VALIDATION OF SCHOOL CLIMATE SCALE FOR SENIOR SECONDARY LEVEL

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ABSTRACT: The aim of this study was to validate the School Climate Scale for senior secondary level students. The scale was originally developed for the secondary level students. This study was conducted in Kapurthala district, Punjab, India. Sample of 279 senior secondary students from different schools was collected. PFA and CFA resulted into formation of two factors in the scale. The values of different estimates were significant at standardised norms. The two dimensions are high reliability value. Hence the revised scale was valid for the senior secondary level.
KEYWORDS: senior secondary students, School Climate Scale

I. INTRODUCTION

School climate may be defined as the quality and features of the school. The climate of a school depends upon students, parents and personnel of the school. It comprises of standards, aims, social relationships, teaching-learning process, principles and managerial arrangement. Favourable school climate encourage the development of youth and helps to increase the productivity of the youth.

The term "school climate" was introduced in late 1950.The very first research was conducted by Andrew Halpin and Don Croft, in 1963. Climate of the school is considered as the soul and heart of a school, the element which drives and stimulates the individuals of the school and make them comfortable. The terms "heart and soul shows" the importance of climate of the school (Freiberg and Stein, 1999). As the behaviour of one person differentiated him from other individuals, similarly school has its own specific features according to the human interactions (Hoy and Miskel, 1996). Climate is like a personality of the organization. Every school is differing from each other in respect of its personality (Halpin, 1966). School climate plays a significant role in the development of pupils. The factors of school climate which effects the students' development are friction, competition among students, cohesion and satisfaction with classes (Loukas, 2007).

Apart from these factors bullying, aggressive attitude and students' willingness to seek help are the factors which also effects school climate and responsible for change in behaviour of students (Klein, 2012). Student's academic outcome is greatly affected by school level factors (Mitchell, 2010). There is a positive influence of school climate on grades of students. Schools in which students receive teacher support and student support, the achievement of the students is better (Jia, 2009). The positive perception of school climate has direct relation with grades and behaviour of the students (Hopson,2011).

Schools with good quality climate have less problems like, emotional problems, behavioural problems, violence and bullying (Loukas, 2006, Eliot, 2010, Kasen 1990). The school domains like academic support, positive student teacher relationship, school connectedness, order and discipline and academic satisfaction are responsible for school satisfaction (Zullig, 2011).

School climate plays significant role to develop sense of community at school, class and student level (Vieno, 2005). The schools with higher level of discipline and positive student teacher relationships have lower frequency of behavioural problems (Wang, 2010). Academic success, physiological and psychological well-being and positive acceptance of life of students is influenced by school climate (Ruus, 2007). So we have to enhance the school environment for betterment of students by involvement of parents (Haynes, 1989) and by providing quality facilities to the students (Uline, 2008).

II. LITERATURE REVIEW

A study conducted by Daily et.al., 2020 revealed that school climate positively associated with achievement of the students. In this study a sample of 2604 students was collected from students of 6th, 7th and 8th class students from

sixteen schools. Climate of the school might be valuable as an intercession to help school-based wellbeing advancement to lessen the accomplishment gaps.

Ariyanto (2019) analysed the climate of school in the history lesson in the students of senior high school in Jember. The data was collected from 375 students. Significant differences were found in the findings of the research. Another aspect of this investigation was that the learning process in the school was greatly influenced by the climate of the school.

In another research achievement of the high school students was examined in relation to the school climate (Daily, 2019). The data was collected from 2405 students of grades 6-12. Results of the research showed that, there was positive relationship between school climate and academic achievement of the students. Moreover, academic achievement of both middle and high grade students was associated with the school climate.The school climate, mental health and victimization were studied in middles schools (Salle, 2018).

The researcher selected the students with emotional and behavioural disorder and students without disorder. Results of the study revealed thatstudents with emotional and behavioural disorder were reported significantly lower perception of school climate as compare to the students without any disorder. Findings of the research exhibited that students with lower level of school climate were suffered from mental health problems and prone to victimization in school. Moreover, the mental health and perception of school climate were inversely associated with victimization among both the groups.

Fan and Williams (2018) investigated the relationship of academic achievement and school climate where motivations played a mediating role among students. Results of the study showed that both self-efficacy and motivation played a mediating role between climate and achievement. Additionally, achievement outcomes were significantly related to student's school climate. Moreover, approaches of school climate related to teacher-student relationship significantly associated to self-efficacy and intrinsic motivation.Another research examined the engagement and achievement of the students in relation to authoritarian school climate (Kondol, 2018).

