

## Exploratory Factor Analysis: Development of Perceived Peer Pressure Scale

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### Abstract

This article is mainly focusing on the procedure adopted to develop and validate a tool to study higher secondary students' perceived peer pressure. Based on the review of related literature and group discussion, initially the researcher generated 50 items on perceived peer pressure and subsequently modified in to 35 items on the basis of experts' opinion. The first try-out on 100 higher secondary students resulted in selection of 30 items and Cronbach's Alpha value was found to be 0.942. Again the tool was administered to 300 higher secondary students and based on the factor analysis the 30 items were categorized under three dimensions. The dimensions are: Yielding to Peer Pressure, Resistance to Peer Pressure and Peers Encouragement. The reliability and validity value of the final tool was found to be 0.942 and 0.971 respectively. Hence, the perceived peer pressure scale is found to be valid for application.

**Keywords:** Higher Secondary Students, Perceived Peer Pressure, Yielding to Peer Pressure, Resistance to Peer Pressure, Peers Encouragement

A peer group is both a social group and a primary group of people. Peer group may be defined as a group of people who, share similarities such as age, background and social status. The members of this group are likely to influence the person's beliefs and behaviour. Peer group is conceived as a small group of similar age, fairly close friends and sharing the same activities (Kirchler *et al.* 1993). Always children look to join peer groups who accept them, even if the group is involved in negative activities. Eighteen year olds are not in a peer group with fourteen year olds even though they may be in school together. During adolescence, peer groups tend to face dramatic changes. Adolescents tend to spend more time with their peers and have less adult supervision. Bradford Brown (1990) found that high school students spend twice as much of their time with peers as with parents or other adults. Adolescents' communication shifts during this time as well. They prefer to talk about school and their career with their parents, and

they enjoy talking about other interpersonal relationships with their peers. Conger and Rueter, (1996) states that adolescent must get ready to meet society's demands for social independence, for relationships with sexes, marriage and adulthood. For these reasons, teens need the support and guidance of their peers.

## Perceived Peer Pressure

One of the most influential factors that affect the behaviour of a student is his/her friends. It is worthy to recall the saying, "Tell me who your friends are and I will tell you who you are". Sometimes students choose friends, other times they are naturally drawn to it, some have no choice, for most cases, they "naturally" bond with their classmates, who are not that hard to get along with because of the age and other similarities. According to Dacey and Kenny (1997), "adolescents who feel accepted by their peer group and their parents are likely to feel good about themselves". Reisman (1985) concluded after reviewing different research studies that adolescents who have poor peer relationships are more likely to have adjustment difficulties in adulthood. Weiten and Lloyd (2004) said that pressure involves expectations or demands that one behave in a certain way. They divide pressure in to two types: the pressure to perform and the pressure to confirm. The power of pressure is violating personal standards in order to be liked by other members of cohesive group. Whereas, the peer pressure is defined as the influence exerted by a peer group in encouraging a person to change his/her attitude, values, behaviour in order to confirm the group norms (Elliot & Mc Gregor, 2001).

Peer pressure may be defined as the insistence and encouragement of the same age group individuals to make or force the individual to do something (Santor, Messervey & Kusumakar, 2000). Pressure coevals is associated with wrong decisions, rebellion and humour fluctuations, which will lead to a poor academic performance, because of the fact that adolescents are not cooperative in the process of learning outcomes and as a result their school results fall weakly (Sharry, 2004). Lingren (1995) expressed a different view that not all peer influence is negative. Spending more time with peers does not always translate into trouble. Positive peer influence on academic performance depends on adolescent self-identity, self-esteem and self-reliance. Peer pressure is very strong during the adolescent years. Since so much time is spent with peers, the influence can be more powerful than that of parents, teachers or other authority figures. This attachment influences their feelings, thinking, decisions and living styles. The strong attachment has strong influence on personality.

When this influence affects the decisions or liking, disliking of a person and a person feel forced to left their own mottos, feelings and fulfil the friends or parents' expectation, this is called 'pressure'. No one can deny this power of pressure. If the pressure encourages positive attitude, healthy values, respect and hard work, it is positive. If it encourages negative attitude, it is negative. The positive pressure strengthens the potential of a person and the negative pressure reduces the person's strength. The positive pressure leads towards the success whereas the negative pressure leads to the failure. The peer acceptance and attachment is as important as the parent attachment. Peer pressure can make or break the individual's studies, selection of career, professional developments, morals, values, etc.

