

# The Development of a Scale to Measure Teacher's Self-Efficacy and Confidence in Teaching Compulsory K-12 Theology Courses

Sezai Kocabas<sup>1</sup>, Burhan Ozfidan<sup>1</sup> & Lynn M. Burlbaw<sup>1</sup>

<sup>1</sup> College of Education & Human Development, Texas A&M University, TX, United States

Correspondence: Sezai Kocabas, College of Education & Human Development, Texas A&M University, TX, United States.

Received: February 1, 2018

Accepted: April 11, 2018

Online Published: May 15, 2018

doi:10.5539/jel.v7n4p92

URL: <https://doi.org/10.5539/jel.v7n4p92>

## Abstract

One of the most important goals of education is to ensure the quality of teaching and learning. Sense of teacher's self-efficacy affects the quality throughout the contribution to all stakeholders in educational process. The right of religious education is one of the essential rights in the world. Moreover, it has positive effect on the society by helping to improve social relationship. Therefore, teacher self-efficacy belief based on religious groups is critical for stakeholders in religious education as well as other fields. The purpose of this study is to construct an instrument to measure teachers' sense of self-efficacy related to teaching compulsory K-12 theology courses. The result of the study indicates that the teacher self-efficacy scale towards religious groups is valid and reliable instrument. The instrument is going to be useful to look to peaceful future with confidence.

**Keywords:** self-efficacy, teacher efficacy, religion, theology courses, development

## 1. Introduction

Educational policies aim to enhance quality of education by increasing the outcomes of stakeholders in education. Cognitive, affective, and physical outcomes depend on information from variety of sources. Teacher self-efficacy as a source of information has significant effect on the quality of education. Self-efficacy in a certain field is, furthermore, generalizable to other disciplines (Bandura, 1997). Therefore, it does not matter which field individuals have sufficient level of self-efficacy, it would help to increase the quality in other disciplines of education.

Religious education is a most essential part of one's life. Thus, the quality of theology education contributes to the individual's relationship with society. Religious education especially related to groups of people based on religion has much more effect on the society. Hence, the purpose of the study is to develop a valid and reliable instrument to measure teacher's self-efficacy related to teaching compulsory K-12 theology courses. The following questions are addressed:

- 1) What are the Exploratory Factor Analysis results of the developed instrument?
- 2) Does the developed instrument demonstrate judgmental validity?
- 3) Is the developed instrument reliable?

## 2. Theoretical Framework

### 2.1 Teacher Efficacy

Two dominant frameworks inform the study of efficacy. Rotter, in his social learning theory, explained that reinforcement acts to strengthen the expectancy that a behavior or event will be followed by the same reinforcement in the future (Rotter, 1954). These expectancies or beliefs are generalized from a specific situation to other situations which are related or similar and individuals would be differ in generalized expectancies for internal versus external control (Rotter, 1966).

According to Rotter (1966), the reinforcement is perceived in two ways, belief in external control and belief in internal control. If an event is the result of luck, chance, or fate, it is called as an external control, while if the action is interpreted dependent the individual's own behavior or characteristics, it is named an internal control. The generalized belief or expectancy in internal-external control has significant effect on individuals' behaviors and their behavioral choice in variety of life situations (Rotter, 1966).

A second theoretical concept of efficacy is that of Albert Bandura. Because the concept of self-efficacy has the central role to analyzing of changes of behaviors, Bandura (1977) has focused on the self-efficacy, a different aspect of efficacy. Initial description of his concept of self-efficacy was presented in 1977.

Self-efficacy was defined as “beliefs in one’s capabilities to organize and execute the courses of action required to produce attainments” (Bandura, 1997, p. 3). Schunk (1983) further defines self-efficacy as a personal judgment of one’s organizing and implementation ability in uncertain and unusual situations. These two definitions suggest that self-efficacy, future-oriented belief, included thoughts of competency in a given situation (Tschannen-Moran, Hoy, & Hoy, 1998). Because the belief would affect individual’s choice of activities, their efforts and attitude in difficult situations (Schunk, 1983), self-efficacy belief has more influence on quality of the individual’s effort to struggle disincentive obstacles (Bandura, 1977). Low expectation, for instance, would result in avoiding tasks, while the prominent level of self-efficacy would reduce avoiding tasks by increasing the frequency of behavior (Taylor & Betz, 1983). Briefly, these beliefs influence how much effort individual will event, the duration of the effort, the ability to overcome obstacles and the stress level when dealing with demanding situations (Bandura, 1997).