The researchers tested the model through multilevel multi-informant structural model. The researcher collected the data from a sample of 60441 students and 11442 teachers in 298 high schools. Results of the research revealed that engagement of the students was related with structure and student support. Furthermore, academic performance was directly related to the "engagement" of the students. The difference in approaches of climate of school and engagement among the students of China and America was conducted by Bear (Bear, 2018).

The researcher also studied the relationship of school climate with engagement. The required data was collected from 3176 Chinese students and 4085 American students of classes three to five, seven to eight and ten to twelve. The results of the study revealed that students from China approached school climate more favourably than students from America. American students were exhibited more cognitive-behavioural and emotional engagement. Chinese students showed greater emotional engagement in middle and high school. Moreover, there was a significant association between climate and engagement of the students of America but not for the students of China.

Kashy-Rosenbaum (2018) studied the role emotional climate on the academic outcome of students. Data were collected from students of grades 7-12. The sample was consisted of 1641 students from the different schools of Israel. The findings of the research revealed that, both supportive and positive school climate were positively associated with GPA.

Ruiz (2018) assessed the role school climate in academic achievement. The required data was collected from 297 primary schools in Chicago. The results of the research showed that, low academic performance was positively related to low socio-economic status and the relation was mediated by the violent crimes. Moreover, positive association was found between performance and school climate, and this relation was moderated by safety of the students in the school.

The study conducted by Golden (2018), was about the racial climate of the school and academic performance among the adolescents from Africa and America Moreover, this study also examined the role of peer support. The sample was consisting of 126 students ranging in age from 11-15. Findings of the research explained that, association between interracial interactions and academic was moderated by the values peer values. Furthermore, results suggested that, relationship between racial climate and academic achievements was well understood with the help of "peer academic values".

Berkowitz (2017) synthesised the association between school climate, socioeconomic background and academic achievement. Results of the investigation showed that, the negative impact of the low socioeconomic status on academic performance was reduced with positive school climate.

Reynolds (2017) analysed the academic achievement, school climate and social belonging. Data was obtained from students of grade 7 and 9. Results of the study indicated that, parental education, socioeconomic status and school identification were significantly related with academic achievement. Moreover, the relationship between academic performance and school climate was mediated by school identification.

O'malley (2015) tested the relationship between school climate, family structure and academic achievement. Data was collected from 902 California public high schools, including 490000students in grades 9 and 11. Results of the research indicated that, students with more positive school climate have high academic

achievement. Moreover, there was a weak effect of school climate on GPA of students of as compared to the students from other family backgrounds. A robust relationship was found by the researcher between the GPA and climate of the school for the students who were homeless. From the above discussion it is very much clear that school climate greatly effects the student's academic achievement, learning process, mental health and engagement. In a favourable climate students can grow better. They will be more mentally stable and can deal effectively with society and social problems.

III. METHODOLOGY

3.1 Sample
The subjects of this study consisted of students of 11th and 12th class. The researcher collected the data from 279 students from the schools (PSEB and CBSE) of Kapurthala district, Punjab, India. For collection of data the researcher adopted the purposive sampling technique. the researcher used random sampling technique for the selection of schools.

3.2 Instrument: School Climate Scale (SCS)
The aim of the study is the validation of School Climate Scale developed by Dr. Shivendra Partap Singh and Dr. Ali Imam (2015) for senior secondary school students. The original instrument consists of 18 items (table 3.1) based on different types of school climate. The different school climates are open, autonomous, controlled, familiar, parental and closed. Each item measured the perception of student about the climate of school. Likert scale is used to collect the responses of the respondents (strongly agree = 5 to strongly disagree = 1). All the 18 items are positive.

Table 3.1- Items on the SCS

Sr.No	Items
1	You feel enjoy going to your school.
2	In your school students get along very well with each other.
3	You feel that studying in your school is personally motivated.
4	You are never under stress in your school.
5	Teachers in your school inspire students in taking part in various activities.
6	Your school teachers give completely fair results and treats every student equally.
7	Your school looks into the matter of any bullying or racial discrimination seriously.
8	If choice is given you would like to continue your studies in the same school.
9	Your school canteen provides quality refreshment, snacks and food.
10	Fee structure of your school is affordable to all class of people.
11	"Students in your schoolknow how to report harassment, bullying and racial abuse to school officials."
12	"Every student in your school feels like he or she belongs here".
13	"Your school creates opportunities for students to get to know each other".
14	You look forward to coming to your schooldaily in the morning.
15	Your school has maintained its healthy and hygienic standards.
16	Your school provides opportunities for nurturing your abilities and capabilities.
17	You advice your friends to study in your school.
18	You feel comfortable while interacting with administrative staff.

