

Constructing an Attitude Scale: Attitudes toward Violence on Televisions

Göksu Gözen Çıtak

Abstract—The process of constructing a scale measuring the attitudes of youth toward violence on televisions is reported. A 30-item draft attitude scale was applied to a working group of 232 students attending the Faculty of Educational Sciences at Ankara University between the years 2005-2006. To introduce the construct validity and dimensionality of the scale, exploratory and confirmatory factor analysis was applied to the data. Results of the exploratory factor analysis showed that the scale had three factors that accounted for 58,44% (22,46% for the first, 22,15% for the second and 13,83% for the third factor) of the common variance. It is determined that the first factor considered “issues related individual effects of violence on televisions”, the second factor concerned “issues related social effects of violence on televisions” and the third factor concerned “issues related violence on television programs”. Results of the confirmatory factor analysis showed that all the items under each factor are fitting the concerning factor’s structure. An alpha reliability of 0,90 was estimated for the whole scale. It is concluded that the scale is valid and reliable.

Keywords—Attitudes toward violence, confirmatory factor analysis, constructing attitude scale, exploratory factor analysis, violence on televisions.

I. INTRODUCTION

EXCEPT for the information gathered by near surroundings and face to face communication, all our knowledge is transferred and prepossessed by mass media. Mass media is the carriers and transmitters of culture and emerging technology has made these tools more powerful and effective [1]–[2]. When stage of development of mass media and its attainability has taken into consideration, no one has accessed to the power of television [3]. Television develops everyday life experiences that have been limited by time and space boundaries in terms of quality and quantity. It is the greatest tool that has reached audiences and also the tool of cultural production of our age [4].

Television is the medium with which people spend the most time in recent years. Before the television gets into people's lives, they spent their time by gathering the whole family together and chatting, and sharing. This sharing has begun to slowly eliminated, because the time spent in front of the television is increasing and the entertainment concept has

started to change [5]. In terms of time spent in front of screens, [6] reported that American children spend over four and an half hours (281 minutes) watching television each day. The findings of “Radio and Television Public Opinion Survey” carried out in 1998 similarly showed that majority of children (98,4% of girls and 97,8% of boys) in Turkey wasted most of their time by watching TV [7]. However, the child's social growth, social adaptation, motor development, language development, and other similar issues may be missing with excessive amounts of TV viewing. In case of excessive TV viewing, especially late in the evening, children's sleeping mode may be broken, lack of time and motivation for child's games and different activities may cause insufficient development of motor skills and children's social adaptation ability may become disqualified for making friends and getting across with peers and relatives because of bad TV viewing habits [8]. Some research sustained these probabilities due to their findings. For instance, [6] stated that media have not only penetrated the homes of families generally, but also are prevalent in the bedrooms of children and it is shown that adolescents are most likely to have bedroom sets. In other words, media violence is in our bedroom, anyhow. To determine the perceptions of the media in the home, furthermore the media in our bedroom, parents were asked to agree or disagree with a host of views about television. Results show that most of the parents agree with the statements as watching television decreases time spent reading (86%), increases materialism (83%), adds to loss of child innocence (77%), increases interest in sex (72%), increases gender stereotypy (71%) and increases racial stereotypy (64%). Reference [9] state that it is inevitable to expect that children and adolescent exposed rigorously by media violence exhibit aggressive behavior. Against existing probabilities, in accordance with the data from the research [10] where parents' were asked the effect of television on their children, most of the parents stated that television viewing is effectual in learning new information, entertaining, assessing of leisure time, increasing interest in music and routing creativity. On the other hand, a small amount of parents listed the harms of the television viewing; keeping children late hours, defecting of vision and interfering with study time, embarrassing reading habit and encouraging violence. Reference [11] notes that those who give their opinion on the advantages of television have perceived television as a mirror of society. Society's annoyance, aspiration, expectation,

Göksu Gözen Çıtak, PhD. is with the Department of Measurement and Evaluation, Ankara University, Ankara, Türkiye. (corresponding author to provide phone: +90 312 3633350/3122; e-mail: gozen@education.ankara.edu.tr).

custom, precedence, appreciation and outlook on life may be apprehended by the origin of the television programs watched by the society. People learn about different life patterns and public policy by televisions and thus develop attitudes. In other words, media formulate their thoughts, their world view, their behavior and attitudes. Media has a great role not only in children's but also in adults' socialization [12].

