A quasi experimental study to evaluate the effectiveness of Flipped learning v/s Traditional learning on cognitive outcome and satisfaction among final year Basic B.Sc. Nursing students at various colleges at Bengaluru.

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Abstract:

The 'flipped classroom' is a pedagogical model in which a traditional learning environment and its activities are reformed. The aim of the study is to evaluate the effectiveness of flipped learning on cognitive outcome and the level of satisfaction of students. The Study was conducted among 47 students of B.Sc. Nursing at selected colleges, Bengaluru by using convenient sampling technique. Questionnaires are prepared to assess the cognitive outcome and Student satisfaction was assess by Likert scale. The data was analysed using descriptive and inferential statistics. The results revealed that Demographic variables like gender, religion, type of family, duration of sleep, previous knowledge and history of illness have association between cognitive outcome among students with Flipped learning. Student's level of satisfaction is more in flipped learning (51%) comparing to traditional learning (46%) There is a significant association between flipped learning and traditional learning with student's satisfaction

Key Words: Flipped learning, Traditional learning, student satisfaction

Introduction:

Technology in the 21st century puts instantaneous access to information, and the Internet can be handily accessed through numerous technology tools such as laptop, computer, and Smartphone. Students spend much of their waking time on using technology. In today's digital age, every student can access many free Internet learning resources like online video lectures can be watched at their convenience.

The use of the traditional learning approach which focuses on the instructor as the centre of knowledge is irrelevant in today's digital age. As a solution, traditional classroom activities such as lectures, labs, homework, and exams can be moved to the Web 2.0 technology and students can study everywhere outside the classroom. This positive impact of technology growth has influenced the development of instructional technology in education and replaced the use of the blackboard with online video lectures that the use of Web 2.0 technology through collaborating, coaching, and mentoring for social interactions in sharing ideas.

According to the Horizon Report which focuses on exploring and reporting emerging technology in education, the flipped classroom has been highlighted as an emerging technology for higher education which is very important to use at college level. The study of flipped classrooms was based on the theory of Bloom's revised taxonomy of cognitive domain. This taxonomy provides six levels of learning.

The following Figure 1 illustrates the level of students' learning in the flipped learning according to Bloom's revised taxonomy

Remembering: In this stage, the students try to recognize and recall the information they receive; they also try to understand the basic concepts and principles of the content they have learned.

Understanding: The students try to demonstrate their understanding, interpret the information and summarize what they have learned.

Applying: The students practice what they have learned or apply knowledge to the actual situation.

Analysing: The students use their critical thinking in solving the problem, debate with friends, compare the answer with peers, and produce a summary. In this level of learning, the students also produce creative thinking.

Evaluating: Assessment or established peer-review knowledge, judge in relational terms; in this stage, students are evaluating the whole learning concepts and they could evaluate or make judgment on how far they successfully learned.

Creating: The students are able to design, construct and produce something new from what they have learned (Bloom, 1969).

In implementing flipped classroom, remembering and understanding as the lowest levels of cognitive domain are practiced outside the class hour (Krathwohl & Anderson, 2010). While in the classroom, the learners focused on higher forms of cognitive work, including applying, analysing, evaluating, and creating.

Need for the Study:

In flipped classrooms, students go from the lowest level (remembering) to achieve the highest level (creating). Lankford (2013) mentioned that the flipped classroom focuses on how to support the learners in achieving a higher level of the taxonomy domain. In flipped learning, classroom activity is spent on application and higher-level of learning rather than listening to lectures and other lower-level thinking tasks.

Comparison between Traditional Classroom and Flipped Classroom in Achieving Higher Order Thinking of Bloom's Taxonomy

Level of learning	Traditional learning	Flipped learning
Remembering	Face to face Lecture	Pre recorded lecture, Reading material, Watching video lectures independently
Analysing	Question & Answer	Reflection, Peer to peer discussion& Collaboration
Understanding	Home work	Class room activity such as a group discussion, Student projects, Presentations, Peer evaluations& Instructor Evaluation
Applying, Evaluating, Creating	Home work	

As above shown table , implementing flipped learning allows the students to spend more time supporting higher-level learning tasks such as a group discussion, while lower-level tasks such as knowledge and comprehension are completed independently outside the class. Hence the researcher believes that it is very significant to evaluate the effectiveness of Flipped learning Vs Traditional learning on cognitive outcome and student satisfaction

