variance Values of the Tolerance Scale

Component	Initial Eigenvalues	Extraction Sums of Squared Loadings	Cumulative Total %
	Total	% of Variance	
1	4.81	30.37	30.37
2	1.37	10.16	40.53
3	1.10	6.58	49.11

When the factor component matrix obtained from the first analysis was examined, it was found that these factorizations were significant. When the eigenvalues of the factors are examined, it is seen that the factor has a very large eigenvalue, to simplify the factor structure, the analysis was continued using rotation methods. Vertical rotation method, which is frequently used in scale development. Vertical rotation can be done with Varimax. This technique was preferred because the scale was predicted to have more than 2 factors. Varimax and Equamax techniques were used to determine which one to use. As a result of the analyzes and investigations, it was found that the factorizations in the Equamax technique were conceptually more meaningful.

The results of the Principal Component Analysis are examined, it is seen that the draft scale has a 3-factor structure with an eigenvalue above, and the total variance explanation rate is 100,000%. When Table 6 is examined; the eigenvalue is seven dimensions greater than the total between (4,813 and, 438) and the variance explained is 28%. An eigenvalue greater than 1 is a criterion in deciding the number of factors. When the variances explained by the three factors were examined separately, the variance was (49,115%) It is seen that the variances explained by the three factors are very close to each other, When examined, it is seen that the scale has inclined fractures at points and the distance is at a significant distance. In this case, it can be stated that the scree plot and total variance explained tables give parallel information.

As a result of the analysis made by the criteria mentioned above 2, 3, 4, 5, 6, 8, 12, 16, 22, 24, 25, 26, 29, 30, and 31 Items have a factor load of less than 0.45 has been removed from the scale. The items were respectively, were excluded because they were overlapped. As a result of all these item reductions, it was seen that one factor consisted of only 7 items. According to the determined criteria, there are no items left from the scale and the scale has taken its final shape. The final analysis values obtained from the rotated component matrix are shown.



**Figure 1.** Line graph obtained as a result of the exploratory factor analysis

When the Slope Accumulation Graph is examined, it is seen that the graph starts to flatten after the 3<sup>rd</sup> factor. When the Total Variance Values Table is also taken into consideration, it has been decided that the number of factors is four by taking into account the height of the difference between the fourth and fifth factors and the proximity of the values after the fifth factor. Subsequently, the number of factors was reduced to three because the items coming together in one factor were not conceptually compatible with each other. The common factor variances (communalities) that are explained together in any item should be large and not less than 0.40 (Velicer & Fava 1998).

**Table 7.** Factors of the Scale, Factor Loadings

	Component		
	1	2	3
T18	.73	.11	.07
T17	.67	.17	.03
T19	.63	.16	.09
T20	.59	.12	.27
T28	.53	.34	.08
T23	.52	-.06	.34
T21	.49	-.04	.43
T27	.46	.42	-.05
T1	.15	.73	-.03
T7	.09	.61	.20
T9	.05	.56	.34
T11	.28	.42	.33
T32	.33	.34	.21
T13	.11	-.04	.68
T15	.05	.34	.52
T14	.07	.26	.52
T10	.2	.31	.51

A scale consisting of three factors and 17 items emerged as a result of the items which could not meet the required conditions. In multifactorial designs, it is considered sufficient that the variance described is between 40% and 60% (Çokluk et al., 2012). When the items that come together in the factors are examined, the first factor named (respect and mercy), and those with less than factor burden are listed as follows: items 18, 17, 19, 20, 28, 23, 21, and 27. The Eigenvalue of the respect and mercy factor of authority sub-dimension and the percentage of explaining the variance of the factor was 4,62. Factor loads vary between 0.73-0.47.

The second factor of the scale was named as (ignorance), and the items were classified as 1, 7, 9, 11, and 32. The Eigenvalue of the peer fear sub-dimension was and the percentage of explaining the variance of the factor was 2,72. Factor loads vary between 0.74-0,35.