Four main sources of information affecting one’s self-efficacy expectation is presented; performance accomplishment, vicarious experience, verbal persuasion, and emotional arousal (Bandura, 1977). In other words, individuals would judge their expectation of self-efficacy with these sources of information. However, the effectiveness of the sources on the self-efficacy depends on one’s thoughts about the appraisal of the sources (Bandura, 1997).

The abovementioned theoretical concepts lead to the question about the difference between Rotter’s internal control and Bandura’s self-efficacy. According to Bandura (1997) self-efficacy is related to one’s ability or capacity to act, while the internal control would affect the behaviors in which various events play a significant role on outcomes.

The concept of self-efficacy is generally considered domain-specific (Tong & Song, 2004). Thus, the (or a) sense of teacher efficacy was considered a specific area to explore. It was identified as a type of self-efficacy in Bandura’s social cognitive theory (Goddard, Hoy, & Hoy, 2000). Teacher efficacy is the teacher’s personal judgment about his or her capacity to organize and execute courses of action to complete tasks successfully in certain contexts (Tschannen-Moran, Hoy, & Hoy, 1998). The teacher’s sense of self-efficacy affects student motivation and cognitive skills (Bandura, 1997). However, teacher sense of efficacy does not only correlate with teacher judgment. For instance, a teacher who has a low sense of efficacy would pull the student’s successful down, since, low self-efficacy would be considered like an epidemic illness which affect student achievement negatively (Tschannen-Moran, Hoy, & Hoy, 1998; Ozfidan, Machtmes, & Demir, 2014).

The Rand Corporation conducted a study from 1972 to 1975 to identify school and classroom policies and other factors that lead to an increase in reading score, in Los Angeles Unified School District (Armor, 1976). A second study of Rand Corporation was conducted to introduce and spread innovative practices in public schools from 1973 to 1977 (Berman, 1977). The researchers in these studies also measured teacher’s sense of efficacy toward teaching using two questions based on Rotter’s (1966) standard discussion of efficacy (Armor, 1976; Berman, 1977).

In light of analysis of the data in those two studies, similar findings were obtained. There is a positive relationship between achievement in reading and teacher’s sense of efficacy (Berman, 1977), since “the more efficacious teachers felt, the more their students advance in reading achievement” (Armor, 1976, p. 34). In conclusion, teacher efficacy is one of the powerful factors that influence the students’ achievement.

## 2.2 Religion

The satisfactory responses for various questions about the role of the human being in the world are constructed from the ideology and practices of the human being. The explanations of responses are called beliefs. In other words, beliefs throughout the history of human being have generated answer of religious, philosophical, and scientific (Bautista, Escobar, & Miranda, 2017). Clearly, there are seen three special beliefs based on religion, psychology, and science.

The definition of the religion is stated “the feelings, thoughts, experiences, and behaviors that arise from a search for the sacred” (Hill, Pargament, Hood, McCullough Jr, Swyers, Larson, & Zinnbauer, 2000, p. 68). According to Geertz and Banton (1966, p. 90), a religion is:

- 1). a system of symbols which act to,
- 2). establish powerful, pervasive, and long-lasting moods and motivations in men by,

- 3). formulating conceptions of a general order of existence, and
- 4). clothing these conceptions with such an aura of factuality that,
- 5). the moods and motivations seem uniquely realistic.

Throughout history, there are many group of people that came to existence based on the ideologic or practical differences. These groups are analyzed as religious sects and cults. Religious sects born the consequences of the effort to protect and continue deep attachments to the traditional religion, rather than creating new one, therefore sects are high tension, schismatic movements within the main body of religions (Stark, Wei, & Zhong, 2015). Namely, religious sects explain the institutionalized structure to understand and interpret the major sources of the religion in distinct perspective (Sarikaya, 2011; Ozfidan, & Ugurlu, 2015). Another group of people is religious cults that occur when large populations have drifted away from the all ties to the prevailing faiths in later stages of the weakness of the faith (Stark, Wei, & Zhong, 2015). Consequently, there are numerous difference between sects and cults, although they seem similar. One of the most remarkable is that sects are seen in the earlier period compared with the cults, so “the average sect is much older than the average cult” (Stark, Wei, & Zhong, 2015, p. 165).