Nonetheless, the serious claim about the mass media is that television programs, especially the programs including "violence" have a significant effect on the beliefs and behaviors of the public. Television is concluded as the respondent of all social diseases such as policy on public ignorance and violence [13]. Over the past 20 years there have been numerous studies and frequent warnings about violent television programs and movies arousing young people to act violently. Reference [14] strongly believed television was a source of behavior modeling. He has shown that "both children and adults acquire attitudes, emotional responses, and new styles of conduct through filmed and televised modeling". Of course, other social factors can increase the likelihood of violence by youth: lack of interaction with parents, brutality in home life, exposure to violence in neighborhoods, and easy access to guns. Nevertheless, researchers have pointed to many hours of viewing excessive violence as a potential contributor to violent behavior by youngsters [15].

Hereupon, much critics of TV programming have deplored the presentation of excessive violence [16]-[17]-[18]. The National Television Violence Study (NTVS) carried out to assess the effects of violence on television illustrated this aspect. Of particular interest to education professionals partaken in the project is the effect of television violence on children. Within the context of project, scholars at the University of California, Santa Barbara conducted a content analysis of violence in series, daytime, movies, specials, children's shows, and music videos. The University of Texas at Austin researchers provided a similar analysis of violence in "reality" programs, including tabloid news, talk shows, police shows, and documentaries. Researchers at the University of Wisconsin, Madison analyzed the role of violence ratings and advisories used on television, including their effect on the viewing decisions of parents and children. The University of North Carolina, Chapel Hill research team conducted studies of the effectiveness of anti-violence public service announcements and educational initiatives produced by the television industry. Results from the NTVS show that, across all genres and channels of television, violence contributes to the learning of aggression. Further, despite all the public attention given to the issue, there has been no change in the way TV portrays violence during the 3 years of the study [19]. The final study also concludes that the proportion of prime-time broadcast and basic cable shows with violence has increased since 1994 [20].

Violence on scene excludes human item and human is converted to the objects of the facts like murder and massacre. Consequently, these facts are turned to bread and butter! In

other words, violence is getting spontaneous. Previous research that explores how the effects of media violence may be diminished and how media productions may be used to reduce aggressive attitudes and behaviors suggest that more research is needed to determine the best approaches to develop media literacy strategies, and prosocial media presentations for reducing youth violence [21].

Attitudes contribute to the process of moral evaluation, especially attitudes toward violence. The formation of attitudes toward violence is probably influenced by many factors including the amount of exposure to violence in real-life and the media, and the attitudes of peers and parents [22]-[23]. For most people, violence is much prevalent in screen-based media than in real life. If the viewer develops the attitude that violence is normative, they may become desensitized and callous to violence in real life [24]. Media presentations of justified violence may also change the belief that violent behavior is wrong, encouraging the development of proviolence attitudes [25].

Much interference making efforts to reduce the tendency to violence has created interest in violence on televisions, and consequently, by this study it is aimed to construct an attitude scale to determine the attitudes of youth toward violence on TV.

II. PROCEDURE

A. Participants

The study has been conducted on 232 first year students attending the Faculty of Educational Sciences at Ankara University between the years 2005-2006. The study group of 232 undergraduates between the ages of 17 and 24 included 78 male and 154 female students.

B. Instrumentation

Students were asked to rate their responses about several items relevant to the attitudes toward violence on televisions on a three-point scale.

