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Development of Measurement Model for Measuring Service Quality in Secondary Education

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Abstract
Education is the key to social and economic development of a society. It encompasses every sphere of human life. Level of literacy has a profound bearing on the level of human development. In India, the education system is broadly divided into three major stages viz., Primary, Secondary and Higher Education. Several steps were taken to strengthen education system in the country in terms of achieving the goal of providing education to all through universal enrolment, and ensuring literacy for all children of school going age either through formal or non-formal system of education. However, the quality aspect of education remained by and large a neglected area till today. India with a great human resource has the potential to be a leading knowledge power in the world if the education system from the very beginning is designed to ensure quality output. All over the world education is exceptionally acclaimed as the best pre requisite for human advancement. The school education is the bedrock of every individual's education. In this scenario the present study is aimed at developing a model to measure the quality of service in Secondary schools of South India.

Keywords: literacy, school education, quality of service

Introduction

Academic achievement at school level decides the destination of all educational endeavors. Aremu (2001), while stressing the importance of academic performance in the educational system, was of the view that academic performance is a fundamental criterion by which all teaching–learning activities are measured, using some standards of excellence and the acquisition of particular grades in examinations which measures candidate's ability, mastery of the content and skills in applying the knowledge acquired to a particular situation. The continuous and comprehensive evaluation system helps in knowing about the cognitive, affective and psychomotor abilities of an individual from the results of achievement. Secondary school education in any country is considered one of the most important sectors in the education system as well as for the development of the country's economy. If any country wishes to aim at producing a competitive economy to meet global market demands, improving the quality of secondary school education should be its priority. Much of the discussion in educational reform hinges on the question of whether schools matter. Over the past two decades, policymakers have called for improvements in the academic performance of school student's especially secondary education. Many educational reformers, particularly those associated with the standards movement, believed that the key to improving student performance lies in improving quality of education in schools. In this connection the present study is aimed at evaluating the quality of service in Secondary schools of South India.

Literature Review:

Most of the previous studies on effects of schooling have concluded that the impact of quality of school or teacher on academic achievement is less when compared to the impact of family background or other characteristics of students that anticipate entry into school (Heyneman and Loxley, 1983). However, QET in both primary and secondary education largely depends on the teacher's personality traits such as gender, age group, knowledgeability, skills

of managing classroom setups, way of teaching and refresher course training (Meli, 2020). The strengths of the teaching force are the key source of quality of education in any country, (Linde, 1998; Galabawa et, al., 2000). Teachers can easily address issues of classroom practices if they are good at teaching and possess the knowledge of pedagogy (Cochran, et al 1993; Kanu, 1996). Conversely, the QET for teachers of both primary and secondary level education depends on effective utilization of invested resources and interactions between intra and extra school environments which enable both the teachers and the learners (Monk, 1981; Blaugh, 1980; Hanusheth, 1979; Bronfenbrenner, 1974; and McGuirk, 1973). It was mentioned that processes of teaching and learning are considered both as facets of the quality of education and as channels between school inputs and students' achievement. These are found to have been largely influenced by the provision of furniture, the maintenance of classroom, and other physical inputs (Urwick and Junaidu, 1991).

Both the process and product variables were considered to be as the most important qualities for the effective teaching and learning of classroom practices as they always guide the teachers in delivering their knowledge to the students (Borich, 2007; and Galton, 2007). It was further mentioned that many of the outcome or product variables are possible to measure by tests and the remaining are measurable on the basis of abstract patterns of appraisal, like the views of teachers' (Creemers and Kyriakides, 2008 and Haydin, 2007). However, it was still point out that a comprehensive structure of *context-process-product* provides the basis of knowing how effective teaching of classroom practices may provide good pedagogical skills during the teaching process (Petty, 1973; and Kiwia, 1993). It is evident that teacher demographics, personality traits, and their learning practices significantly affect the quality of teaching. It is also understood that the family background of the student will influence his/her learning skills. It is important to see how a successful teacher can bring the desired level of student learning. In this regard, it is necessary to accentuate cognitive (intellectual) or effective (social, emotional, and attitudinal) aspects of learning as the goals of effective teaching (ET) into short-term (can be achieved by the end of lesson) or long-term (can be achieved by the end of course (Galton, 2007).