3.3 Procedure

Permission to conduct a validation study on the SCS tool was sought and obtained from the main author through e-mail. After obtaining the consent of the heads of the schools, with their help the questionnaire was administered to the students. The purpose of the visit was explained to the students. The instructions on the filling of the responses were clearly provided to the subjects and their help in the gathering of the data was sought and it was well appreciated. The students took around 15-20 minutes to fill the questionnaire and then they returned it to the researcher

IV. RESULTS

4.1 Factor analysis

When there is large number of variables, factor analysis a best technique to reduce the data.It additionally bunches the factors with comparable attributes together. Principal Component Factor Analyses with "varimax" with Kaiser standardization pivot were used to decide the fundamental structure or measurement of the factors. By using factor analysis, we can find the potential factors from given items.For this investigation, a few statistical qualities will be seen that comprise of "measure of Sampling Adequacy", "Kaiser-Meyer-Olkin (KMO)" and "Bartlett's Test of Sphericity". The "MSA" esteem for the individual thing can be seen by alluding at hostile to picture "correlation matrix" and it ought to be over .50.

Table 4. 1.1- KMO and Bartlett's Test

"Kaiser-Meyer-Olkin Measure of Sampling Adequacy".		.907
"Bartlett's Test of Sphericity"	Approx. Chi-Square	1879.808
	df	153
	Sig.	.000

In the meantime, the estimation of "KMO" should be statistically significant; the value which is >5 is worthy and acceptable. Here it is >5 and is acceptable (Table 4.1.2). The "Bartlett's test of Sphericity" or P value should be < .001; and here it is awesome as it is just .000. At that point, the "Barlett's test of Sphericity" is seen to decide the nearness of significant connections among variables. In the event that the estimation of these tests is higher than satisfactory level, at that point factorability is accepted. The value of "KMO" is .907 (table 4.1.1), which is quite high and acceptable. The value for Bartlett test is less than .05, which is also acceptable.

Table 4. 1. 2- Communalities

	Initial	Extraction
I1	1.000	.579
I2	1.000	.664
I3	1.000	.613
I4	1.000	.585
I5	1.000	.583
I6	1.000	.496
I7	1.000	.689
I8	1.000	.600
I9	1.000	.612
I10	1.000	.424
I11	1.000	.443
I12	1.000	.502
I13	1.000	.644
I14	1.000	.371
I15	1.000	.594
I16	1.000	.661
I17	1.000	.654
I18	1.000	.594

"Extraction Method: Principal Component Analysis".

The extraction values in the communality table (Table 4.1.2) tell us the proportion of variance for each variable that can be explained by the factor. In the results of the study, maximum items have very high extraction values.

Table 4. 1. 3-Total Variance Explained
Total Variance Explained

Component	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	6.705	37.251	37.251	6.705	37.251	37.251	4.264	23.687	23.687
2	1.426	7.923	45.174	1.426	7.923	45.174	3.344	18.578	42.265
3	1.139	6.327	51.501	1.139	6.327	51.501	1.556	8.644	50.910
4	1.038	5.765	57.265	1.038	5.765	57.265	1.144	6.356	57.265
5	.906	5.033	62.299						
6	.873	4.850	67.148						
7	.827	4.595	71.743						
8	.685	3.807	75.551						
9	.593	3.295	78.846						
10	.566	3.143	81.989						
11	.554	3.078	85.067						
12	.522	2.901	87.967						
13	.460	2.556	90.523						
14	.431	2.394	92.917						
15	.375	2.084	95.001						
16	.334	1.855	96.856						
17	.295	1.638	98.494						
18	.271	1.506	100.000						

"Extraction Method: Principal Component Analysis".

So as to know the degree of all out fluctuation accounted by the factor, we need to look at the Eigenvalue of a factor. The total variance explained in this study is 57.265 (Table 4.1.3) which is quite acceptable.

From the rotated component matrix (table 4.1.4) it is clear that maximum items are loaded under two components. So here only two factors are considered with eight items in each factor. The name of the two components are "Perceived school climate at student level" (D1) and "Perceived school climate at administrative level" (D2).