This study requires the construction of a scale: violence on televisions attitude scale to assess youngster's attitudes. Constructing an attitude scale is a multistage process. In the preliminary stage, the literature concerned with violence in mass media and with the attitudes of youth toward violence on televisions was searched thoroughly. Thus, 30 items were constructed for the study. These 30 statements were composed of cognitive, affective and behavioral components of attitudes. To stabilize the tendency of ratification of the respondents, 15 of these attitudinal items were presented negatively whereas 15 of them were given positively. The instrument was conducted as a three point Likert-type scale with response categories ranging from "agree (3)" to "disagree (1)".

The scale was presented to an expert group which included five experts, one of whom was a linguist, two experienced in media-oriented educational researches and two experienced in educational measurement and evaluation courses. On the basis of expert opinions relative to content validity, appropriacy of

language and expression, and the writing rules of attitudinal statements, some of the items were rearranged and improved items were constituted randomly to take place in the revised form of 30-item attitude scale.

C. Data Collection and Analysis

To receive priority consideration, collected data was used to obtain descriptive statistics about the attitude scale and attitudinal items. To attain information about the discriminative quality of the items, item-total correlations were calculated and in addition to this, item analysis depending on significance of difference between the lower (27%) and upper (27%) group's attitudinal item scores and total test scores was determined by independent samples t-test. A significance level of 0,01 was used for t-tests.

In order to explore the dimensionality of attitude scale and whether the scale had construct validity, a varimax rotated principal components factor analysis was applied to the response data collected from the pre-test administration of the scale. To determine the items which should be chosen to take place in the last form of the scale, some criteria were taken into consideration. In composing the factor pattern, it is specified that the values between 0,30 and 0,40 can be accepted as the lower bound of the factor loadings [26]. Thus in the face of being under a unique factor, level of 0,40 is accepted as cut-off point for the factor loadings obtained from varimax rotated factor analysis. Reliability coefficients of alpha were estimated both for the whole scale and for each sub-dimension.

In the second stage, in order to confirm the identified dimensions of the scale got from the exploratory factor analysis, confirmatory factor analysis was applied to the response data. The analysis including t tests, alpha coefficients, descriptive statistics and exploratory factor analysis was carried out by using SPSS 16,0. Confirmatory factor analysis was carried out by LISREL 8,7.

III. RESULTS

A. Descriptive Statistics for Scale and Items

The distribution of the total scores were examined before all else. Table I shows the descriptive statistics of total test scores obtained from the pre-test administration of the scale.

Descriptive Statistics	
N	232
Range	44,00
Minimum	32,00
Maximum	76,00
Mean	46,67
Std. Deviation	9,02
Variance	81,44
Skewness	0,97
Kurtosis	0,44

Through the scale composed of 30 items, the minimum expected score is 30 and maximum expected score is 90, thus the range is 60. The observed minimum score got from the

scale was 32, and maximum score was 76, thus the observed range was 44. This means that a significant percent of the expected range is enclosed by the scale.

The mean of the scores is 46,67 and the standard deviation is 9,02. The skewness coefficient is 0,97 and the kurtosis coefficient is 0,44. Descriptive statistics show that the distribution of total test scores is slightly positive-skewed. This means that respondents yield to distribute on low test scores which indicate negativist attitudes toward subject. In addition to this, distribution of item scores was also examined. The mean of the item scores is 1,56 and the standard deviation of the scores is 0,31. In consistency with descriptive statistics obtained for the whole scale, item scores yield to distribute between the response categories of "disagree" and "undecided".

B. Item Analysis

There are several ways of attaining information about the discriminative quality of attitudinal items; carrying out item analysis that depends on difference between the lower and upper groups' mean scores, obtaining item discrimination indices or determining the discriminative quality based on item-total correlations. In this study, item-total correlations and the difference between mean scores of differential groups were examined.