In view of QET, scholars (Barber, 1990 and Averch, 1972) maintain that a dutiful teacher should have thorough pedagogical skills that enable the teacher to bring subjects' notes effectively.. Other scholars (Hydin, 2007 and Roth, 1998) indicate some necessary QET. It means that a good teacher is one who creates a well-organized learning environment, clearly states the work to be done and helps the learner, and is friendly and supportive. It can be said that a dutiful and proficient teacher can convey the suitable content to the students (Mwamifu, 2005; Heyneman and Loxley, 1983). Similarly, Frasier, an excellent and awful teacher, pointed out some QET by inquiring himself. In a reply to the inquiry, what he (ibid) contends the difference between is the aspect of behavior and capacity to inculcate the obedience, capability of managing classroom setup, way of teaching, subject matter, and the teacher-student relationship. In his (ibid) views, an excellent teacher shows positive performance while an awful teacher performs scantily in the process of teaching (Frasier, 1956).

Ten general characteristics of ET have been identified as follows: i) clarity in teacher's explanations and directions; ii) creating a climate of task-oriented classroom; iii) making use of variety of learning activities; iv) establishing impetus and swiftness for the lesson; v) encouraging students' contribution to the process of teaching; vi) monitoring students' progress and addressing quickly their needs; vii) delivering a well-structured and a well-organized lesson; viii) providing students with positive and effective feedback; ix) ensuring full coverage of the educational objectives; and x) making good use of questioning (Smith, 2009; Good and Brophy, 1986; and Petty, 1973).

The pedagogical model, which was developed mainly from the perspective of ET generally used for teacher education, attempts to describe the art of teaching

in such a way that it adds value to both students and teachers during the initial training process and to the experienced teachers who are attending in-service courses (Kyriacou, 2009). Attention, reminiscence, information, transfer of learning, underpinning, response, stimulus, capacity, potential, and self-concept are the underlying psychological concepts, principles and processes of ET (Slavin, 2006 and Woolfolk et al., 2008). Kyriacou (2009), opined that

An alternative and very fruitful model of effective teaching, in the context of developing countries such as Tanzania, is an Instructional Model consisting of 5 Es' (Trownbridge and Byebee (1996). The 5 Es' include: Exploration, Explanation, Elaboration, Engagement, and Evaluation. The contemporary proponents of constructivism developed *"an Instructional Model* of teaching and learning for teachers". The role of teachers is not just providing pupils with resources and instructions, but also planning and designing to explain instructional strategies for pupils to take the learning activities attentively. This system makes use of activities to enable pupil learning concepts rather than simply validating them (Trowbridge and Bybee, 1996). Various factors are identified which impact the practices in the classroom set ups in Botswana. They are mainly the adopted bureaucratic—authoritarian educational model of Britain, the colonialists' belief in the primacy of Western civilization, the authoritarianism essential in Tswana society, and the policy of human resource development of post-autonomy Botswana (Tabulawa, R., 1997). Several models and frameworks of effective teaching were discussed. All the different frameworks or models of effective teaching will be successful only when there is a proper planning, designing, and implementing instructional strategies.

Objectives of the Study: To confirms and test the identified service quality factors by developing the measurement models.

Methodology:
Sampling Method
In India, five major states representing,

Southern part of India (namely, Andhra Pradesh, Telangana, Tamil Nadu, Karnataka and Kerala) were selected. From each state, three districts were selected on the basis of highest population. The sample of the study consists of fifteen major districts of Southern India, among which from each district 100 students were selected representing both genders. The students were drawn from Secondary Class IXth and X[th] class. A sample of 2250 was collected from different schools out of which 1500 sample was finalized for actual analysis after eliminating out layers and incomplete questionnaires. Hence the total sample constitutes 15 * 100 =1500 students (five states, 15 districts, 100 Students from each district). Stratified Random Sampling Technique was employed in the final selection of the sample. For this study Multi stage sampling procedure was adopted for the purpose of collecting the primary data.

Survey Instrument
For measuring service quality, the widely used service quality measurement scale-SERVQUAL scale (Parasuraman*et al.,* 1988, 1991) was used. A pilot study was conducted and the survey instrument was finalized after discussions with experts and academicians (annexure-1). A five point Likert scale range from 1=strongly disagree to 5=Strongly Agree was used to know the different attitudes of respondents in all the situations.

The data was collected from both primary and secondary sources. The primary data was collected from the respondents by administering a structured questionnaire. Data was collected through Survey Method, Observation techniques, Panel discussions and Focused group discussions. Secondary data was collected from books, journals, research reports etc. The collected data was analyzed with use of SPSS software. Statistical techniques like factor analysis, structural equation modeling, and multiple regressions were used.