All in all, self-efficacy is one of the most critical factors for both learners and teachers, since it affects quality of education. Religion is one of the most significant subjects taught as a compulsory subject in K-12 by professional religious teachers in several educational systems in the world. Hence, theology teacher’s sense of self-efficacy is quite critical issue which is required to research in educational perspective.

### 3. Methods

The purpose of the study was to structure an instrument to measure teachers’ self-efficacy related to teaching compulsory K-12 theology courses. The process of the study includes two steps, preliminary/pilot and main analysis. The initial analysis was applied to obtain preliminary information before the main analysis. Those two analyses were conducted with similar procedures. The procedures, thus, relied on same principles that will be stated.

The quality of inference in a research is affected by the quality of sample and it would be ensured with adequate and unbiased sample. Probability sampling reduces bias by giving every member of population an equal chance of being selected (Patten & Newhart, 2018). However; non-probability sampling would be also used in the researches, since, it would be difficult to give every member one and only one chance of being included (Patten & Newhart, 2018). Thus, sample of convenience as non-probability sampling was used in this study.

The study was designed as survey research; therefore, data was collected from the sample through the survey. The context of questions in survey was structured based on Theology Course Essential Knowledge and Skills and related research. The structure of the questions was designed based on previous developed instruments. In this study, the five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) was used to rank the questions. The survey has been respectively included 130 and 33 questions for preliminary and main analysis. Surveys in this study were sent online to 412 and 1434 participants in the preliminary and main analysis respectively.

The analyzing method in the study is factor analysis because of the purpose of the study, since factor analysis was defined as “a statistical procedure that afford an explanation of how variance common to several inter-correlated measures can be accounted for in terms of smaller number of dimensions with which the variables correlated” (Isaac & Michael, 1997, p. 212). There are two types of factor analyses, Explanatory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Unlike CFA, specific expectations with respect to number of factors, variables reflecting given factors, the correlation of factors are not required in EFA (Thompson, 2004). Furthermore, EFA is useful in searching for structure among variables or for data reduction while CFA, is the best preference to test a hypothesis (Hair, Black, Babin, Anderson, & Tatham, 2006). The EFA was, therefore, selected in this study.

The Five Step Exploratory Factor Analysis Protocol (Williams, Onsman, & Brown, 2010) was guided during the analyses. The five steps are 1. Is the data suitable for factor analysis? 2. How will the factors be extracted? 3. What criteria will assist in determining factor extraction? 4. Selection of rotational method, and 5. Interpretation.

#### 3.1 Participant

Preliminary studies are generally conducted with small sizes (Patten & Newhart, 2018). This study was conducted with 71 participants, 44 females and 26 males. The survey for main analysis was responded by 331 participants, 209 females and 122 males. Participants in both analyses are the undergraduate students who are teacher candidates in the theology department in Turkey. Moreover, the data for both analyses have collected in different

higher education institutions in which each participant was voluntarily included and continue to the study and they had the right to drop out of the study whenever they want.

### 3.2 Reliability and Validity

Reliability refers to the degree of consistency among measurements of a variable (Hair, Black, Babin, Anderson, & Tatham, 2006). There are some ways to decide the reliability of the studies. One of the most common, Cronbach's alpha, was used in this study. The results, shown in Table 1, were interpreted to be within the accepted lower limit, 0.70 (Nunnally, 1978). As a result, the instrument was reliable.

Validity refers to the extent an instrument measures what it is supposed to measure (Patten & Newhart, 2018). The judgmental approach was applied to assess the validity. Thus, the survey was sent to faculty members and experienced teachers in the field to be reviewed to determine a Content Validity Index (CVI) for content and face validity. Items with a CVI of over 0.75 were retained in the survey; those with a value below .75 were deleted from the final survey (Yaghmale, 2003).

Table 1. Reliability statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
0.944	29

## 4. Findings

The findings in this study are explained under five subtitles: suitability of the data, method for factor extraction, extraction criteria for number of factors, rotation method and, interpretation under guidance of the protocol abovementioned.

### 4.1 The Suitability of the Data

Sample inadequacy is one of the important variables that lead to bias in a study. When a study is conducted with an adequate sample, the potential exists for a more precise result. Thus, this study sought to have an adequate sample size for data collection.