Results of item-total correlations leaning Pearson product-moment correlation coefficients between item scores and total test scores show that except for the fourth item in the scale ($r_{xy}=-0,104$), all the item scores are correlated significantly ($p<0,01$) with the total scores of the respondents. However, the value level of 0,20 was accepted as a criteria in choosing well-qualified items that correlate significantly with the total test score. As a result, in addition to excluding the fourth item from the scale, sixth ($r_{xy}=0,172$) and nineteenth ($r_{xy}=0,170$) items were also excluded. Residuary item-total correlations of 27 items differ between 0,236 and 0,668.

Results of item analysis depending on the significance of difference between lower and upper group's attitudinal item scores and total test scores are also taken into consideration. Item analysis was carried out by comparing the item and test scores of the lower group with 27% of the total respondents ($n=67$) and upper group with 27% of the total respondents ($n=67$). The results of independent samples t-test showed that, similar to the findings of item-total correlations, except for the fourth and sixth item ($p>0,01$) all the attitudinal items were discriminative over the lower and upper groups ($p<0,01$). This means that items with t values which are significant at the level of 0,01 were well-qualified in discriminating the individuals who had affirmative attitudes and negative behavior pattern toward the subject. Table II presents the item-total correlations and t values.

TABLE II
ITEM-TOTAL CORRELATIONS AND T VALUES

Item No	Item-Total Correlations	t values
1	0,525**	8,585**
2	0,289**	4,820**
3	0,214**	2,782**
4	-0,104	-0,948
5	0,480**	6,684**
6	0,172**	2,465*
7	0,371**	5,993**
8	0,461**	6,520**
9	0,595**	8,567**
10	0,541**	8,376**
11	0,566**	10,574**
12	0,571**	8,057**
13	0,634**	9,290**
14	0,665**	8,217**
15	0,668**	8,473**
16	0,355**	5,469**
17	0,539**	7,904**
18	0,625**	7,309**
19	0,170**	3,328**
20	0,563**	8,843**
21	0,625**	9,277**
22	0,620**	9,253**
23	0,639**	11,545**
24	0,573**	7,169**
25	0,236**	3,641**
26	0,656**	10,768**
24	0,604**	10,761**
28	0,461**	6,103**
29	0,442**	5,741**
30	0,531**	8,477**

*p<0,05 **p<0,01

C. Exploratory Factor Analysis

After item analysis, three items were excluded from 30-item scale. To fix the appropriateness of 27 items of certain quality to the construct of the scale, principle components factor analysis was applied to the data.

Correspondence to the principle components factor analysis, the value of 0,90 obtained from Kaiser-Meyer-Olkin test which gives the sufficiency of distribution of partial correlations between variables [27] is considered as an adequate value. The result of the Barlett test is obtained as 1575,9 ($p<0,01$). This result indicated that the variables were appropriate for the factor analysis [28].

In factor analysis, an increase in the percent of explained variance yields a stronger factor structure. The percent of explained variance ranging between 40% and 60% is accepted as adequate in studies based on social sciences [29]. Results of the varimax rotated factor analysis of the responses to the attitudinal items showed that there were three factors extracted from the scree plot (see Fig.1) that accounted for 58,44% of the common variance. 22,46% of the whole variance was interpreted by the first factor, 22,15% of the common variance was explained by the second factor and 13,83% of the common was explained by the third. Besides, the

communalities of three factors range between 0,397 and 0,688. These findings show that the extracted factors explain consequential part of the total variance derived from the items and the whole scale.

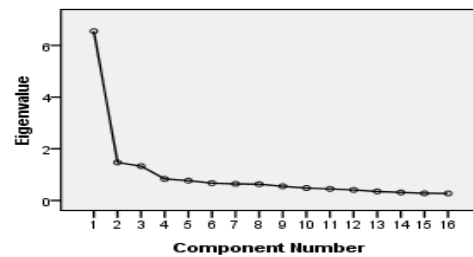


Fig. 1 Screen plot from the exploratory factor analysis

It was determined that the first factor considered "issues related individual effects of violence on televisions", the second factor concerned "issues related social effects of violence on televisions" and the third factor concerned "issues related violence on television programs". The first factor of individual issues is composed of 6 items dealing with separate behaviors and reflection due to violence on televisions. Six items in the second factor deals with social benefit and affairs relative to violence on televisions and the third factor is composed of 4 items which appears to measure attitudes toward violence on television programs.

