



iJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 Issue: III Month of publication: March 2018

DOI: <http://doi.org/10.22214/ijraset.2018.3180>

www.ijraset.com

Call:  08813907089

E-mail ID: ijraset@gmail.com

Development and Validation of Socio Emotional Classroom Management Scale for Teachers

Smt. Savitha L¹, Dr. A. H. M Vijayalaxmi²

¹Research Scholar, ²Associate Professor, Smt. VHD Central Institute of Home Science Sheshadri Road, Bengaluru-01

Abstract: *Social and emotional classroom management is an approach that nurtures teachers self-regulation, self-monitoring, and social skills in school settings and it has been shown to be an effective method of reducing negative classroom social interactions and increasing academic achievement of students. Present study was envisaged to develop a valid and reliable scale to assess the socio emotional classroom management of teachers. The items were pooled in from various sources and were subjected to statistical procedures of face validity, content validity, construct validity, factor analysis and reliability and internal consistency. After subjecting to these processes, the final version of SECM questionnaire consisted of 47 items. This questionnaire was then administered to 400 teachers to test the reliability and validity and the tool has been emerged as a highly reliable and valid scale.*

Keywords: *socio emotional, classroom management, teachers, psychological safety, sense of identity, purposeful behaviour*

I. INTRODUCTION

A classroom that is nurturing, psychologically safe, stimulating and supportive encourages positive interactions between teacher and children. Social and emotional classroom management refers to the ability of teachers to create an emotionally warm classroom environment by catering to the socio emotional needs of the students. Emotionally warm classroom environment significantly impacts the student's attitude and willingness to learn. In an emotionally warm classroom atmosphere the students feel accepted for their uniqueness, welcome and validate their thoughts and feelings.

Social and emotional classroom management is an approach that nurtures teachers self-regulation, self-monitoring, and social skills in school settings and it has been shown to be an effective method of reducing negative classroom social interactions and increasing academic achievement of students. Research indicates that the teacher needs to be socially and emotionally competent to create an emotionally warm classroom environment and to practise socio emotional classroom management. Socially and emotionally competent teachers know how to manage their emotions and their behavior and manage relationships with others. They can regulate their emotions in healthy ways that facilitate positive classroom outcomes without compromising their health. They effectively set limits firmly, yet respectfully. They also are comfortable with a level of ambiguity and uncertainty that comes from letting students figure things out for themselves. When teachers experience mastery over these social and emotional challenges, teaching becomes more enjoyable, and they feel more efficacious (Goddard, Hoy, & Woolfolk Hoy, 2004).

These teachers exhibit pro-social values and make responsible decisions based on an assessment of factors including how their decisions may affect themselves, students and others. Such teachers create an emotionally warm classroom atmosphere in which learners feel accepted for their uniqueness.. A positive learning environment helps to fulfil both the teachers and learners emotional needs for psychological safety, unconditional regard and acceptance, the feeling of belonging, purposeful behaviour and a sense of personal competence.

In view of the above discussion, a research was undertaken to develop and validate a scale to assess socio emotional classroom management factors of teachers