Table 4. 1. 4- Rotated Component Matrix^a

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Rotated Component Matrix[a]

	Component			
	1	2	3	4
I16	.788			
I13	.784			
I15	.728			
I11	.636			
I17	.611			
I18	.546			
I5	.533			
I10	.496			
I4		.733		
I3		.664		
I8		.648		

I1	.620		
I6	.506		
I9	.502	.350	-.486
I12	.481	.393	
I14	.453	.338	
I2		.800	
I7			.785

"Extraction Method: Principal Component Analysis".
"Rotation Method: Varimax with Kaiser Normalization.ᵃ"
a. "Rotation converged in 6 iterations".
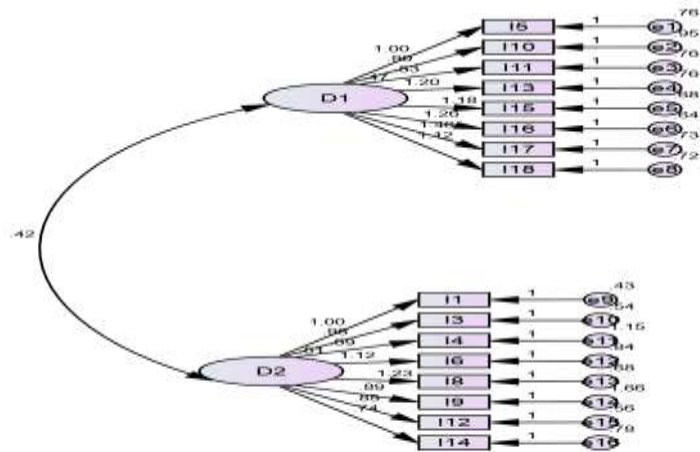
4.2 Confirmatory Factor Analysis

Fig: 4.1   Factor Loading of Itemson SCS using SPSS Amos Ver. 23

The fitness estimates of the model are as follows;

Table 4.2.1 Fitness of the model

"Measure"	P value	"CMIN/DF"	"RMR"	"RMSEA"	"GFI"	"IFI"	"TLI"	"CFI"
Benchmark	> 0.05	< 3	<0.08	<0.08	>0.90	>0.90	>0.90	>0.90
Result	.000	2.88	0.08	0.08	0.88	0.88	0.86	0.88

From the above table (table 4.2.1) it is evident that the value of CMIN/DF is 2.88, which good and acceptable. The value for GFI is 0.88 which explaining good fit to the data. Similarly, the values for RMSEA, RMR, IFI, TLI and CFI are 0.08, 0.08, 0.88, 0.86 and 0.88 respectively. All these values are good and acceptable. Hence SCS is valid for senior secondary level.

4.3 Reliability analysis

Reliability concerns the degree to which an estimation of a wonder gives stable and comprise result (Carmines and Zeller, 1979).Reliability is also concerned with repetition. For example, a scale is reliable if the results of the repeated measurement come out to be same under the same conditions (Moser and Kalton, 1985).There will be high degree of internal consistency if the test measures the same construct and the items of the test are related to each (Robinson, 2010). For the calculation of reliability, generally, Cronbach Apha coefficient is used. It is best suitable for the "Likert scales".The most suitable value of the coefficient for a scale is .70 (Robinson, 2010).In case of a pilot study the value of the coefficient may also be (Straub et al., 2004). Hinton et al. (2004) have recommended four values of reliability reliability, a) "magnificent reliability" (0.90 or more), b) "high reliability" (0.70-0.90), c) "moderate reliability" (0.50-0.70) and d) "bad reliability" (0.50 and below) (Hinton et al., 2004). In this study the value for Cronbach's Alpha (table 4.3.1) for dimension D1(Perceived school climate at student level) and D2 (Perceived school climate at administrative level) is 0.814 and 0.859 respectively, which are quite high and acceptable. The value of Cronbach's alpha for full scale is 0.899, which is acceptable.

Table 4.3.1 reliability statistics

Reliability of SCS

Cronbach's Alpha	N of Items
.899	16

D1

Cronbach's Alpha	N of Items
.859	8

D2

Cronbach's Alpha	N of Items
.814	8

V. DISCUSSION

The aim of the current investigation was to validate the SCS for the senior secondary level students. In this present study the researcher collected the data from 279 students of senior secondary level from the schools of Kapurthala district, Punjab, India. From the factor analysis it is evident that this scale is valid for the senior secondary level. The value of KMO and Bartlett's test are quite good and acceptable. In the CFA, all the estimates showed goodness of the model. Further in reliability analysis, the two dimensions were found to be reliable. Hence from the above analysis it is evident that the School Climate Scale is valid for the senior secondary level students. The number of items in the original scale was 18, but after analysis the two items were deleted from the scale and the number of items for senior secondary level is sixteen.

VI. CONCLUSION

The revised SCS needs to go through the further investigations in different cultures and different age groups in India in different populations and different academic settings. There is a great need of such tool for senior secondary level because school climate effects the academic performance of the students. As we know that the 11th and 12th is the most important stage for the students in terms of career. Therefore, to enhance the educational performance of the students the climate of the school should be favourable. Hence we must have such tool for senior secondary level students, so that the climate of the school can be assessed and required steps can be taken.

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