The third factor of the scale was named as (forgiving)and his items are 13, 15, 14, and 10 were ordered from the factor load to the lesser factor. The eigenvalue of the fear of failure sub-dimension and the percentage of explaining the variance of the factor was 2,24. Factor loads are 0.68 and 0.51. We can use this scale on factor because of the first-factor variance than 30%.

### The construct reliability of the tolerance scale

**Table 8.** Result of Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.84	.84	17

Cronbach's alpha reliability coefficient scale was found to be 0.84. It is possible to say that there are substances that reduce the reliability of the scale. First of all, we tried to increase the reliability by removing the items with high correlation. After that, we found a very acceptable Cronbach's alpha, .84, and substances on 17 items.

**Table 9.** Result of Items Statistics

Items	Mean	Std. Deviation
T18	3.93	1.22
T17	3.72	1.21
T19	3.69	1.23
T20	3.55	1.13
T23	3.49	1.31
T28	3.85	1.32
T21	3.24	1.35
T27	3.49	1.30
T1	2.92	1.35
T7	3.24	1.35
T9	3.10	1.24
T11	3.21	1.29
T32	3.33	1.26
T13	2.94	1.29
T15	3.10	1.23
T14	3.27	1.29
T10	3.10	1.38

In Table 9, the reliability of the tolerance scale was examined. Because the highest is equal to (3.92) and the lowest one is (2.92). Therefore, it should not remove any other item from the scale. As a result, our reliability was scientific, according to statistical reliability. Also, all the correlation coefficients shown in the table were significant. A positive significant correlation was found between the tolerance scores of the teachers at different times.

**Table 10.** Result of the Item-Total Statistic

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
T18	53.27	118.44	.50	.37	.82
T17	53.48	119.26	.47	.31	.82
T19	53.51	119.02	.47	.31	.82
T20	53.65	119.19	.51	.31	.82
T23	53.71	119.61	.41	.23	.83
T28	53.35	117.14	.50	.29	.82
T21	53.96	118.38	.44	.25	.83
T27	53.71	119.23	.43	.24	.83
T1	54.28	119.57	.40	.24	.83
T7	53.96	119.18	.41	.23	.83
T9	54.09	120.22	.42	.25	.83
T11	53.99	117.78	.49	.30	.82
T32	53.86	119.62	.43	.21	.83
T13	54.26	122.46	.32	.17	.83
T15	54.09	120.75	.40	.25	.83
T14	53.93	121.00	.37	.24	.83
T10	54.10	116.90	.48	.33	.82

The reliability of the tolerance scale according to corrected total items between 0,32 and 0,52. The Cronbach's Alpha was deleted as seen in table 10, the scale ranged from 0,83 the reliability coefficient of the whole scale is 0,84. In this case, it can be said that the scale has a high level of reliability.

### Conclusion

For a better understanding of the results of this study, this section will consider the results of the scale developed, its validity and reliability, as well as the factor analyses in this chapter.

### Results of Scale Development

The first stage of the research was literature related to the field of developing teachers' tolerance. Teachers' tolerance was searched for. As a result of the screening, a Liker-type form consisting of 32 items was created by using expert opinions. The draft scale form obtained was applied to a sample of 654 teachers, consisting of randomly selected teachers from different public schools in the province of Duhok.

### Result of Validity and factor analysis

Factor analysis to determine the construct validity of the scale reveals which factors are related to the teacher's tolerance. Firstly, it was checked whether the data structure was suitable for factor analysis by using the KMO (Kaiser Meyer Olkin) test and Bartlett test methods. The KMO test value was 0.878 and the Bartlett test was 233.160 ( $p < 0.05$ ). These two values indicate that the data set is suitable for factor analysis. The eigenvalue statistics and the line graph of the eigenvalues were used to determine the number of factors. There was no initial limitation on the number of factors. In this study, items with low item load values and overlapping items were excluded from the scale. The scale had a three-factor analysis for the scale named "ignorance," "forgiving, and "respect and mercy."