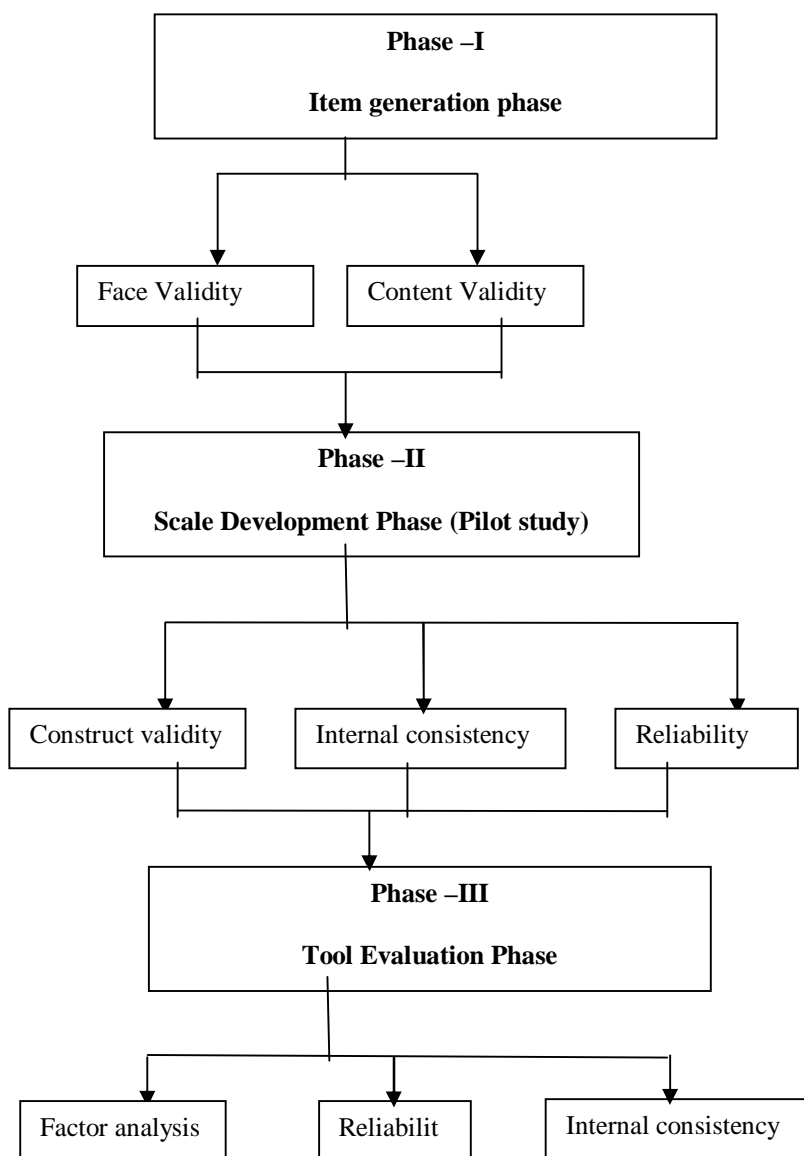
II. MATERIALS AND METHODS

A. Sample

The study sample consisted of 400 teachers teaching in schools located in Bangalore city. The sample for the present study were selected through simple random sampling technique.

B. Procedure

Steps followed to validate the socio emotional classroom management scale for teachers are depicted in the flowchart presented below;



III. RESULTS AND DISCUSSION

A. Phase I- Item generation phase

The formulation of the initial pool of items related to the various domains is a crucial task for developing the scale. The fundamental goal at this juncture is to formulate all content systematically in a sequential manner that is potentially relevant to the target construct. The scale development process begins with the creation of items to assess a construct under examination. This process can be conducted inductively, by generating items first, from which scales are then derived, or deductively, beginning with a theoretical definition from which items are then generated. Deductive process is used for the SECM scale development.

There are a number of basic guidelines that should be followed to ensure that the items are properly constructed. Items should address only a single issue. It is also important to keep all items consistent in terms of perspective, being sure not to mix items that assess behaviors with items that assess affective responses to or outcomes of behaviors (Harrison and McLaughlin, 1993). Statements should be simple and as short as possible and the language used should be familiar to target respondents. Negatively-worded or reverse-scored items should be used with caution as a few of these items randomly interspersed within a measure can have a detrimental effect on its psychometric properties (Harrison and McLaughlin, 1991). Items must be understood by the

respondent as intended by the researcher if meaningful responses are to be obtained. Finally, the content redundancies are desirable when creating multiple items because they are the foundation of internal consistency reliability.

The items for the present scale have been generated based on the above guidelines. The researcher reviewed several books, journals, research articles, thesis and electronic media to pool in the items related to socio emotional factors associated with classroom management. After reviewing, the researcher identified, adapted and compiled 164 items that covered both positive and negative items based on five point Likert scale;

Positive items were given the rating ranging from 1 to 5 i.e Strongly agree=5, Agree=4, Neutral=3, Disagree=2, Strongly disagree=1

Negative items were given the rating ranging from 5 to 1 i.e Strongly agree=1, Agree=2, Neutral=3, Disagree=4, Strongly disagree=5

Items selected from various sources for face validity

Source	No of items	Percentage
Journals	32	20
Research articles/Thesis	25	15
Psychological instruments	66	40
Books	41	25
Total	164	100