Accepting the level of 0,40 as a cut-off point for the factor loadings and in addition to this, accepting the criteria that the highest factor loading of an item had to be under a unique factor without having identical factor loadings in more than one of the sub-dimensions, 6 items were excluded from the scale in the first case, 4 items were excluded in the second case and one more item was excluded in the third case of iterated factor analysis. As a result, 16 relevant items to the main sub-dimensions were constructed the scale. Table III shows the communalities which presents the common variance explained by each item and their factor loadings' distribution to the components.

TABLE III
SCALE'S FACTOR STRUCTURE, COMMUNALITIES AND FACTOR LOADINGS

Factor	Item No	Communalities	Component Weight		
			1	2	3
1	12	0,400	0,541		
	20	0,622	0,749		
	21	0,687	0,787		
	22	0,634	0,756		
	23	0,599	0,689		
	26	0,556	0,623		
2	13	0,541		0,642	
	14	0,635		0,707	
	15	0,643		0,703	
	17	0,635		0,784	
	18	0,688		0,784	
	24	0,557		0,607	
3	1	0,615			0,744
	8	0,612			0,774
	10	0,397			0,506
	27	0,531			0,644

Descriptive statistics for each factor were determined to have an opinion about the distribution of scores on each factor structure and also on total test scores of 16-item scale. Descriptive statistics are presented in Table IV.

TABLE IV
DESCRIPTIVE STATISTICS FOR EACH FACTOR AND TOTAL TEST SCORES

	Mean	Standard Deviation	Range	Minimum	Maximum
Factor 1	8,26	2,74	12,00	6,00	18,00
Factor 2	7,59	2,58	12,00	6,0	18,00
Factor 3	6,16	1,95	8,00	4,00	12,00
Total	22,01	6,06	29,00	16,00	45,00

To assess the independency of these three factors, inter-correlations between the factors were calculated. Pearson product-moment correlations (r) and coefficient of determination as squared correlation coefficient (r^2) are viewed in Table V.

TABLE V
CORRELATIONS BETWEEN THREE FACTORS AND EXPLAINED VARIANCES

Factors	F ₁		F ₂		F ₃	
	r	r ²	r	r ²	r	r ²
F ₁	-					
F ₂	0,648**	0,429	-			
F ₃	0,469**	0,229	0,460**	0,212	-	

**p<0,01

The correlations between factors of the scale show that three factors correlate significantly ($p<0,01$), but except for the moderate correlation between the first and second factor, correlation coefficients have low values. Beyond doubt, these three factors can't be separated thoroughly due to the fact that they construct a whole attitude scale toward violence on televisions. However, these low correlations can be accepted as the independency of the sub-dimensions relatively.

An alpha reliability coefficient of 0,90 was provided from 16-item attitude scale. The internal consistency reliabilities estimated for three sub-dimensions was 0,85, 0,87 and 0,68 sequentially. The low reliability coefficient of the third sub-dimension may be interpreted by the limited number of items (4) included in this factor.

D. Confirmatory Factor Analysis

In the second stage, confirmatory factor analysis was carried out to predicate the three dimensioned factor structure.

In the analysis based on testing the model of three-factored structure of the attitude scale, results show that the structure is confirmed. The basic indicators of confirmed model are goodness of fit statistics. The obtained values of normal theory weighted least squares chi-square (χ^2), degrees of freedom (df), root mean square error of approximation (RMSEA), root mean square residual (RMR), standardized RMR, goodness of fit index (GFI), adjusted goodness of fit

index (AGFI) and comparative fit index (CFI) are presented in Table VI.