As education at the higher secondary level is more crucial in determining the future of students, a study is needed to assess the influence of peer on the academic activities of higher secondary students. Further, the researcher being a teacher working at the higher secondary level for more than three decades, wanted to know the relationship between peer pressure and academic stress as perceived by the higher secondary students. Hence, an attempt is made to study the peer pressure and its effect on the academic

performance of Thiruvannamalai District (Tamil Nadu) higher secondary students, who have chosen Mathematics, Physics, Chemistry and Biology subjects under Tamil Nadu State Board of Education.

## **Rationale for Construction and Validation of the Tool**

Not following appropriate and systematic procedures in tool construction, testing and evaluation may undermine the quality and utilization of data (Esposito, 2002). While reviewing the related literature, the researcher has noted the insufficient number of tools available to measure peer pressure of higher secondary students of Indian context. Moreover, the critical analysis of the available instruments are not covering all the aspects of the objectives set forth by the researcher in terms of culture, location of study and the population of the proposed study.

Therefore, the investigator felt the need for construction of an instrument with its uniqueness and appropriateness to measure the perceived peer pressure of higher secondary students of Thiruvannamalai District for the proposed study. Hence, the researcher has ventured in to the task of constructing a new instrument called, Perceived Peer Pressure Scale.

### ***Objectives***

1. To construct a tool to assess the Perceived Peer Pressure of Higher Secondary Students.
2. To validate the Scale on Perceived Peer Pressure.

### **Procedure Adopted**

To fulfil the above stated objectives, the researcher followed the under mentioned procedure in developing the tool.

#### ***(i) Review of Related Literature and Group Discussion***

In order to generate the items for the perceived peer pressure of higher secondary students, the researcher has gone through the related research carried out in India and in other countries. To start with, the researcher has formed six groups for discussion, covering the entire Thiruvannamalai District. Each group consisting of randomly selected 30 teachers working at the higher secondary level and having more than 10 years of teaching experience, 30 students who have chosen Mathematics, Physics, Chemistry and Biology subjects under Tamil Nadu State Board of Education at higher secondary level during the academic year 2013-2014 and their parents. These six discussions were mainly focused on different aspects of the perceived peer pressure of higher secondary students.

#### ***(ii) Item Generation***

Based on the review of related literature and outcome of the six group discussions the researcher has generated 50 items on perceived peer pressure. Simplicity in its form, clear understanding and appropriateness are maintained in all items.

### ***(iii) Experts' Opinion, Selection of Items and Norms***

The draft tool of 50 items on perceived peer pressure of higher secondary students were subjected to experts' opinion drawn from the department of Psychology, Education, and Language to check its content relevancy, simplicity, repetition, double-barrelled, clarity and appropriateness related to perceived peer pressure of higher secondary students. According to the experts' opinion, after making necessary modification and deletions 35 items were selected on a five point Likert-type Scale to measure the perceived peer pressure of higher secondary students.

To record the responses of the students for each item of the Perceived Peer Pressure Scale, five alternative options were given as 'Strongly Agree', 'Agree', 'Undecided', 'Disagree' and 'Strongly Disagree'. As all the 35 items were being positive, the weightages assigned for each option are: (i) five scores for 'Strongly Agree', (ii) four scores for 'Agree', (iii) three scores for 'Undecided', (iv) two scores for 'Disagree', and (v) one score for 'Strongly Disagree'. Accordingly, the high score reflects higher level of peer pressure and low score reflects lower level of peer pressure as perceived by the higher secondary students.

### ***(iv) Try - Out***

As the students of higher secondary schools in Thiruvannamalai District constituted the population of the proposed study, a pilot study was conducted on one hundred higher secondary students of Thiruvannamalai District drawn from different Government, Government Aided and Un-aided Higher Secondary Schools during the academic year 2013-2014. The collected data were tabulated and subjected to inter-item correlation using Cronbach's Alpha. The Alpha Co-efficient of the tool was found to be 0.933 (Table-1). The items that were having the correlation value of less than 0.30 were deleted. Accordingly, 30 items were selected for the final tool and again the Cronbach's Alpha was calculated and the value was found to be 0.942 (Table-2).

### ***(v) Factor Analysis***

Factor analysis operates on the notion that measurable and observable variables can be reduced to fewer latent variables that share a common variance and are unobservable, which is known as reducing dimensionality (Bartholomew, Knott and Moustaki, 2011). Decoster (1998) suggested the Exploratory Factor Analysis to identify the number of factors influencing variables and to analyze which variables 'go together'. Therefore, the Perceived Peer Pressure Scale was administered to 300 higher secondary students of Thiruvannamalai District belonging to Government, Government Aided and Un-aided Higher Secondary Schools during the academic year 2013-2014 to identify the number of factors related to it using Exploratory Factor Analysis (Field, 2005). As a result of this analysis, three factors were identified (Table-3), and then, all the 30 items were arranged under those identified three factors through the Rotated Component Matrix (Table-4).