- 1) *Face validity* : Face validity indicates the questionnaire appears to be appropriate to the study purpose and content area. It is the easiest validation process to undertake but it is the weakest form of validity. It evaluates the appearance of the questionnaire in terms of feasibility, readability, consistency of style and formatting, and the clarity of the language used (Haladyna 1999; Trochim 2001; DeVon et al. 2007). Thus, face validity is a form of usability rather than reliability. After pooling in the items, the researcher subjected them to face validity. In this stage the items were checked for the operationalization and whether on its face meets the criteria for a good version of the tool. Further, the number of items were reduced to 109.
- 2) *Content validity* : Content Validity is based on the extent to which a measurement reflects the specific intended for developing the scale for the study. If the researcher has focused in too closely on only one type or narrow dimension of a construct or concept, then it is conceivable that other indicators are overlooked. In such a case, the study lacks content validity. An estimate of content validity of a test is obtained by thoroughly and systematically examining the test items to determine the extent to which they reflect and do not reflect the content domain of content (Carmines & Zeller, 1991). It refers to the conceptualization of the statements Content validity indicates whether the content reflects a complete range of the attributes under study and is usually undertaken by seven or more experts (Polit & Hungler 1999; DeVon et al. 2007).

After face validity, the remaining 109 items were subjected to content validity. The researcher identified 12 experts from the different fields viz : Human development, psychology, education and teaching (teachers having more than 20 years of experience) and was given to them to scrutinize the items on its relevance and rate them on a scale of 10, 10 being highly relevant and 1 being least relevant.

The generally accepted quantitative index for content is the Aiken`s V index. Hence this index was used for assessing the content validity by quantifying the ratings of panel experts constituted for evaluating the items in the instrument. The Aiken`s V index with 0.80 indicates the good content validity of the measure. The result obtained from content analysis was quantified using Aiken index and 47 items secured an Aiken index over 0.80 indicating good content validity of the measure.

B. Phase II- Scale development

- 1) *Pilot study*: A pilot study is a mini-version of a full-scale study or a trial run done in preparation of the complete study. It is also called a ‘feasibility’ study. It can also be a specific pre-testing of research instruments, including questionnaires or interview schedules. (Compare Polit, et al. & Baker in Nursing Standard, 2002:33-44; Van Teijlingen & Hundley, 2001:1.) Hence a pilot study was conducted to examine the reliability of the proposed SECM tool.

When estimating the sample size for the pilot trial, According to Connelly (2008), extant literature suggests that a pilot study sample should be 10% of the sample projected for the larger parent study. However, Hertzog (2008) cautions that this is not a simple or straight forward issue to resolve because these types of studies are influenced by many factors. Nevertheless, Isaac and Michael (1995) suggested 10 – 30 participants; Hill (1998) suggested 10 to 30 participants for pilots in survey research; Julious (2005) in the medical field, and van Belle (2002) suggested 12; Treece and Treece (1982) suggested 10% of the project sample size. For the present study a sample of 30 teachers teaching high school students in Bangalore city were selected for conducting pilot study. The data obtained was subjected to statistical analysis to check reliability and internal consistency.

2) *Reliability* : Reliability is the ability to reproduce a consistent result in time and space, or from different observers, presenting aspects on coherence, stability, equivalence and homogeneity. It is one of the main quality criteria of an instrument (Terwee, et al, 2006).

Reliability refers to how stable, consistent or accurate an instrument is (Polit, 2011). The choice of the statistical tests used to assess reliability may vary, depending on what is intended to be measured (Keszei, 2010).

For the present study, Spearman Brown Spilt –half Unequal length and Gutman Spilt –half co-efficient method were used to assess the reliability of the instrument. The SECM scale obtained 0.884 on Spearman Brown Spilt –half Unequal length method and 0.844 Gutman Spilt –half co-efficient indicating high reliability of the scale.

3) *Internal consistency*: The internal consistency – or homogeneity – shows if all subparts of an instrument measure the same characteristic (Streiner, 2003). An estimate of low internal consistency may indicate that the items measure different constructs or that the answers to the questions of the instrument are inconsistent (Keszei, 2010).

Most researchers assess internal consistency of instruments through Cronbach's alpha coefficient (Keszei, 2010; Streiner, Kottner, 2014). Since the 1950s, this is the most used measure to assess reliability (Cronbach, 1951; Beeckman, et al, 2010; Bonett and Wright, 2015). Cronbach's alpha coefficient demonstrates the covariance level between the items of a scale. Thus, the lower the sum of items variance is, the more consistent the instrument will be. The internal consistency of the SECM scale was assessed through Cronbach's alpha coefficient. The scale obtained Cronbach's Alpha of 0.944 indicating high Internal consistency.

