Construction and Standardisation of Scale of Attitude towards Flipped Classroom Strategies of Higher Secondary Students

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Abstract: The very purpose of this study is to design and standardize an Attitude scale of Higher Secondary Students towards Flipped Classroom strategies. The researcher developed the preliminary version of Attitude scale consisting of 60 statements with simple, clear and concise statements for better understanding. The preliminary draft of Attitude scale consisting of 60 items was developed and then standardized by administering it on 50 randomly selected Higher Secondary students studying XI standard in schools of Thoothukudi District. Item whole correlation was computed to eliminate the inconsistent items in the tool. The final form of Attitude Scale consists of 35 items, classified under cognitive, affective and psychomotor domains. All the items of Attitude Scale are Likert type with a five – point rating. Reliability of the Attitude scale was established by Test and Retest method and was found to be 0.818. The validity for each item was tested. Thus the tool becomes highly reliable and found valid. This tool will help to measure the Attitude of Higher Secondary students towards Flipped Classroom Strategies.

Keywords: Attitude Flipped Classroom Strategies, Higher Secondary Students, Reliability, Validity.

INTRODUCTION

In 2007, Jonathan Bergmann and Aaron Sams, two chemistry teachers of Woodland Park High School in Colorado coined the pedagogical model, the Flipped Classroom. The flipped or inverted classroom is an instructional model in which the traditional lecture is a student's homework and in-class time is spent on collaborative, inquiry-based learning [1]. The Flipped classroom pedagogical model is a distinct and significant approach of blended learning which refers to classes that are structured almost exclusively around a reversal of expectations for lectures and homework. In Flipped classroom students watch lectures over online at home, and do homework in class. The Flipped model encompasses a much richer set of learning approaches and environment [2].

Implementation of Flipped Classroom Strategies

The Flipped classroom describes a reversal of traditional teaching. Learning Strategies for Flipped

[1]

Learning are Relationship Building, Personalized Learning, Passion – based learning and Project - based learning. Learning opportunities of Flipped classroom are Active Learning techniques, Peer Instruction, Collaborative Learning, Team – Based Learning (TBL), Problem – Based Learning, Discussions or Debates, Process – Oriented Guided Inquiry Learning [3]. In Flipped classroom, short video or animated lessons posted via online medium are viewed by the students at home in advance to the class session, while in-class time is spared in collaborative learning activities such as problem solving, discussion, quiz, projects, demonstration, debate, presentation, extempore, peer reviewing, laboratory activities and skill development etc. Such types of active learning leads to highly differentiated instruction that suits students of different learning styles, in which more time can be spared on nurturing higher order cognitive skills and engage in concepts in the classroom with the guidance of a instructor[4].
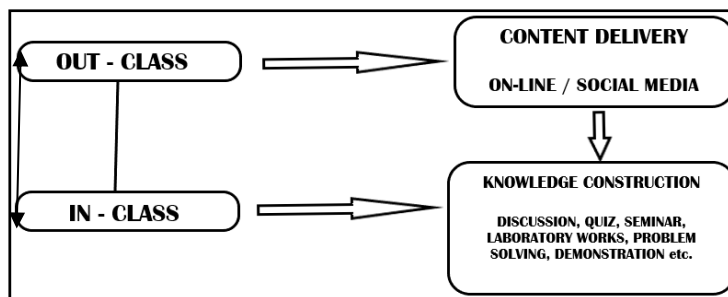
Fig-1: Model of flipped classroom

Higher Secondary Education

The basic pattern of education in India includes the stages of 10, +2 and +3 pattern and of which the Higher Secondary education of two years duration, occupies a very prominent place as it provides the link between the High School and College education.