Then those items were suitably named according to the focussing views of each grouped items towards the perceived peer pressure of higher secondary students. The first factor consisted of eleven items with factor loadings ranging from 0.650 to 0.799 and named as 'Yielding to Peer Pressure'. The second factor consisted of thirteen items with factor loadings ranging from 0.502 to 0.777 and named as 'Resistance to Peer Pressure'. The third factor consisted of six items with factor loadings ranging from 0.421 to 0.760 and named as 'Peers Encouragement'. The factor loadings of all 30 items of the tool are given in Table-5.

**(vi) Reliability and Validity**

In order to establish the reliability of the Perceived Peer Pressure Scale, the Cronbach's Alpha Coefficient was calculated and the value was found to be 0.942. The index of reliability is taken as a measure of intrinsic validity. It measures the dependability of test scores by showing how well obtained scores agree with their theoretically true values. The index of reliability gives the maximum correlation which, the given test is capable of yielding in its present form (Garret, 1981). The intrinsic validity coefficient of the tool was also established by taking the square root of reliability coefficient, which was found to be 0.971. Thus, it is inferred that the tool is reliable and valid for the study.

**Conclusion**

As the basic required procedures were adopted by the researcher in the task of developing an instrument to measure the higher secondary students' perceived peer pressure, it is confirmed that the tool constructed and validated by the researcher is psychologically sound, reliable and valid for further studies in the Indian context.

**Table 1: Item-wise Cronbach's Alpha value of Perceived Peer Pressure Scale****(Try - Out)**

Cronbach's Alpha	No. of Items
.933	35

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	85.9200	774.478	.486	.932
2	85.7600	756.467	.691	.930
3	85.6200	759.470	.642	.930
4	85.2000	807.677	.062	.936
5	85.4700	761.383	.583	.931
6	85.7700	746.017	.764	.929
7	85.2400	785.841	.325	.933
8	85.8500	750.654	.723	.929
9	85.6400	766.213	.600	.931
10	85.3700	759.468	.637	.930
11	85.5700	775.177	.524	.932
12	85.0300	803.242	.120	.935
13	85.6400	773.364	.527	.932
14	85.9400	748.966	.730	.929
15	85.7300	759.209	.615	.931

16	86.0800	753.185	.758	.929
17	85.2600	800.922	.157	.935
18	85.7600	793.275	.380	.933
19	86.0200	747.697	.766	.929
20	85.0800	776.438	.392	.933
21	85.5700	806.793	.098	.935
22	85.5900	760.325	.622	.931
23	85.7600	753.396	.681	.930
24	85.3700	773.165	.432	.933
25	85.5100	773.626	.517	.932
26	85.3200	769.957	.512	.932
27	86.2100	752.915	.755	.929
28	85.3800	774.985	.454	.932
29	85.3600	761.142	.515	.932
30	85.2100	783.359	.358	.933
31	85.2900	774.370	.444	.932
32	85.6300	758.639	.646	.930
33	85.3000	802.838	.137	.935
34	85.6200	762.400	.640	.930
35	85.9900	748.252	.713	.929

**Table 2: Item-wise Cronbach's Alpha value of Perceived Peer Pressure Scale**

**(Final Tool)**

Cronbach's Alpha	No. of Items
.942	30

Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	71.6400	703.505	.462	.941
2	71.4800	683.000	.714	.938
3	71.3400	688.004	.635	.939
4	71.1900	689.448	.581	.940
5	71.4900	673.263	.783	.937
6	70.9600	712.746	.323	.942

7	71.5700	677.924	.739	.938
8	71.3600	693.647	.604	.939
9	71.0900	687.537	.636	.939
10	71.2900	702.612	.522	.940
11	71.3600	699.243	.548	.940
12	71.6600	676.954	.737	.938
13	71.4500	685.038	.643	.939
14	71.8000	680.182	.778	.938
15	71.4800	723.686	.320	.942
16	71.7400	674.699	.787	.937
17	70.8000	706.848	.354	.942
18	71.2900	736.370	.437	.942
19	71.3100	686.984	.639	.939
20	71.4800	678.798	.718	.938
21	71.0900	699.578	.443	.941
22	71.2300	700.058	.531	.940
23	71.0400	697.251	.515	.940
24	71.9300	679.743	.777	.938
25	71.0800	688.701	.519	.941
26	70.9300	710.409	.355	.942
27	71.0100	703.444	.421	.941
28	71.3500	684.452	.676	.939
29	71.3400	688.267	.669	.939
30	71.7100	674.430	.743	.938