TABLE VI
GOODNESS OF FIT STATISTICS FROM CONFIRMATORY FACTOR ANALYSIS

Goodness of Fit Statistics	
χ^2	199,03
df	101
RMSEA	0,06
RMR	0,02
SRMR	0,06
GFI	0,90
AGFI	0,87
CFI	0,97

The model is accepted as a good model when the proportion of chi-square to degrees of freedom is equal to or less than "2,00". When the proportion is "5,00" or less than this value, the model is considered as "acceptable" in the terms of goodness of fit. GFI, AGFI and CFI values equal to or higher than 0,90 and RMSEA, RMR and SRMR values less than 0,05 are also accepted as the indicators of goodness of fit whereas GFI, AGFI and CFI values higher than 0,95 and RMSEA, RMR and SRMR values less than 0,08 are adopted as "acceptable" [30].

Table VI shows that, the proportion of chi-square to degrees of freedom proportion is less than "2,00" for three-factored structure of the attitude scale. In addition to this, RMSEA, RMR and SRMR values are less than 0,08 and GFI, AGFI and CFI values are close to or higher than 0,90. These results show that all the items under each factor are fitting the concerning factor's total scores or three-factored scale measuring attitudes toward violence on televisions has construct validity. To examine the attitude scale, see Table VII in appendix.

IV. CONCLUSION

Constructing an attitude instrument which should be used in determining the attitudes of youth toward violence on televisions is aimed by this study. To develop a qualified instrument, all the steps of constructing a Likert-type attitude scale were followed. The draft scale was composed of 30 attitudinal items. Three of the items were excluded in case of item-total correlations and item analysis depending on significance of difference between the lower (27%) and upper (27%) group's attitudinal item scores and total test scores whereas 11 items were excluded from the scale in case of principle components factor analysis. Additional to the values obtained by Kaiser-Meyer-Olkin and Barlett tests which showed that 16-item scale had construct validity, the internal consistency reliabilities which were estimated both for the whole scale and for sub-categories dealing with (1) issues related individual effects of violence on TV, (2) issues related social effects of violence on TV, and (3) issues related violence on TV programs were quite satisfactory. Besides, predicating the factor structure of the scale by confirmatory

factor analysis, research findings show that the scale is valid and reliable.

In process of moral evaluation, especially attitudes toward violence, media has a great role. Thus, it is concluded that ascertaining the attitudes toward violence on televisions by using a reliable and valid attitude instrument can be considered as a priori and the most important step of providing feedback to society and bosses of media about taking immediate steps in composing a more positivist youth.

A number of issues should be addressed in future studies: First, further research on determining the change in the attitudes of people toward violence on televisions needs to be carried out. Moreover, further research on constructing an attitude scale composed of different components should be conducted.

APPENDIX

TABLE VII

VIOLENCE ON TELEVISIONS ATTITUDE SCALE

Items	Issues related individual effects of violence on TV
12	Television programs including violence legitimize illegal concepts.
20	The violent scenes on television programs cause an increase in crime rates.
21	Television programs including violence negatively effect cognitive and psychological development of people.
22	Violence on televisions orients people to take violence normal.
23	Television programs including violence teach people egoism and expediency.
26	Television programs including violence negatively effect psychological development of people.
Issues related social effects of violence on televisions	
13	Television programs including violence give right messages to the spectators.
14	The violent scenes on television programs are informative for society.
15	Violence on televisions gives affirmative messages to society.
17	Violence on televisions instructs society of the ways of administering justice.
18	Violence on televisions builds up social fellow feeling.
24	Violence on televisions yields to composure and peace in society.
Issues related violence on television programs	
1	An embargo should be imposed on television programs including violence.
8	Showing television programs including violence has no drawbacks.
10	Community consciousness should be increased to provide against viewing of television programs including violence.
27	Close supervision should be made on all television programs in order to see whether they include violence or not.

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