Comrey & Lee (1992) asserted that a sample of 50 was very poor, 100 was poor, 200 was fair, 300 was good, 500 was very good, and 1,000 was excellent in a research study (Henson & Roberts, 2006). Other researchers suggest that 300 participants in the factor analysis is generally accepted as a good sample (Williams, Onsmann, & Brown, 2010). However, there are two statistical methods for adequacy of sample.

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is used to see how the sample is proper to proceed to factor analysis. According to Kaiser (1974) a KMO index measure between 0.5 to 1 is considered acceptable. The results would be interpreted more detailed that “.80 or above, meritorious; .70 or above, middling; .60 or above, mediocre; .50 or above, miserable and below, 50 unacceptable” (Hair, Black, Babin, Anderson, & Tatham, 2006). In consideration of the guidelines, the result of .93 was interpreted as meritorious (see Table 2). Hence, the sample is highly adequate for factor analysis.

Another method of determining the suitability of factor analysis is Bartlett's Test of Sphericity “a significance test for a covariance or correlation matrix and a significance test to be applied to the residual matrix after a given number of principal components had been extracted” (Gorsuch, 1973, p. 361), When the Bartlett test is interpreted, it is expected to be significant at  $p < .001$  level. Bartlett test was used in the study and the results has been placed into Table 2. Thus, the data was interpreted as appropriate for factor analysis.

Table 2. KMO and Bartlett's test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.938
Bartlett's Test of Sphericity	Approx. Chi-Square	6179.052
	df	528
	Sig.	0.000

#### 4.2 Method for Factor Extraction

There are several techniques that can be used to extract factors. Williams, Onsman, & Brown (2010) listed the most common extraction methods as principal components analysis, principal axis factoring, image factoring, maximum likelihood, alpha factoring, and canonical. However, principal solutions tend to be the most common technique in factor analysis. Because it is intended to simply summarize many variables into fewer components (Henson & Roberts, 2006), principal component analysis was used in the study. In the procedure, the principal factor methods are applied to the correlation matrix with unities as diagonal elements. The factor then gives the best least squares fit to the entire correlation matrix, and each succeeding factor accounts for the maximum amount of the total correlation matrix obtainable. (Gorsuch, 1983, p. 99)

#### 4.3 Extraction Criteria for Number of Factors

There are many techniques to decide the number of factors currently utilized. Because the extracted factor is expected to reflect highly significant results in the statistical sense, researchers generally prefer to use more than one technique (Gorsuch, 1983). Latent root or eigenvalue, scree test and percentage of variance techniques was used to get sensitive outcomes.

In the procedure of latent root technique, "Individual factors should account for the variance of at least single variable if it is to be retained for interpretation" (Hair, Black, Babin, Anderson, & Tatham, 2006, p. 120). According to Guttman in 1954, eigenvalues greater than 1.0 should be used as limit to get noteworthy factors (Thompson, 2004).

Another way to determine number of factors is percentage of variance that calculates the cumulative percentage of total variance by computing after each extracted factor (Hair, Black, Babin, Anderson, & Tatham, 2006). A common notion is that the factoring process is continued to the level of 75, 80, or 85 percent at cumulative variance (Gorsuch, 1983). However, the 60 percent of the cumulative variance would be considered as satisfactory level in the social sciences (Hair, Black, Babin, Anderson, & Tatham, 2006). Additionally, the scree test criterion was used. The latent root results with the curve called elbow and number of the factors was limited (Beavers, Lounsbury, Richards, Huck, Skolits, & Esquivel, 2013).

#### 4.4 Rotation Method

Unrotated factors solutions provide more objective data reduction (Hair, Black, Babin, Anderson, & Tatham, 2006). However, researchers generally prefer to use rotated solutions due to not explicit factor structure without any rotational methods, since rotated factor matrix is mathematically equivalent to the original unrotated matrix (Comrey, 1973). Rotation is the statistical method that is more useful for scientific purpose by maximizing high factor loadings and minimizing low factor loadings (Williams, Onsman, & Brown, 2010). According to Thompson (2004), using rotation is possible when two or more factors extracted. Thus, we have used the rotation method in the study.

Rotational methods can be explained in two categories; orthogonal and oblique (Henson & Roberts, 2006). Orthogonal methods are generally used if factors are uncorrelated (Gorsuch, 1983). If the oblique rotation is preferred, the factors can correlate with each other (Henson & Roberts, 2006). Thus, oblique rotation is chosen in the study, because, realistically, few constructs in the world are uncorrelated.