**Table 3: Eigen values and Rotated sums of Squared Loadings of Items**

Total Variance Explained									
Item No	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.915	43.048	43.048	12.915	43.048	43.048	6.864	22.881	22.881
2	2.827	9.422	52.471	2.827	9.422	52.471	6.102	20.341	43.221
3	1.884	6.279	58.749	1.884	6.279	58.749	4.658	15.528	58.749
4	1.727	5.757	64.507						

5	1.278	4.261	68.768						
6	1.094	3.645	72.413						
7	1.028	3.427	75.840						
8	.991	3.303	79.143						
9	.781	2.602	81.745						
10	.708	2.361	84.106						
11	.659	2.196	86.302						
12	.580	1.934	88.237						
13	.517	1.724	89.960						
14	.494	1.647	91.607						
15	.438	1.461	93.068						
16	.383	1.275	94.343						
17	.357	1.189	95.532						
18	.322	1.074	96.606						
19	.285	.949	97.555						
20	.263	.878	98.433						
21	.243	.811	99.244						
22	.227	.756	100.000						
23	1.889E-16	6.297E-16	100.000						
24	1.512E-16	5.039E-16	100.000						
25	1.238E-16	4.126E-16	100.000						
26	8.152E-17	2.717E-16	100.000						
27	6.525E-17	2.175E-16	100.000						
28	-9.976E-19	-3.325E-18	100.000						
29	-3.078E-17	-1.026E-16	100.000						
30	-5.436E-17	-1.812E-16	100.000						

**Table 4: Factor-wise distribution of Items with Loadings**  
(Rotated Component Matrix)

Item No	Component		
	1	2	3
5	.799		
28	.799		
4	.761		
27	.761		

29	.736		
6	.736		
8	.695		
15	.695		
30	.667	.416	
7	.667	.416	
9	.650	.407	
19		.777	
18		.753	
3		.760	
20		.719	
11		.698	
17		.681	
10		.664	
24		.642	
21	.433	.639	
12		.634	
13		.613	.410
16		.576	
14		.502	
26			.760
2			.724
25			.724
1			.642
23			.557
22			.421

Extraction Method: Principal Component Analysis.

<sup>a</sup> Rotation Method: Varimax with Kaiser Normalization

**Table 5: Items-wise Factor Loadings of Perceived Peer Pressure Scale**

Sl. No.	Item No.	Statements	Factor Loading
<b>Factor-I: Yielding to Peer Pressure</b>			
1	5	I have lied many times at the instigation of my friends.	.799
2	28	When others make fun of my friends, I ought to defend my friends.	.799
3	4	I am coerced by my friends to go out with them during weekends	.761
4	27	I often skip my classes as my friends force me to do so.	.761
5	29	I have to accept new friends at the urge of my other friends.	.736

6	6	I have to read some unwanted books due to the compulsion of my friends.	.736
7	8	I indulge in undesirable activities to satisfy my friends.	.695
8	15	I would like to have an iPod because my friends expect me to have one.	.695
9	30	My hairstyle and clothing are according to the wishes of my friends.	.667
10	7	I am afraid that I will be left alone, if I am not a part of whatever my friends do.	.667
11	9	I have to get along with my friends decisions, what so ever it may be.	.650
<b>Factor-II: Resistance to Peer Pressure</b>			
12	19	I stay away, when my friends destroy others properties.	.777
13	18	I will not do things against my conscious in spite of my friends' compulsion.	.753
14	3	I am honest with my parents about my whereabouts despite of my friends objections.	.760
15	20	I do not allow my friends to copy from my home assignments and test related activities.	.719
16	11	I will not feel bad, if my friends have something that I do not have.	.698
17	17	I will not fight for unjust causes like my friends.	.681
18	10	I do not want to have a Face book account in spite of my friends' compulsion.	.664
19.	24	I like to spend my weekends usefully with my parents and relatives, in spite of my friends' weekend programmes.	.642
20	21	I will not go for movies which I do not like even if my friends compel me.	.639
21	12	I like to choose a career of my own, irrespective of my friends' advice.	.634
22	13	I take important decisions without being influenced by my friends' suggestions.	.613
23	16	I am not crazy with my friends choices.	.576
24	14	I will enrol myself in N.S.S, Sports and other social service activities even if my friends don't enrol themselves.	.502
<b>Factor-III: Peers Encouragement</b>			
25	26	I get more interest in studies when my friends motivate me.	.760
26	2	I listen to good music as my friends recommend them.	.724
27	25	I joined swimming and other life saving training programmes, because of my friends' encouragement.	.724
28	1	Like my friends, I would like to go abroad for higher studies and job.	.642
29	23	I complete my assignments on time at the instance of my friends.	.557
30	22	I get so much of encouragement from my friends to solve difficult issues.	.421

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