Data Analysis
The collected data was analyzed using multivariate data analysis tests with the help of software tools such as Statistical Package for Social Sciences (SPSS-22) and Analysis of Moment Structures (AMOS-22). Exploratory Factor analysis was conducted

using SPSS to identify the critical factors of service quality with respect to students and teachers. EFA was used to develop the theoretical model. Then Confirmatory Factor Analysis was used to test the theoretical models and confirm the dimensions and attributes developed in this research. Consequently, Service Quality scales were developed using AMOS software. The Cronbach alpha for the resultant scales was calculated to ensure scale reliability. Structural models were developed to test the hypothesized relationships between the constructs of service quality, student satisfaction and student attitude.

The first and foremost objective is to identify the critical factors of service quality in secondary education which has been done using an Exploratory Factor Analysis with a sample of n_1=900. As a result, five factors were evolved with 26 items namely Academic Facilities, Assurance, Teaching Consolidation, Reliability, and Responsiveness. The KMO sampling adequacy was .940. The total variance explained by all these factors was 65.45 percent.

Factor 1: Academic Facilities
1. Schools have up to date and modern equipment and technology.
2. Laboratory facilities are adequate.
3. Library facilities are adequate.
4. Physical appearance of the building and classroom of school is visually appealing.
5. Sports facilities and amenities are adequate
6. School has proper amenities e.g., canteen, parking areas, rest rooms.

Factor 2: Assurance
7. Knowledge and Skills of teachers are up to date.
8. Students feel safe during interaction with the staff.
9. Appearance of teaching staff is good.
10. Teaching and learning process is up to date.
11. The academic staff is willing to solve the problems

Factor 3: Teaching Consolidation
12. Teachers take regular feedback from students.

13. Teachers are capable of enhancing students' current knowledge.
14. The teachers are strict with deadlines given in assignment.
15. Teachers give individual attention to students
16. Modern Teaching Methods are used.

Factor 4: Reliability
17. Teacher services are good as promised.
18. Teachers are always willing to help students and use time effectively in teaching.
19. Teachers are striving to imbibe various skills in students.
20. Institutes are upgrading syllabus from time to time.
21. School has a peaceful environment.

Factor 5: Responsiveness
22. Teachers are providing peaceful atmosphere
23. Teachers are responding to the students patiently.
24. The school operates on time.
25. Actions are immediately taken by top management.
26. Teachers are dealing with caring manner.

A reliability test was performed for each individual factor and the results shows that the theoretical model was validated reliability values respectively for the factors namely Academic Facilities: 0.853, Assurance: 0.88, Teaching Consolidation: 0.86, Reliability:0.87, Responsiveness: 0.85.

➢ **To confirm and test the identified service quality factors by developing the measurement models.**

In order to fulfil the second objective, the factors evolved from the Exploratory Factor Analysis was tested individually for the reliability and resulting the theoretical model was validated and the measurement model was tested using Confirmatory Factor analysis (CFA) with a sample size of n_2=600. The model is evaluated based on diverse types of fit indices, and the results show that overall evaluation of model is fit with significant values and finally the model was developed with five factors and twenty-six items.

Confirmatory Factor Analysis for Each Factor (Basic Models)

CFA of Teaching Academic Facilities

Academic Facilities dimension is assessed by six variables like AF1-Schools have up to date and modern equipment and technology. AF2-Laboratory facilities are adequate. AF3-Library facilities are adequate. AF4-Physical appearance of the building and classroom of school is visually appealing. AF5-Sports facilities and amenities are adequate. AF6-School has proper amenities e.g., canteen, parking areas, rest rooms. The schematic diagram of CFA model of Academic Facilities dimension is shown in figure 1.1.
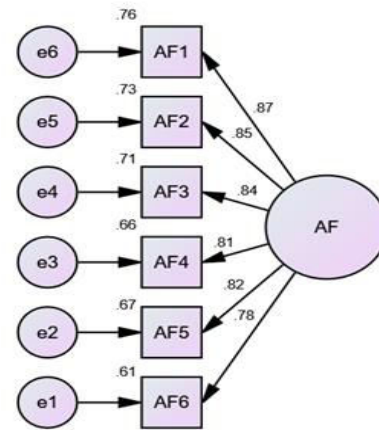

Figure 1.1 CFA of Academic Facilities

Table 1.1 presents the Factor Loadings, Average Variance Extracted (AVE) and Construct Reliability (CR) of Academic Facilities dimension. The AVE and CR values are 0.690 and 0.93 respectively, which meet the minimum level of 0.50 for AVE and 0.70 for CR (Hair et al., 2015). The result shows that Academic Facilities dimension has convergent validity and reliability.