#### 4.5 Interpretation

Interpretation in factor analysis would be identified as the last step, since researchers herein get noteworthy results. In this stage, variables with high factor loadings are considered as a single factor, while others with low or zero loadings are considered not a factor.

Table 3. Cumulative variances and eigenvalues

Component	Eigenvalue	% of Variance	Cumulative %
1	11.617	40.059	40.059
2	3.753	12.941	53.000
3	1.702	5.868	58.868
4	1.209	4.168	63.036
5	1.133	3.906	66.942

The five factors have been found that meet the three extraction criteria above mentioned (see Table 3 and Figure 1). After the extraction, the five factors—each with an eigenvalue greater than 1—explained 66.94 percent of the cumulative variance while only 63.51 percent of the variance was explained before the extraction.

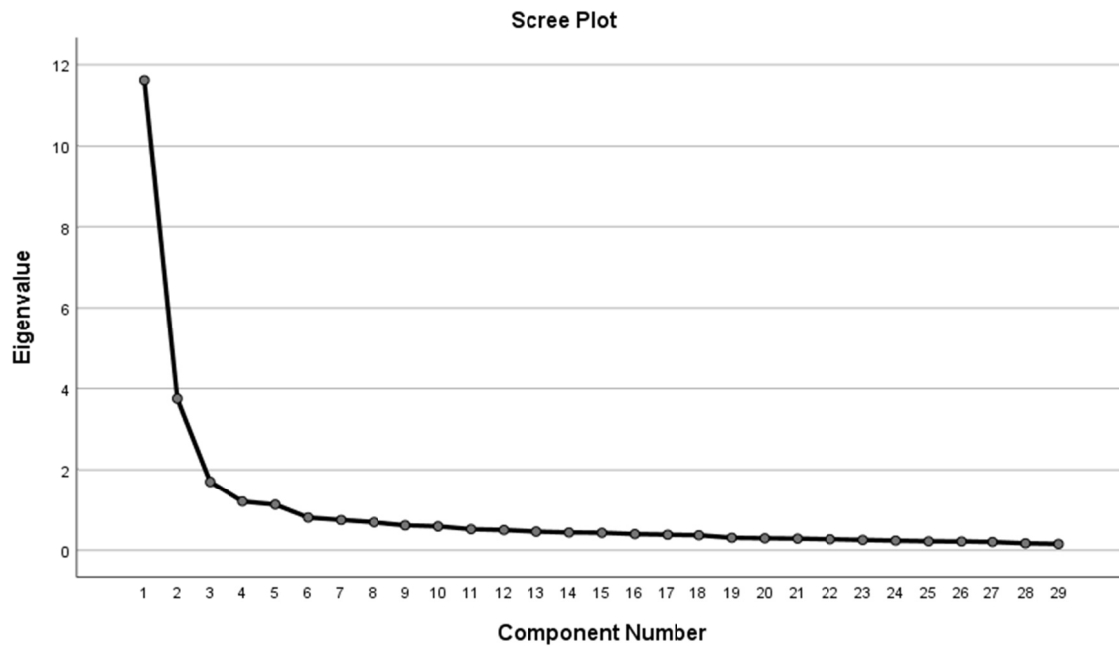


Figure 1. Scree plot

Furthermore, significant loadings and communalities were examined to find potential problems. They are the lower communalities, variables with no significant loadings and variables with cross loadings (Hair, Black, Babin, Anderson, & Tatham, 2006). Variables having communalities of greater than .50 should generally be retained in the analysis (Hair, Black, Babin, Anderson, & Tatham, 2006), when examining the communalities. Therefore, four variables were omitted, and the analysis was rerun (see Table 4).