Attitude

Attitudes are learned predispositions toward aspects of our environment. They may be positively or negatively directed towards certain people, issues or institutions. An attitude usually is considered as consisting of three basic components viz. thinking, feeling and reacting. In research, attitudes are measured through construction of inventories or attitude scales. The method is most readily understood, where the subject marks those statements with which they agree [7]. The most popularly used methods of measuring the degree or strength of attitudes are,
- Thurstone's Scale
- Likert's Scale

Need for Developing Scale of Attitude towards Flipped Classroom Strategies of Higher Secondary Students

The Flipped classroom provides a new methodology and modality for teaching and learning, which constitutes a role change for instructors who give up their front-of-the-class position in favor of a more cooperative and collaborative contribution to the teaching process. The roles of students have a corresponding change from passive participants to positive participation. The flipped classroom puts more responsibility on the shoulders of students and gives them greater impetus in the process of learning [5]. Flipping involves shift in education from teacher centred to learner centred. Knowing the favourable or unfavourable attitude of students helps the successful improvement of their learning performance in the desired direction. In this direction, the researcher focussed on assessing the student's Attitude towards Flipped Class room strategies and hence attempted to develop the tool for the achieving the purpose.

METHOD
Objectives
- To construct a Scale of Attitude towards Flipped Classroom Strategies of Higher Secondary students.
- To standardize a Scale of Attitude towards Flipped Classroom Strategies of Higher Secondary students.

Steps for Development of the Scale of Attitude towards Flipped Classroom Strategies

The steps followed for the construction and standardisation of Scale of Attitude towards Flipped Classroom Strategies are as follows:

Step 1: Planning

During planning it was decided to prepare the statements with reference to the concept of Attitude towards Flipped Classroom Strategies.

Step 2: Preparation of Preliminary Form

The investigator reviewed books, periodicals, literature and other descriptive material dealing with the contributions of technology in education. The initial pool of 60 simple and concise statements of Likert type Attitude Scale toward Flipped Classroom Strategies including the component behaviours of attitude was developed on Higher Secondary students. All the statements were of positive polarity with the options 'strongly agree', 'Agree', 'Undecided', 'Disagree', and 'Strongly Disagree' and the scores were given as 5, 4, 3, 2, and 1. The scale was subjected to experts and peer review and tried out before its administration to the sample.

Step 3: Experts Opinion

The test items that are suitable to the Higher Secondary school students in Indian situation were generated and were subjected to jury's opinion. The suggestions given by them were incorporated and suitable modifications were made in the test items.

Step 4: Pre – tryout

The preliminary form of the Attitude Scale was submitted to subject experts, Higher secondary Chemistry teachers, Educational Technology experts and Teacher educators for their criticism. The Attitude

tool was further modified based on their observations and suggestions.

Step 5: Editing

On the basis of criticisms and suggestions of experts involved, necessary modifications were made in the Attitude Scale and 60 items were retained in the Scale of Attitude towards Flipped Classroom Strategies.

Step 6: Pilot Study

For the standardization of the tool, Pilot study was conducted to a random sample of totally 50 students studying XI standard in Thoothukudi Distirct. The students were instructed to mark their stance towards the five given options of each statements of Attitude scale. The students took 30 minutes to complete the tool. The responses were scored according the scoring norms prepared by the investigator and the test item whole correlation of each item was computed.

Step 7: Item Analysis

Item analysis was carried out to discard inconsistent statements in the tool by comparing each test item with the whole test items. Item total correlation shows the correlation between the respective item and the total score [8]. The item whole correlation of each item is given in the Table 1.

Table-1: Item vs whole correlation

ITEM No.	'r' VALUE	ITEM No.	'r' VALUE	ITEM No.	'r' VALUE
1	0.2949	21	0.2886	41	0.3580
2*	0.0287	22	0.4549	42*	0.2256
3	0.3362	23	0.4097	43*	0.2124
4*	0.0373	24*	0.2459	44*	0.1832
5*	-0.0376	25	0.6183	45*	0.1758
6	0.3553	26*	0.2568	46	0.4747
7*	0.1417	27	0.4692	47	0.5807
8	0.4038	28*	0.2455	48	0.4461
9	0.5088	29	0.3986	49*	0.2091
10	0.4301	30*	0.1605	50	0.3467
11*	0.1896	31	0.5050	51	0.4779
12	0.5341	32	0.4671	52	0.5103
13	0.4545	33	0.4924	53	0.4411
14*	0.1401	34*	0.2428	54*	-0.0117
15	0.4013	35	0.5633	55*	0.0283
16	0.3399	36*	0.2409	56	0.3653
17*	0.2434	37*	0.1477	57	0.3748
18	0.3981	38	0.2975	58*	0.1355
19*	0.2451	39	0.3817	59*	0.0785
20*	-0.1856	40	0.2992	60	0.3361