### Result of Reliability Analysis

The more reliable a scale is, the more similar and stable the results are between the independent measurements. To ensure the reliability of the instrument, a validity analysis was performed based on

Cronbach's alpha and lower-upper groups for the scale's validity. The Cronbach alpha value was found to be 0.84 in the reliability analysis for the 17-item empathy scale.

These results show that the Teacher Tolerance Scale is a valid and reliable measurement tool. As a result, as a result of exploratory factor analysis and confirmatory factor analysis, a valid and reliable scale consisting of 17 items and 3 factors with a Cronbach alpha value of 0.84 and model fit index values expressed as "excellent" was obtained.

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### **Etik Beyanamesi**

Bu çalışmada "Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Etiği Yönergesi" kapsamında belirtilen kurallara uyulduğunu ve "Bilimsel Araştırma ve Yayın Etiğine Aykırı Eylemler" başlığı altında belirtilen eylemlerden hiçbirini gerçekleştirmediğimizi beyan ederiz. Aynı zamanda yazarlar arasında çıkar çatışmasının olmadığını, tüm yazarların çalışmaya katkı sağladığını ve her türlü etik ihlalinde sorumluluğun makale yazarlarına ait olduğunu bildiririz.

### **Etik Kurul İzin Bilgileri**

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Etik kurul karar tarihi: 28.12.2021

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**Appendix 1. Teachers' Tolerance Scale**

	Items	Not suitable at all	Slightly suitable	Suitable	Very suitable	Totally suitable
1	I don't tolerate students who do not fulfill their responsibilities.					
2	I ignore intrusive students in the classroom.					
3	A student Although academic achievement is high, I do not tolerate negative behavior.					
4	I will show an understanding of negative behavior to those who thought it was done unintentionally.					
5	If it's the students' first negative behavior, I will tolerate it.					
6	The undesirable behavior of neglected scruffy students makes me more uncomfortable.					
7	I don't tolerate those students who act violently.					
8	I don't mind the students who nicknamed their friends.					
9	I do not show understanding to late students.					
10	I do not tolerate students who damage the book.					
11	I am not tolerant of students who engage in harmful behavior with class materials.					
12	Students' gender does not affect my negative attitude towards unwanted behavior.					
13	I do not tolerate violent students, even to defend themselves.					
14	In any case, I punish students who steal their friends' belongings.					
15	I do not accept any excuse from the students who commit violence.					
16	I will let that student who brings their favorite toy to the classroom play.					
17	I warn students who spoke slang.					
18	I do not accept male student violence against female students.					
19	I do not tolerate students who commit theft, even if their economic situation is bad.					
20	I don't tolerate students who harm their friends' belongings.					
21	I don't like students who laugh at their friends who gave the wrong answer.					
22	I do not tolerate students who cheat in games to win.					
23	I don't tolerate lying for any reason.					
24	I tolerate the negative behavior of students who I think have good intentions.					
25	I don't let the students disrupt my classes.					
26	Even if your answer is correct, I don't find it right to talk in class without permission.					
27	I do not tolerate students walking around the classroom during class time.					
28	I don't tolerate students who bring tools to school.					

<b>29</b>	The student's conditions determine my attitude towards unwanted behavior.					
<b>30</b>	I don't tolerate tolerant students who do not do their homework.					
<b>31</b>	I tolerate students who arrive late for the first lesson.					
<b>32</b>	I get angry with students who make fun of their friends.					

The scale consists of a total of 23 items, consisting of both positive and negative items. 16 of the items were designed to measure non-tolerance and 7 items to measure tolerance towards teachers' undesirable behaviors. In this respect, high scores on the scale indicate a high level of tolerance for teachers' undesirable behaviors, and low scores indicate a low tolerance level. Item numbers 1, 3, 6, 7, 9, 10, 11, 13, 14, 15, 18, 19, 20, 21, 22 and 23 are scored in reverse order. Besides, items number 2, 4, 5, 8, 12, 16, and 17 are included in the scoring in line with the evaluations of the participants.