Table 4. Communalities

Communalities			Communalities		
Variables	Initial	Extraction	Variables	Initial	Extraction
1	1	0.556	18	1	0.667
2	1	0.619	19	1	0.673
3	1	0.633	20	1	0.682
4	1	0.627	21	1	0.679
5	1	0.527	22	1	0.484
6	1	0.681	23	1	0.578
7	1	0.801	24	1	0.536
8	1	0.752	25	1	0.626
9	1	0.489	26	1	0.738
10	1	0.712	27	1	0.627
11	1	0.674	28	1	0.738
12	1	0.378	29	1	0.734
13	1	0.397	30	1	0.693
14	1	0.684	31	1	0.713
15	1	0.696	32	1	0.669
16	1	0.541	33	1	0.723
17	1	0.634			

Another possible problem to consider was significant factor loading. Deciding the significance level is necessary to identify significant loading for each variable. A minimal factor loading of .30 or .40 is suggested as being acceptable (Hair, Black, Babin, Anderson, & Tatham, 2006; Ozfidan & Burlbaw, 2017); therefore, significance level of .40 was chosen to get more interpretive value. It was expected in this step that each variable has a single high loading on only one factor (Comrey, 1973).

Since the researchers preferred to use oblique rotation, SPSS provided two tables of matrix to examine factor loadings that factor pattern matrix and factor structure matrix. Because the correlation among factors would be seen clearly, factor pattern matrix was assessed in the study. In the matrix table, any variable with no significant loadings or cross-loadings was not recognized. Consequently, the instrument which has high loading twenty-nine questions among five sub-scales was revealed to help stated context in the study (see Table 5).

The first highly loaded factor related to religious sects was named *general religious groups: sects*. The second highly loaded factor was labelled *belief in person: religion*, because the context was about the individual's belief based on religion. Third factor was related to religious cults; therefore, it is labelled *narrow religious groups: cult*. Another factor is about the current thought of religion. Therefore, the fourth factor is named *modern movement of religion*. The last factor was labelled *world religions*, since its questions have global perspective about the religions in the World.

All in all, the developed measurement included five sub-scales was presented for researchers to suggest unique perspective or policymakers to improve educational policies by measuring teacher's self-efficacy related to religious groups.

Table 5. Factor pattern matrix

Variable	Component				
	1	2	3	4	5
15	0.908				
14	0.807				
17	0.786				
19	0.759				
18	0.737				
16	0.725				
20	0.713				
21	0.584				
23	0.575				
7		0.808			
6		0.796			
4		0.793			
8		0.772			
1		0.734			
2		0.723			
3		0.694			
5		0.647			
29			0.781		
28			0.770		
27			0.727		
30			0.700		
26			0.656		
33				0.780	
31				0.718	
32				0.688	
10					0.845
11					0.653
25					0.601
24					0.596

## 5. Discussion and Conclusion

After the analysis of the survey instrument and the responses to the survey, the researcher determined that the instrument loaded on five factors. The five extracted factors were named in relation to the context of the questions

in each factor. The first factor was called *general religious groups: sects*. The factor included the questions about the religious sects in broad perspective. The second factor was labelled *belief in person: religion*. In this factor, the responses will be related to concept of religion. Another factor is *narrow religious groups: cult* in which the instrument has related questions about more specific religious movement. *Modern movement of religion* was labelled as fort factor. Here, the factor reflects the religious movements which are currently active in social life. Namely, the factor tries to find the response about the modern movements. The last factor in the instrument is *world Religions*. Wide spread characteristics of the major religions in the world is the main idea of this factor.

The instrument measures teacher's sense of self-efficacy related to teaching K-12 theology courses in local and global perspective. Moreover, the students recognize the role of the being in the world if teachers have sufficient level of self-efficacy. Thus, this study has numerous implications for policymakers and researchers. The instrument would help to make effective policies about the religious educations. These policies not only contribute the quality of education but also positively affect the social peace. Furthermore, the results of the instrument would be used for teacher evaluation for improve education in general, because one of the teacher evaluations methods is self-rating. We believe that this instrument is more appropriate tool for self-rating in teacher evaluation. Additionally, the policies to increase teacher's self-efficacy based on this study, it affects other disciplines positively, since the self-efficacy belief is generalizable from one area to another one. For instance, if student's achievement is increased throughout the policies in religious education, the students believe that they would be successful in course of social science. The last implication is about higher educations. We believe that when the instrument is applied the religious teachers, there will be seen more problem in higher institutions which need to be solved by policymakers.

For researchers, this instrument could be used to test numerous hypothesis. Moreover, this study would be modified in terms of the specific purpose of any study. Therefore, the developed scale will help to understand the K-12 theology education. Finally, the study will be useful as a guide for researchers who want to apply Explanatory Factor Analysis.