Note: *The items with the symbol of (*) are discarded for the final test (Not significant)

The sample taken for item whole correlation was 50. The table value was found as 0.2732. The items which had their calculated value greater than the table value were alone considered for the final tool. The items with the symbol of (*) are Not significant. 35 items were found to be significant in the table. Remaining 25 items are not significant. Thus, the finalized tool containing 35 items was prepared and thus item validity was established. For the final tool of Scale of Attitude towards Flipped Classroom Strategies, the 35 items with significant 'r' values were selected and included in the final test [9].

Step 8: Preparation of Final Form

The final form of the Attitude Scale comprised of 35 statements developed for the purpose, was a Likert's Type five point scale. All the 35 statements were of positive polarity.

RESULTS AND DISUCSSION

The final scale thus constructed comprised of 35 statements will serve the purpose of assessing Attitude of Higher Secondary students toward Flipped classroom strategies. The finalized tool then subjected for establishment of reliability and validity.

Reliability

The reliability of the tool was established using test-retest method on randomly selected fifteen XI standard students. The reliability was found to be 0.818. Thus the Attitude Scale towards Flipped Classroom Strategies possesses adequate reliability.

Validity

Validity refers to the degree to which evidence and theory support the interpretation of test scores entailed by proposed uses of test [6]. The content validity, face validity and intrinsic validity were established by the investigator. The intrinsic validity

was found out to be 0.90 and this establishes the validity of the tool.

Scoring Procedure

There were thirty five statements in the Attitude scale and all were of positive polarity with five points. Each statement was assigned a Weightage ranging as 5 (Strongly Agree), 4 (Agree), 3 (Undecided), 2 (Disagree) and 1 (Strongly Disagree). The scoring procedure and the maximum scores for the scale is given in the Table 2

Table-2: Scoring procedure

STATEMENT NUMBER	SCORES FOR RESPONSE					MAXIMUM SCORE
	SA	A	U	D	SD	
1 - 35	5	4	3	2	1	175

CONCLUSION

The present study was an attempt of the investigator for the construction and standardization of an Attitude scale toward the newly emerged pedagogical model known as Flipped Classroom Strategies. The researcher prepared preliminary draft items regarding the assessment of Attitude toward Flipping. After sought experts' opinion the tool was pilot tested and Item analysis of the scale was carried out by computing Item whole correlation. Based on the results, the irrelevant items were ignored and the relevant items were retained for the final tool. As better attitude leads to enhance performance in the process of learning, the author interested in undertaking the holistic work of developing an Attitude scale of Higher Secondary students toward Flipped classroom strategies. The author hopes the present study will serve the purpose and help to inculcate desirable Attitude in pupils.

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REFERENCES

1. Bergmann J & Sams A. Flip your classroom: Reach every student in every class every day. Eugene, Or: International Society for Technology in Education. 2012.
2. Gayathri H & Vijayarani K. Blended Learning from different Perspectives. SELP Journal of Social Science, Special Issue, Indian Academic Researchers Association, IRJIF: 2.78, December 2016.
3. Thiygau K. Flipping the Class (Flipped Classroom) for Active Learning. New Frontiers in Education, 2016; 49(2):38-43.
4. Gayathri H, Vijayarani K. FLIPPING. A strategy for efficient learning in today's classroom. International journal of pedagogical studies (IJPS).
5. Nagarajan K, Selvakumar D, Devaraj, Srinivasan R. Educational Psychology. First edn. Ram Publishers, Chennai. 2002.
6. Shi-Chun, Ze-Tian, Yi WANG. The Flipped Classroom–Advantages and Challenges. International Conference on Economic Management and Trade Cooperation, (EMTC 2014).
7. Vences Cyril A, Dr. Antony Raj, M. Construction of Metacognition Scale of High School Teachers (AVSM), Research and Reflections on Education, 2017; 15(4):5-9.
8. Best JW, Kahn JV. Research in Education. (7th ed.). New Delhi: Prentice Hall of India Pvt., Ltd. 1999.