4) *Construct validity*

It is the degree to which a group of variables really represents the construct to be measured (Martin, 2006; Hair Junior et al, 2009; cited in, De Souza AC, et al., 20017). In order to establish the construct validity, some predictions are made based on the construction of hypotheses, and these predictions are tested to support the instrument validity (Hair Junior et al, 2009). The more abstract the concept is, the more difficult it will be to establish the construct validity (cited in De Souza A C, et al., 20017). In the present study the construct validity of the scale was established by item total correlation. Results are depicted in table 1.

C. Phase III – Scale Evaluation

The SECM scale, after assessing the reliability and internal consistency based on Pilot study results, was administered to a larger sample. Again the scale was evaluated through factor analysis, reliability and internal consistency based on the results obtained from large scale study.

1) *Factor analysis* : Exploratory Factor Analysis is a common factoring method such as principal axis is recommended because the principal-components method of analysis accounts for common, specific and random error variances (Ford, MacCallum and Tait, 1986; Rummel, 1970). The number of factors to be retained depends on both underlying theory and empirical results. The objective is to identify those items that most clearly represent the content domain of the underlying construct.

2) Only those items that clearly load on a single factor should be retained.

3) Again, there are no hard and fast rules for this, but the 0.40 criterion level appears most commonly used in judging factor loadings as meaningful (Ford et al., 1986). A "useful heuristic might be an appropriate loading of greater than 0.40 and/or a loading twice as strong on the appropriate factor than on any other factor.

The factor analysis step helps to determine how many factors or subscales exist for a set of items. For the present study an exploratory factor analysis was conducted on the data obtained by the respondents.

The results of the factor analysis on SECM are as follows; There were totally 6 factors namely; 1. Sense of competence, 2. Sense of identity, 3. Teachers general demeanour 4. Feelings of belonging 5. Psychological safety, and 6. Purposeful behaviour, with total of 47 items.

TABLE 1
CONTENT AND CONSTRUCT VALIDITY BY ITEM-TOTAL CORRELATION

Item	I. Items	Aiken's Index	Item-Total correlation	Factor Loadings					
				F1	F2	F3	F4	F5	F6
1.	I enjoy teaching.	0.968	0.8644	0.102	0.108	0.833	0.123	0.160	0.093
2.	I am concerned about both what my students learn and how they learn.	0.921	0.8205	0.198	0.204	0.762	0.156	0.112	0.034
3.	I take care with how I present information (e.g. speaking clearly, writing neatly, etc.).	0.921	0.8180	0.133	0.294	0.770	0.065	0.105	0.023
4	I know the names of the students in my class.	0.889	0.8156	0.144	0.129	0.775	0.151	0.086	0.129
5	I know the developmental characteristics of different age groups of students.	0.921	0.7998	0.162	0.120	0.688	0.276	0.249	0.084
6	I speak to students with dignity and respect irrespective of their diverse cultures, language skills and experiences.	0.810	0.8410	0.228	0.308	0.743	0.174	0.118	-0.004
7	I create an environment that is positive for student learning and involvement.	0.937	0.8206	0.142	0.302	0.684	0.259	0.067	0.209
8	I maintain a positive behaviour that shows students I care about what's going on in the classroom.	0.937	0.8064	0.221	0.252	0.653	0.156	0.207	0.269
9	My students understand that they can interrupt my lecture if they have a relevant question.	0.810	0.8088	0.126	0.118	0.730	0.200	0.142	0.194
10	I provide clear directions for classroom tasks using a variety of modalities (e.g., verbal, visual, physical demonstration) and checking to make sure students understand their roles and responsibilities.	0.905	0.8175	0.186	0.113	0.234	0.756	0.088	0.157
11	I provide students with self-control and self-monitoring strategies/tactics.	0.905	0.8435	0.255	0.166	0.120	0.741	0.240	0.083
12	I provide specific activities for students to get to know one another and solve problems collaboratively.	0.857	0.8258	0.299	0.106	0.179	0.729	0.181	0.037
13	I construct my instructions to suit students of different learning style.	0.873	0.8258	0.291	0.175	0.191	0.711	0.133	0.092