## References

- Armor, D. (1976). *Analysis of the school preferred reading program in selected Los Angeles minority schools*. Retrieved from <https://eric.ed.gov/?id=ED130243>
- Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191. <https://doi.org/10.1037/0033-295X.84.2.191>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. London: Macmillan.
- Bautista, J. S., Escobar, V. H., & Miranda, R. C. (2017). Scientific and Religious Beliefs about the Origin of Life and Life after Death: Validation of a Scale. *Universal Journal of Educational Research*, 5(6), 995-1007. <https://doi.org/10.13189/ujer.2017.050612>
- Beavers, A. S., Lounsbury, J. W., Richards, J. K., Huck, S. W., Skolits, G. J., & Esquivel, S. L. (2013). Practical considerations for using exploratory factor analysis in educational research. *Practical Assessment, Research & Evaluation*, 18.
- Berman, P. (1977). *Federal Programs Supporting Educational Change, Vol. VII: Factors Affecting Implementation and Continuation*.
- Comrey, A. L. (1973). *A first course in factor analysis*. New York: Academic Press.
- Geertz, C., & Banton, M. (1966). *Religion as a cultural system*. Retrieved from [http://nideffer.net/classes/GCT\\_RPI\\_S14/readings/Geertz\\_Religion\\_as\\_a\\_Cultural\\_System\\_.pdf](http://nideffer.net/classes/GCT_RPI_S14/readings/Geertz_Religion_as_a_Cultural_System_.pdf)
- Goddard, R. D., Hoy, W. K., & Hoy, A. W. (2000). Collective teacher efficacy: Its meaning, measure, and impact on student achievement. *American Educational Research Journal*, 37(2), 479-507. <https://doi.org/10.3102/00028312037002479>
- Gorsuch, R. L. (1973). Using Bartlett's significance test to determine the number of factors to extract. *Educational and Psychological Measurement*, 33(2), 361-364. <https://doi.org/10.1177/001316447303300216>
- Gorsuch, R. L. (1983). *Factor Analysis* (2nd ed.). Hillsdale, New Jersey.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis*. Upper Saddle River, NJ: Prentice hall.



- Henson, R. K., & Roberts, J. K. (2006). Use of exploratory factor analysis in published research: Common errors and some comment on improved practice. *Educational and Psychological Measurement, 66*(3), 393-416. <https://doi.org/10.1177/0013164405282485>
- Hill, P. C., Pargament, K. I., Hood, R. W., McCullough Jr, M. E., Swyers, J. P., Larson, D. B., & Zinnbauer, B. J. (2000). Conceptualizing religion and spirituality: Points of commonality, points of departure. *Journal for the Theory of Social Behaviour, 30*(1), 51-77. <https://doi.org/10.1111/1468-5914.00119>
- Isaac, S., & Michael, W. B. (1997). *Handbook in research and evaluation: A collection of principles, methods, and strategies useful in the planning, design, and evaluation of studies in education and the behavioral sciences* (3rd ed.). San Diego: Educational and Industrial Testing Services.
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39*, 31-36. <https://doi.org/10.1007/BF02291575>
- Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.
- Ozfidan, B., & Burlbaw, L. (2017). Development, Validation, and Application for a Bilingual Education Curriculum in Turkey. *Eurasia Journal of Mathematics, Science & Technology Education, 13*(10), 6559-6569. <https://doi.org/10.12973/ejmste/76734>
- Ozfidan, B., & Ugurlu, O. (2015). The Idea of Race and Racial Differences. *Electronic International Journal of Education, Arts, and Science, 1*(1), 85-98.
- Ozfidan, B., Machtmes, K., & Demir, H. (2014). Socio-cultural Factors in Second Language Learning: A Case Study of Adventurous Adult Language Learners. *European Journal of Education Research, 3*(4), 185-191. <https://doi.org/10.12973/eu-jer.3.4.185>
- Patten, M. L., & Newhart, M. (2018). *Understanding research methods: An overview of the essentials*. Abingdon: Taylor & Francis.
- Rotter, J. B. (1954). *Social learning and clinical psychology*. New York: Perentice Hall. <https://doi.org/10.1037/10788-000>
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied, 80*(1), 1. <https://doi.org/10.1037/h0092976>
- Sarıkaya, M. S. (2011). *İslam düşüncetarihindemezhepler [The sects of Historical Islamic Thought]*. Rağbet Yayınları.
- Schunk, D. H. (1983). Self-Efficacy Enhancement through Motivational and Informational Processes. Retrieved from <https://eric.ed.gov/?id=ED227167>
- Stark, R., Wei, D., & Zhong, Z. (2015). *Sociology of Religion: A Rodney Stark Reader*. Waco, Texas: Baylor University Press.
- Taylor, K. M., & Betz, N. E. (1983). Applications of self-efficacy theory to the understanding and treatment of career indecision. *Journal of Vocational Behavior, 22*(1), 63-81. [https://doi.org/10.1016/0001-8791\(83\)90006-4](https://doi.org/10.1016/0001-8791(83)90006-4)
- Thompson, B. (2004). Exploratory and confirmatory factor analysis: Understanding concepts and applications. American Psychological Association. <https://doi.org/10.1037/10694-000>
- Tong, Y., & Song, S. (2004). A study on general self-efficacy and subjective well-being of low SES-college students in a Chinese university. *College Student Journal, 38*(4), 637-643.
- Tschannen-Moran, M., Hoy, A. W., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research, 68*(2), 202-248. <https://doi.org/10.3102/00346543068002202>
- Williams, B., Onsmann, A., & Brown, T. (2010). Exploratory factor analysis: A five-step guide for novices. *Australasian Journal of Paramedicine, 8*(3).
- Yaghmale, F. (2009). Content validity and its estimation. *Journal of Medical Education, 3*(1).