Table 1.1 CFA Results of Academic Facilities dimension

Attribute	Factor Loading	Squared Loadings	AVE	CR
AF1	.87	.76		
AF2	.85	.73		
AF3	.84	.71	.690	.93
AF4	.81	.66		
AF5	.82	.67		
AF6	.78	.61		

Table 1.2 Fit Indices of Academic Facilities

x2	DF	GFI	AGFI	CFI	TLI	NFI	IFI	RMR	SRMR	RMSEA	PCLOSE
3.62	9	.982	.958	.991	.985	.988	.991	.019	.0159	.066	.121

The model fit indices are shown in table 1.2 are above the recommended level. All the indicators are significantly loaded Academic Facilities dimension.

CFA of Teaching Consolidation

Teaching Consolidation dimension is assessed by five variables like TC1-Teachers take regular feedback from students. TC2-Teachers are capable of enhancing students' current knowledge. TC3-The teachers are strict with deadlines given in assignment. TC4-Teachers give individual attention to students. TC5-Modern Teaching Methods are utilized. The schematic diagram of CFA model of Teaching Consolidation dimension is shown in figure 1.2.
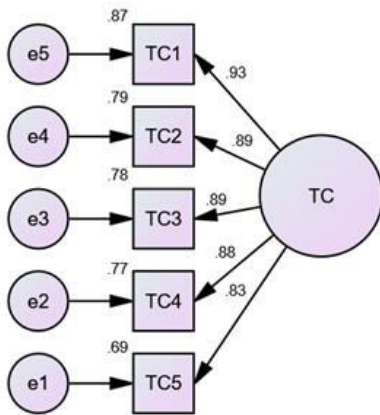
Figure 1.2 CFA of Teaching Consolidation

respectively, which meet the minimum level of 0.50 for AVE and 0.70 for CR (Hair et al., 2015). The result shows that Teaching Consolidation dimension has convergent validity and reliability.

Table 1.2 presents the Factor Loadings, Average Variance Extracted (AVE) and Construct Reliability (CR) of Teaching Consolidation dimension. The AVE and CR values are 0.782and 0.947

Table 1.2 CFA Results of Teaching Consolidation dimension

Attribute	Factor Loading	Squared Loadings	AVE	CR
TC1	.93	.87	.782	.947

Table 1.3 Fit Indices of Teaching Consolidation

x2	DF	GFI	AGFI	CFI	TLI	NFI	IFI	RMR	SRMR	RMSEA	PCLOSE
3.927	5	.987	.962	.995	.990	.993	.995	.009	.0096	.070	.131

The model fit indices are shown in table 1.3 are above the recommended level. All the indicators are significantly loaded Teaching Consolidation dimension.

CFA of Reliability

Reliability dimension assessed by five variables like REL1-Teacher services are good as promised. REL2-Teachers are always willing to help students and use time effectively in teaching. REL3-Teachers are striving to imbibe various skills in students. REL4-Institutes are upgrading syllabus from time to time. REL5-School has a peaceful environment. The schematic diagram of CFA model of Reliability dimension is shown in figure 1.3
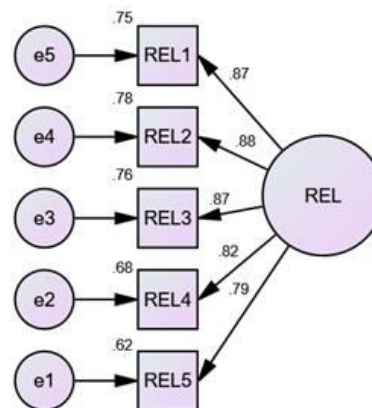

Figure 1.3 CFA of Reliability

Table 1.4 presents the Factor Loadings, Average Variance Extracted (AVE) and Construct Reliability (CR) of Reliability

dimension. The AVE and CR values are 0.711and 0.927 respectively, which meet the minimum level of 0.50 for AVE and 0.70 for CR (Hair et al., 2015). The result shows that Reliability dimension has convergent validity and reliability.