14	I organize classroom space (e.g., seating, resources, technology) to ensure safety and maximize learning.	0.905	0.8425	0.240	0.266	0.260	0.702	0.149	0.048
15	I impose only necessary rules on my students and try to explain the reasons for them.	0.921	0.8232	0.245	0.180	0.201	0.727	0.046	0.197
16	I develop an effective plan for managing student's behaviour that leads to negative outcomes. Eg. bullying, using bad words, etc.	0.905	0.8184	0.316	0.013	0.195	0.683	0.141	0.172
17	I seek out professional development and continuous learning opportunities.	0.952	0.8234	0.333	0.655	0.281	0.096	0.156	0.160
18	I encourage students to clarify their doubts in the classroom.	0.921	0.8130	0.192	0.737	0.306	0.057	0.045	0.096
19	I use effective teaching techniques and modified curricula to meet students' needs.	0.968	0.8196	0.252	0.662	0.230	0.268	0.209	0.133
20	I appreciate each student's uniqueness with regard to their abilities, skills, ideas, thinking, etc	0.952	0.8171	0.303	0.710	0.141	0.183	0.121	0.130
21	I involve students in classroom activities, through debates, presentations, individual assignments, etc that help them to identify their strengths and weaknesses.	0.905	0.8019	0.226	0.722	0.139	0.207	0.095	0.113
22	I engage students in analytical thinking to enhance their abilities and sense of worth.	0.952	0.8186	0.182	0.765	0.107	0.172	0.029	0.204
23	I encourage creative thinking in students.	0.968	0.8077	0.080	0.775	0.172	0.039	0.107	0.218
24	I motivate my students to participate in the co curricular activities.	0.905	0.8219	0.166	0.760	0.245	0.026	0.161	0.093
25	I teach about responsibility and provide opportunities for students to contribute to their overall success.	0.873	0.8186	0.199	0.701	0.210	0.166	0.211	0.159

26	I share responsibilities with parents and caregivers to support student learning.	0.905	0.8064	0.272	0.279	0.148	0.269	0.591	0.184
27	The emotional well-being of my students is more important to me than classroom control.	0.937	0.8068	0.122	0.145	0.228	0.219	0.702	0.176
28	I maintain an open and appropriate level of communication with student's parents to support students learning.	0.857	0.8069	0.233	0.256	0.253	0.220	0.652	0.073
29	I differentiate instruction and evaluation so students of all styles and ability levels, can experience the joys of success.	0.937	0.8088	0.210	0.080	0.225	0.067	0.769	0.188
30	I create a classroom environment that insists on respect and mutual support for each students learning.	0.889	0.8122	0.266	0.297	0.262	0.294	0.575	0.130
31	I encourage students to establish personal learning goals and plans for achieving them.	0.921	0.8039	0.287	0.314	0.151	0.124	0.226	0.600
32	I encourage and challenge students to support their written and spoken ideas with evidence.	0.873	0.8273	0.303	0.282	0.073	0.135	0.209	0.689
33	I engage students in high order thinking challenges	0.921	0.8085	0.170	0.261	0.237	0.181	0.104	0.704
34	I insist students to use critical academic vocabulary while speaking and writing	0.889	0.8046	0.306	0.204	0.202	0.179	0.102	0.662
35	I engage students in authentic learning by providing real-life examples and interdisciplinary connections.	0.921	0.8164	0.383	0.236	0.175	0.161	0.229	0.563
36	I acknowledge students' learning needs and their feelings about class management (e.g. schedule, policies, etc.)	0.873	0.8162	0.714	0.147	0.173	0.288	0.141	0.082
37	After correcting rule violations, I use acknowledgement and positive reinforcement for rule following.	0.905	0.8177	0.756	0.212	0.061	0.195	0.135	0.103
38	I respond to inappropriate behaviour in a calm, emotionally objective and business-like manner.	0.921	0.8002	0.669	0.161	0.129	0.259	0.102	0.227
39	I monitor each student's contributions to meet the objectives of an assigned group work.	0.905	0.8193	0.757	0.219	0.086	0.253	0.049	0.050
40	I let students know how they must perform to achieve certain grades,	0.841	0.8224	0.689	0.241	0.256	0.202	0.251	0.107