## Appendix. Developed Instrument

By participating in this survey, you are indicating that you understand that your responses are anonymous and will not be identified with you in any way. You may skip any question that you find intrusive or offensive, but it will help me if you respond to as many questions as you feel comfortable with. Thank you. I really appreciate your help!

<b>1 General religious groups: sects</b>						
<b>Questions No</b>	<b>Questions</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
1	I would explain that how the religious sects emerged, the reasons with specific examples.					
2	I feel confident about my background about the religious sects.					
3	In the class, I can create effective teaching environment when teaching the founder's life of religion sects.					
4	I have sufficient knowledge to teach the importance of the sects to understand religions.					
5	To explain the difference of religious sects to interpret the religion is quite easy in the class.					
6	I am good at to explain the influences of nation identity on religion sects.					
7	I have sufficient information about the formation process of religious sects for my students.					
8	No matter how hard I can teach effectively the doctrines of religion sects about the science.					
9	No matter how it is hard, I am good to teach the sects based on concept of faith.					
<b>2 Belief in person: religion</b>						
<b>Questions No</b>	<b>Questions</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
1	I certainly know that why people need to believe in a power.					
2	It is easy to exemplify of the importance of religion in the life.					
3	I feel well qualified to teach religions with their founders.					
4	I have sufficient knowledge about the concept of religious rituals.					
5	I am sure that my general background is quite well about the religion concept to effective teach.					
6	No matter how hard I can contribute students to expand their awareness about the concept of religion.					
7	The creating successful learning environment about different perspectives of religion in their sacred books or literature.					
8	No matter how hard, I can teach the relationship between God and religion by concretizing.					
<b>3 Narrow religious groups: cults</b>						
<b>Questions No</b>	<b>Questions</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
1	I feel sufficient to teach the importance of religious cults.					
2	I would explain that how the religious cults emerged, the reasons with specific examples.					
3	No matter how hard, I certainly organise an effective trip to teach the local cults in my district.					
4	I am sure that I can be beneficial for learners about the ethic principle of religious cults.					
5	I have sufficient knowledge about the formation process of religious cults.					

<b>4</b>						
<b>Modern movement of religion</b>						
<b>Questions No</b>	<b>Questions</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
1	I am right teacher to provide effective teaching about modern religious cults with their doctrines.					
2	There is going to be unique learning outcome if I teach terminology of the modern movement with their historical background.					
3	No matter how hard I can teach effectively the notions of current religious movements about the science.					
<b>5</b>						
<b>World Religions</b>						
<b>Questions No</b>	<b>Questions</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
1	I will be definitely effective in teaching general features of common religions in the World.					
2	I am sure that I can explain well the concept of god, leader, and sources of most known religions.					
3	I am self-confident to teach the sects of more common global religions with their formation process.					
4	No matter how hard, I can create effective learning about the religious cults of four major religions in the World.					

### Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).