Table 1.4 CFA Results of Reliability dimension

Attribute	Factor Loading	Squared Loadings	AVE	CR
REL1	.87	.75		
REL2	.88	.78		
REL3	.87	.76	.711	.927
REL4	.82	.68		
REL5	.79	.62		

Table 1.5 Fit Indices of Reliability

x2	DF	GFI	AGFI	CFI	TLI	NFI	IFI	RMR	SRMR	RMSEA	PCLOSE
2.290	5	.993	.978	.997	.994	.995	.997		.0096		

The model fit indices are shown in table 1.5 are above the recommended level. All the indicators are significantly loaded Reliability dimension.

CFA of Assurance

Assurance dimension has 5 variables like ASS1-Knowledge and Skills of teachers are up to date. ASS2-Students feel safe during interaction with the staff. ASS3 Appearance of teaching staff is good. ASS4-Teaching and learning process is up to date. ASS5-The academic staff is willing to solve the problems. The schematic diagram of CFA model of Assurance dimension is shown in figure 1.4.

Figure 1.4 CFA of Assurance

Table 1.5 presents the Factor Loadings, Average Variance Extracted (AVE) and Construct Reliability (CR) of Assurance dimension. The AVE and CR values are 0.688and 0.917 respectively, which meet the minimum level of 0.50 for AVE and 0.70 for CR (Hair et al., 2015). The result shows that Assurance dimension has convergent validity and reliability.

Table 1. 5 CFA Results of Assurance dimension

Attribute	Factor Loading	Squared Loadings	AVE	CR
ASS1	.86	.73		
ASS2	.85	.73	.688	.917

ASS3	.83	.70
ASS4	.81	.66
ASS5	.79	.62

Table 1.5 Fit Indices of Assurance

x2	DF	GFI	AGFI	CFI	TLI	NFI	IFI	RMR	SRMR	RMSEA	PCLOSE
5.550	5	.983	.948	.989	.978	.986	.989	.014	.01162	.087	.022

The model fit indices are shown in table 1.5 are above the recommended level. All the indicators are significantly loaded Assurance dimension.

CFA of Responsiveness

Responsiveness dimension assessed by five variables like RES1-Teachers are providing peaceful atmosphere .RES2-Teachers are responding to the students patiently. RES3-The school operates on time. RES4-Actions are immediately taken by top management. RES5-Teachers are dealing with caring manner. The schematic diagram of CFA model of Responsiveness dimension is shown in figure 1.5
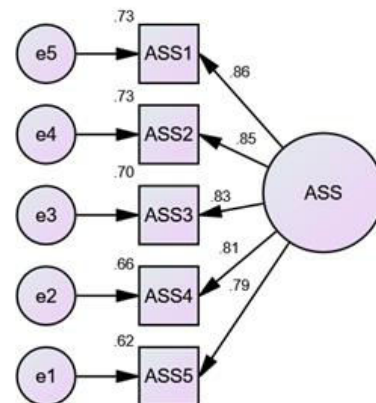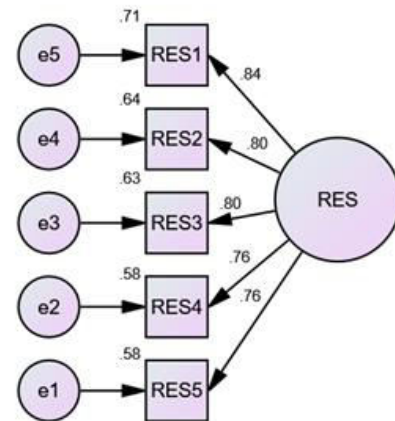

Figure 1.5 CFA of Responsiveness

Table 1.6 presents the Factor Loadings, Average Variance Extracted (AVE) and Construct Reliability (CR) of Responsiveness dimension. The AVE and CR values are 0.630and 0.895 respectively, which meet the minimum level of 0.50 for AVE and 0.70 for CR (Hair et al., 2015). The result shows that Responsiveness dimension has convergent validity and reliability.