	and provide them updates on their grade status.								
41	I provide specific and brief error corrections for academic and social behaviour after stating expected behaviour.	0.905	0.8011	0.725	0.048	0.149	0.235	0.149	0.191
42	I create, communicate, and assess student's achievement of learning objectives.	0.889	0.8262	0.728	0.232	0.169	0.117	0.198	0.182
43	I provide extra time and assistance for students who are lagging behind.	0.937	0.8199	0.730	0.220	0.125	0.229	0.072	0.138
44	At the end of the activity, I know how many students have met the objective.	0.921	0.8095	0.713	0.265	0.137	0.253	0.046	0.125
45	I help students review learning goals and targets, assess their level of achievement, and "close the gap" when goals are unmet.	0.921	0.8014	0.780	0.064	0.129	0.106	0.093	0.197
46	I work with students to set future performance goals.	0.905	0.8078	0.732	0.191	0.180	0.118	0.101	0.179
47	I celebrate student learning and achievement by verbal rewards/material rewards, exclamatory rewards, etc	0.937	0.8043	0.748	0.199	0.176	0.105	0.146	0.063

The exploratory factor analysis was conducted for 47 items using SPSS 18.0. A Principal Axis Factor (PAF) with a Varimax rotation of 47 Likert scale statements from socio emotional classroom management questionnaire was conducted on data gathered from 400 participants. An examination of the Kaiser-Meyer Olkin measure of sampling adequacy suggested that the sample was factorable (KMO=.946). The results of the rotation of the solution are shown in Table 1. The loading values were carefully examined using Hair, Anderson, Tatham & Black's (1998) guideline for practical significance, which indicates a factor loading of ± 0.3 means the item is of minimal significance, ± 0.4 indicates it is more important, and ± 0.5 indicates the factor is significant. When loadings less than 0.30 were excluded, the analysis yielded six-factor solution with a simple structure (factor loadings ≥ 0.30).

The Six Topic Factors

Twelve items (item 36 to item 47) loaded onto Factor 1. It is clear from the table that these twelve items all relate to teachers/learners personal competence. This factor loads onto reported level of teacher's ability in instilling a sense of competence among the learners. This factor was labelled, "Sense of competence".

Nine items (item 17 to item 25) loaded onto a second factor related to teachers reported perceptions about her contribution in students realising their potential and identity formation. This factor was labelled, "Sense of identity".

Nine items (item 1 to item 9) that loaded onto Factor 3 relate to the teachers perception of their behaviour in the classroom with their students. This factor was labelled, "Teachers General Demeanour".

Seven items (item 10 to item 16) that load onto Factor 4 identifies teachers self reported effort in creating a classroom that is socially and emotionally safe. This factor was labelled, "Psychological Safety".

Five Items (item 26 to item 30) loaded for Factor 5 related to role of teachers in helping students feel connected to one another. This factor was labelled, "Feelings of belonging".

Five Items (item 31 to item 35) for Factor 6 related to teacher's reported contribution in students confidence building and motivation to strive for personal achievable goals. This factor was labelled "Purposeful Behaviour".

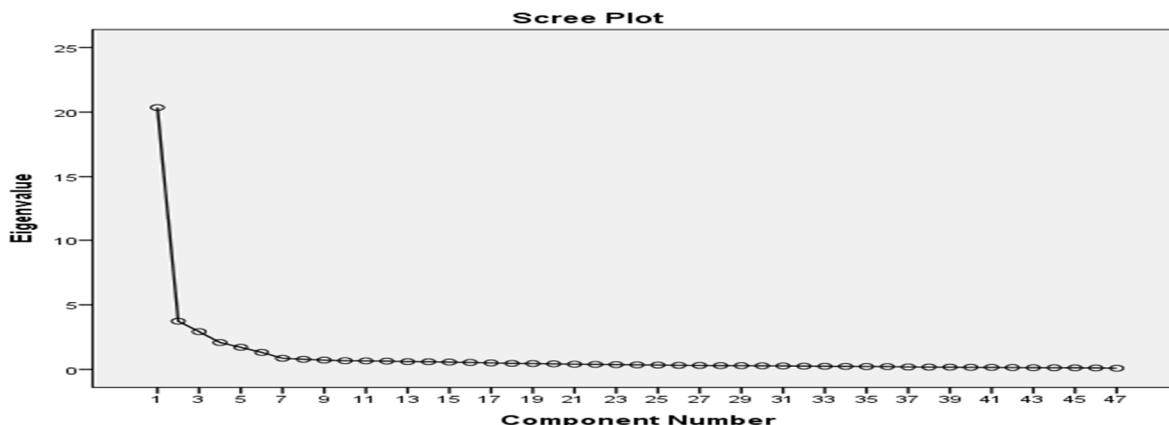
TABLE 2
EXPLORATIVE FACTOR ANALYSIS: EXTRACTION AND ROTATION SUMS OF SQUARED LOADINGS

Components	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings (Varimax)		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	20.35	43.30	43.30	20.35	43.30	43.30	8.28	17.62	17.62
2	3.73	7.94	51.25	3.73	7.94	51.25	6.37	13.54	31.16
3	2.92	6.22	57.47	2.92	6.22	57.47	6.31	13.43	44.59
4	2.08	4.43	61.89	2.08	4.43	61.89	5.07	10.78	55.37
5	1.71	3.64	65.53	1.71	3.64	65.53	3.12	6.63	62.00
6	1.32	2.80	68.33	1.32	2.80	68.33	2.97	6.33	68.33

The Total Variance Explained table determines the number of significant factors. The factors are arranged in the descending order based on the most explained variance. The Extraction Sums of Squared Loadings is identical to the Initial Eigenvalues except factors that have eigenvalues less than 1 are not shown. These columns show the eigenvalues and variance prior to rotation. The Rotation Sums of Squared Loadings show you the eigenvalues and variance after rotation. Eigenvalues refer to the variance accounted for, in terms of the number of “items’ worth” of variance each explains. So, Factor 1 explains almost as much variance as in twenty items. The Total Variance Explained table shows how the variance is divided among the 6 possible factors. It can be noted that all the six factors have eigenvalues (a measure of explained variance) greater than 1.0, which is a common criterion for a factor to be useful.

Principal axis factor analysis with varimax rotation was conducted to assess the underlying structure for the 47 items of the socioemotional classroom management Questionnaire. Six factors were requested, based on the fact that the items were designed to index six constructs: teachers general demeanour, psychological safety, sense of identity, feelings of belonging, purposeful behavior and sense of competence. After rotation, the first factor accounted for 17.62% of the variance, the second, third, fourth and fifth factor accounted for 13.54%, 3.43%, 10.78%, 6.63% respectively, and the last factor accounted for 6.33%.

FIGURE 1
SCREE PLOT OF EIGEN VALUES



In order to decide the retained factors, scree plot of eigenvalues offers an arbitrary rule. Developed by Cattell, this method claims to retain one less than the factor where the “elbow” occurs. The “elbow” represents a break point where a substantial drop in the magnitude of the eigenvalues appears (Ref. Figure 1). For testing the occurrence of the break point, successive regression lines can be applied to verify the significant difference of their slopes extended from the break point.

The Scree plot shows that after the first six components, differences between the eigenvalues decline (the curve flattens), and they are less than 1.0. This again supports six factors in the tool.

D. Reliability and Internal Consistency

The SECM questionnaire was again checked for its reliability and internal consistency and the results are as follows;

Chronbach Alfa- 0.971

Spearman Split half – 0.880

Guttman Split half- 0.879

IV. CONCLUSION

The above results reveals that the socio emotional classroom management tool consists of 47 items distributed under six factors with very good reliability and validity. This indicates that the SECM tool has emerged as a reliable and valid tool for assessing socio emotional classroom management of teachers.

V. ACKNOWLEDGEMENT

Sincere thanks to Dr. K.P.Suresh, Scientist (Biostatistics), National Institute of Veterinary Epidemiology and Disease Informatics (NIVEDI), Bangalore for his assistance in statistical analysis.