Table 1.6 CFA Results of Responsiveness dimension

Attribute	Factor Loading	Squared Loadings	AVE	CR
RES1	.84	.71		
RES2	.80	.64		
RES3	.80	.63	.630	.895
RES4	.76	.58		
RES5	.76	.58		

Table 1.7 Fit Indices of Responsiveness

x2	DF	GFI	AGFI	CFI	TLI	NFI	IFI	RMR	SRMR	RMSEA	PCLOSE
3.516	5	.988	.964	.992	.985	.989	.992	.023	.0166	.065	.194

The model fit indices are shown in table 1.7 are above the recommended level. All the indicators are significantly loaded Responsiveness dimension.
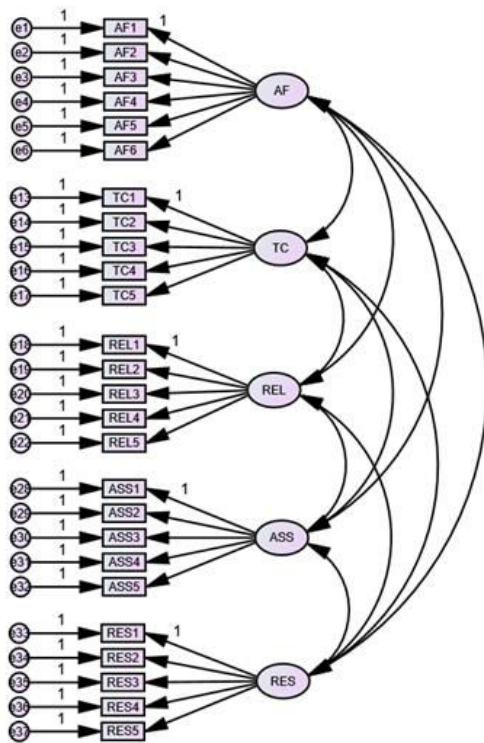
First-Order Measurement Model

Figure:1.6 First-order Hypothesized Model of Five-Factorial Structure of Theoretical Model
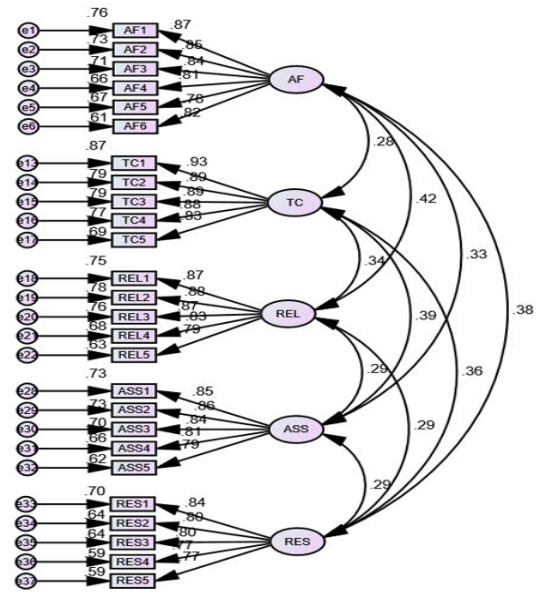
First-Order Measurement Model

Figure 1.7 First-order Hypothesized model of Five-Factorial Structure of Theoretical Model

Table 1.8 First-order Hypothesized Model of Five-Factorial Structure

$\chi 2$	DF	GFI	AGFI	CFI	TLI	NFI	IFI	RMR	SRMR	RMSEA	PCLOSE
1.489	289	.948	.937	.988	.987	.965	.988	.030	.0276	.029	1.00

Model Evaluation

There are specific approximations that are used to regulate goodness of fit. The model is assessed based on various types of fit indices the ratio of chi-square to degrees of freedom (x2/df) value is 1.489, the Goodness of Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI), Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Normed Fit Index (NFI), Incremental Fit Indices (IFI), Root Mean Square Residual (RMR), Standardized Root Mean Residual (SRMR), the Root Mean Square Error of Approximation (RMSEA) -Table 1.8 indicate the overall assessment of model fit with noteworthy values indicating that the five factor model fits well.

Reliability and Validity Tests of First-Order Measurement Model

If only fit is utilized to assess the CFA model, it is only a partial assessment. Additional evidence requires the assessment of factor validity and reliability (Hair et al., 2015). Multiple methods were utilized to assess the measurement model, with factor validity and factor reliability. Face validity, convergent validity, discriminant validity, nomological validity, and criterion validity are all mechanisms of factor validity (Churchill, 1979).

Reliability

The reliability of an approximation refers to the level to which it is free from random error. Factor reliability detects the internal consistency of pointers of the CFA factor. The factor reliability of the factors arrays from 0.895 to 0.947 which are equivalent to and above the least level of 0.70 as exposed in the Table 1.9 Thus, the reliability of the scales was considered satisfactory (Bagozzi & Yi, 1988).

Validity:
Face Validity

Face (content) validity was considered at the stage of statements generation from wide literature, by adopting variations and proposals from various specialists.

Convergent Validity

Convergent validity can be measured by 3estimates: standardized coefficients (factor loadings) of the 5 latent variables, average variance extracted (AVE) and factor reliability (CR) for each latent variable. Table 1.9 shows the AVE value of a piece factor that surpasses the minimum level 0.50. It designates estimated variables of apprehension factor have high proportion of variance common in this study (Hair et al., 2015).

Discriminant Validity

Discriminant validity denotes to the degree to which a theory like factor is truly dissimilar from other factors (i.e., unidimensional). Discriminant validity can be verified by comparison of variance extracted (VE) estimates for a piece factor with the squared inter-factor correlations (SIC) related with that factor. All the extracted variance approximations were superior than squared inter-factor correlations display in Table 1.10

Nomological Validity

The nomological validity is assessed by investigative the Pearson product-moment associations between the factors in a measurement model. From Table: 1.11 reveal that all the associations are optimistic and statistically noteworthy. From that we can approve that the factors have nomological validity

Table 1.9 AMOS Results of First-order Measurement Model

Regression paths	Standard Loadings	Critical Ratio	P*	AVE	CR
Academic Facilities (AF)					
AF1 ←AF	.870	**			
AF2 ←AF	.854	28.024	0.000		
AF3 ←AF	.842	27.139	0.000	.690	.93
AF4 ←AF	.815	25.672	0.000		
AF5 ←AF	.820	25.638	0.000		
AF6 ←AF	.781	23.569	0.000		
Teaching Consolidation(TC)					
TC1 ←TC		**			
TC2 ←TC	.933	35.839	0.000		
TC3 ←TC	.888	36.210	0.000	.782	.947
TC4 ←TC	.887	35.081	0.000		
TC5 ←TC	.879	30.621	0.000		
	.832				
Reliability (REL)					
REL1 ←REL	.866	**			
REL1 ←REL	.881	29.229	0.000		
REL1 ←REL	.871	28.293	0.000	.718	.927
REL1 ←REL	.825	25.958	0.000		
REL1 ←REL	.791		0.000		

		24.013				
Assurance(ASS) ASS1 ←ASS ASS1 ←ASS ASS1 ←ASS ASS1 ←ASS ASS1 ←ASS	.852 .857 .835 .812 .790	** 25.919 25.351 24.272 23.299	0.000 0.000 0.000 0.000	.688	.917	
Responsiveness(RES) RES1 ←RES RES1 ←RES RES1 ←RES RES1 ←RES RES1 ←RES	.837 .799 .798 .765 .768	** 22.301 22.682 21.066 20.919	0.000 0.000 0.000 0.000	.630	.895	

Table 1.10 First –Order Measurement Model Results: AVE and Squared Inter-factor Correlations (SIC) for Discriminant validity

	AF	TC	REL	ASS	RES	AVE
AF	*					.690
TC	.284	*				.782
REL	.419	.335	*			.718
ASS	.328	.391	.292	*		.688
RES	.376	.362	.294	.295	*	.630
AVE	.690	.782	.718	.688	.630	

Table 1.11 First-Order Measurement Model Results: Factor Correlations with Significance Level for Nomological Validity

Path	Estimate	Critical Ratio	P*
AF <--> RES	.376	7.723	0.000
AF <--> ASS	.328	6.943	0.000
TC <--> REL	.335	7.241	0.000
AF <--> TC	.284	6.257	0.000
AF <--> REL	.419	8.598	0.000
TC <--> ASS	.391	8.217	0.000
TC <--> RES	.362	7.593	0.000
REL <--> ASS	.292	6.257	0.000
REL <--> RES	.294	6.222	0.000