REFERENCES

- [1] Beeckman D, Defloor T, Demarre L, Van Hecke A, Vanderwee K. Pressure ulcer prevention: development and psychometric validation of a knowledge assessment instrumen. *Int J Nurs Stud.* 2010 Apr;47(4):399-410.
- [2] Belle, G van. *Statistical rules of thumb.* New York: John Wiley. 2002
- [3] Bonett DG, Wright TA. Cronbach's alpha reliability: interval estimation, hypothesis testing, and sample size planning. *J Organ Behav.* 2015 Jan;36(1):3-15
- [4] Cattell, R.B. *The scientific use of factor analysis in behavioral and life sciences.* New York, NY: Plenum Press. 1978
- [5] Cattell, R.B. *Factor analysis.* Westport, CT: Greenwood Press. 1973
- [6] Connelly, L. M. Pilot studies. *Medsurg Nursing,* 2008, 17(6), 411-2.
- [7] Cronbach LJ. Coefficient alpha and the internal structure of tests. *Psychometrika,* 1951 Sep, 16(3):297-334.
- [8] De Souza Ana Cláudia, et al. Psychometric properties in instruments evaluation of reliability and validity, *Epidemiol. Serv. Saude, Brasilia,* 26(3), Jul-Sep 2017
- [9] Ford, J.K., MacCallum, R.C. & Tait, M. The application of exploratory factor analysis in applied psychology: A critical review and analysis. *Personnel Psychology,* 1986, 39,291-314.
- [10] Goddard, R. G., Hoy, W. K., & Woolfolk Hoy, A. Collective efficacy: Theoretical development, empirical evidence, and future directions. *Educational Researchers,* 2004, 33, 2-13.
- [11] Hair Junior JF, Black WC, Babin BJ, Anderson RE, Tathan RL. *Análise multivariada de dados.* 6 ed. Porto Alegre: Bookman; 2009.
- [12] Hair Junior JF, Black WC, Babin BJ, Anderson RE, Tathan RL. *Análise multivariada de dados.* 6 ed. Porto Alegre: Bookman; 2009
- [13] Harrison, D.A. & McLaughlin, M.E. Exploring the cognitive processes underlying responses to self-report instruments: Effects of item content on work attitude measures. *Proceedings of the 1991 Academy of Management annual meetings,* 1991, 310-314
- [14] Harrison, D.A. & McLaughlin, M.E. Cognitive processes in self-report responses: Tests of item context effects in work attitude measures. *Journal of Applied Psychology,* 1993, 78,129- 140.
- [15] Hertzog, M.A. Considerations in determining sample size for pilot studies. *Research in Nursing & Health,* 2008, 31,180-191.
- [16] Hill, R. What sample size is "enough" in internet survey research? *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century,* 1998, 6(3-4).
- [17] Isaac, S., & Michael, W. B. *Handbook in research and evaluation.* San Diego, CA: Educational and Industrial Testing Services. 1995
- [18] Jones SM, Bailey R and Jacob R. Social-emotional learning is essential to classroom management, In. (Ed). Easton Lois Brown (2014), *exploring classroom management, Professional Development Discussion Guide, Phi Delta Kappan,* 2014, 96 (2), 19-24.
- [19] Julious, S. A. Sample size of 12 per group rule of thumb for a pilot study. *Pharmaceutical Statistics,* 2005, 4, 287-291.
- [20] Keszei AP, Novak M, Streiner DL. Introduction to health measurement scales. *J Psychosom Res.* 2010 Apr; 68(4):319-23.
- [21] Martins GA. Sobre confiabilidade e validade. *RBGN.* 2006 jan-apr;8(20):1-12. 45.
- [22] Polit, DF & Hungler, BP. *Nursing research: Principles and methods.* 6th edition. Philadelphia: Lippincott, 1999
- [23] Polit DF, Beck CT. *Fundamentos de pesquisa em enfermagem: métodos, avaliação e utilização.* 7 ed. Porto Alegre: Artmed; 2011.
- [24] Polit DF. Assessing measurement in health: beyond reliability and validity. *Int J Nurs Stud.* 2015 Nov;52(11):1746-5
- [25] Rummel, R.J. *Applied factor analysis.* Evanston, IL: Northwestern University Press, 1970
- [26] Streiner DL. Starting at the beginning: an introduction to coefficient alpha and internal consistency. *J Pers Assess.* 2003 Feb;80(1):99-103.
- [27] Streiner DL, Kottner J. Recommendations for reporting the results of studies of instrument and scale development and testing. *J Adv Nurs.* 2014 Sep;70(9):1970-9.
- [28] Terwee CB, Bot SD, Boer MR, van der Windt, Knol DL, Dekker J, et al. Quality criteria were proposed for measurement properties of health status questionnaires. *J Clin Epidemiol.* 2007 Jan;60(1):34-42
- [29] Treece, E. W., & Treece, J. W. *Elements of research in nursing* (3rd ed.). St. Louis, MO: Mosby. 1982



10.22214/IJRASET



45.98



IMPACT FACTOR:
7.129



IMPACT FACTOR:
7.429



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089  (24*7 Support on Whatsapp)