ASS <--> RES	.295	6.199	0.000

Table 1.12 Factor Loadings of Theoretical and Measurement Models

Statements	Theoretical Model(EFA)	First order Measurement Model(CFA)
Academic Facilities (AF) Schools have up to date and modern equipment and technology. Laboratory facilities are adequate. Library facilities are adequate. Physical appearance of the building and classroom of school is visually appealing. Sports facilities and amenities are adequate School has proper amenities e.g., canteen, parking areas, rest rooms.	.789 .773 .759 .733 .706 .698	.870 .854 .842 .815 .820 .781
Teaching Consolidation (TC) Teachers take regular feedback from students. Teachers are capable of enhancing students' current knowledge. The teachers are strict with deadlines given in assignment. Teachers give individual attention to students Modern Teaching Methods are utilized.	 .801 .785 .731 .712 .708	.933 .888 .887 .879 .832
Reliability (REL) Teacher services are good as promised. Teachers are always willing to help students and use time effectively in teaching. Teachers are striving to imbibe various skills in students. Institutes are upgrading syllabus from time to time. School has a peaceful environment.	.785 .770 .752 .717 .682	.866 .881 .871 .825 .791
Assurance(ASS) Knowledge and Skills of teachers are up to date. Students feel safe during interaction with the staff. Appearance of teaching staff is good. Teaching and learning process is up to date. The academic staff is willing to solve the problems	.824 .802 .750 .727 .702	.852 .857 .835 .812 .790
Responsiveness (RES) Teachers are providing peaceful atmosphere. Teachers are responding to the students patiently. The school operates on time. Actions are immediately taken by top management. Teachers are dealing with caring manner.	 .788 .787 .759 .729 .663	.837 .799 .798 .765 .768

Fig : 1.8 Second-Order Measurement Model
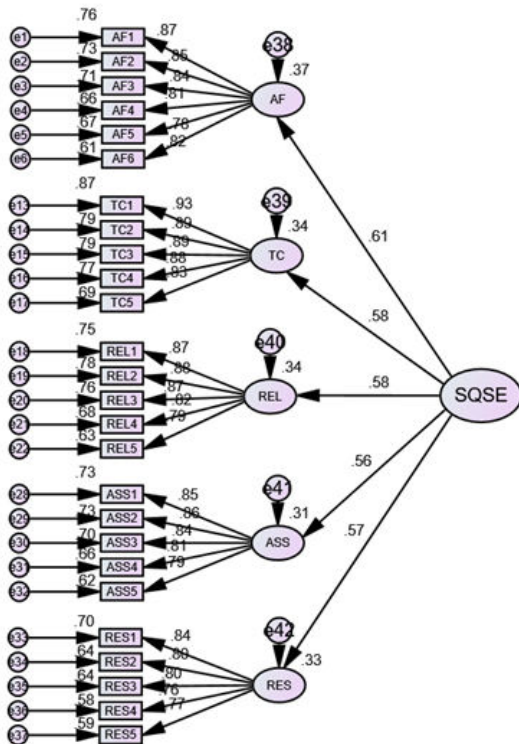
Second-order Measurement Model

Table 1.13 Second-order Measurement Model of Model Assessment

Second Order Factor	First-order Factors	Standard Second Order loadings	R²	P	AVE	CR
Service Quality (SQ)	Academic Facilities(AF)	0.61	.37	.000		
	Teaching Consolidation(TC)	0.58	.34	.000		
	Reliability(REL)	0.58	.34	.000	.338	.719
	Assurance(ASS)	0.56	.31	.000		
	Responsiveness(RES)	0.57	.33	.000		

Table 1.14 Second-order Measurement Model Fit Indices

x2	DF	GFI	AGFI	CFI	TLI	NFI	IFI	RMR	SRMR	RMSEA	PCLOSE
1.535	294	.945	.935	.987	.985	.963	.987	.041	.	.030	1.000

Conclusion

Erstwhile few studies have developed theoretical framework for measuring perceptions of student on service quality secondary education. In this milieu the present study is an attempt to develop a model to gauge service quality in Indian secondary education sector. The model

was developed and validated, which identifies variables and dimensions in students perceived service quality. The developed model in the present research can be used as an effective tool to measure service quality in secondary education. The study extended the evaluation of service quality used in traditional research to a further comprehensive evaluation of service quality applied to secondary education. Confirmatory factor analysis (CFA) has been used to test the theoretic model. The first-order measurement model was recognized with a total of 26 statements with 5 factors- Academic Facilities, Assurance, Teaching Consolidation, Responsiveness and reliability, whereas the second-order measurement model was recognized coupling the first-order factors into one second order factor (service quality in secondary education). Using this CFA model, a structural model can be recognized that tests the hypothesized associations among the latent factors. The present study suggests the school authorities to improve and to give much extensive importance to Academic Facilities, Assurance, Teaching Consolidation, Responsiveness and reliability.

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