Objectives

1. To assess the effectiveness of flipped learning Vs traditional learning on cognitive outcome among final year BSc nursing students
2. To evaluate the effectiveness of flipped learning in improving student's satisfaction.
3. To find the association between cognitive outcome among students with Flipped learning on selected demographical variables

Hypothesis

H1- There will be a significant difference between cognitive outcomes of flipped learning Vs traditional learning among students

H2- There will be a significant association between flipped learning and traditional learning with students satisfaction

H3- There will be a significant association between cognitive outcome and selected demographical variables

Material and Methods

Source of Data: The data was collected from fourth year B.Sc. nursing Students.

Research design and approach:

Quantitative, Quasi experimental research design was adopted for this study

Research Setting: The study was conducted in RV College of nursing, Bengaluru.

Sample: Fourth year B.Sc. nursing Students

Sampling technique: Convenient Sampling

Sample Size: The sample size is 47 fourth year B.Sc. nursing students.

Inclusion criteria: Samples willing to participate in the research study.

Exclusion criteria: Those who are not available during data collection

Source of Data: The data was collected from fourth year B.Sc. nursing Students.

Instrument intended to be used:

- ➢ Section A- Socio-Demographic data,
- ➢ Section B- Questionnaires
- ➢ Section C- Student satisfaction by Likert scale

The data was analysed using descriptive and inferential statistics

Results and Interpretation

Section 1: Demographic variables of fourth year B.Sc. Nursing Students

Table 1. Frequency and percentage distribution of selected socio-demographic variables of B.Sc. Nursing students

Sl.No	Demographic Variables	Frequency	%
1	Age in Years		
	a) 21	10	21.3
	b) 22	26	55.3
	c) 23	9	19.1
	d) 24	1	2.1
	e) 25	1	2.1
2	Gender		
	a) Male	19	40.4
	b) Female	28	59.6
3	Religion		
	a) Hindu	25	53
	b) Christian	13	27.7
	c) Muslim	9	19.1
4	Types of family		
	a) Nuclear family	36	76.6
	b) Joint family	11	23.4
5	Duration of sleep		
	a) 5-6	19	40.4
	b) 7-8	21	44.7
	c) More than 8 hours	7	14.9
6	History of any illness		
	a) Yes	6	12.8
	b) No	41	87.2
7	Previous Knowledge Regarding C section		
	a) Printed Media	8	17
	b) E media	7	14.9
	c) Mass Media	16	34
	d) Friends & Relatives	16	34

The above table shows majority, that is 26(55.3%) respondents belong to 22 years,10(21.3%) respondents belong to 21 years and 09 (19.1%) belong to 23years. Most of the respondents are females28(59.6%) and men were only 19 (40.4%). 25 (53%) respondents were Hindus, 13 (27.7%) respondents were Christians and 09 (19.1%) are Muslims. 36(76.6%) belongs to nuclear family and 11(23.4%) belongs to Joint family. Most of the respondents 21(44.7%) sleep 7-8 hours,19(40.4%) sleep for 5-6 hours and 07

(14.9%) sleep more than 08 hours. Majority of respondents 41(87.2%) had no illness and 06(12.8%) have illness like allergies, Hypothyroidism, Sinusitis. 16(34%) respondents had previous knowledge through mass media and16 (34%) had previous knowledge through Friends & family.

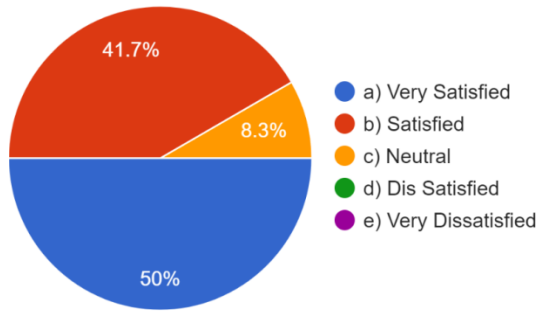**Section 2: Significant correlation between flipped learning and student's satisfaction**

Figure 2.1- Frequency and Percentage distribution of Subjects level of satisfaction according to the flipped learning method
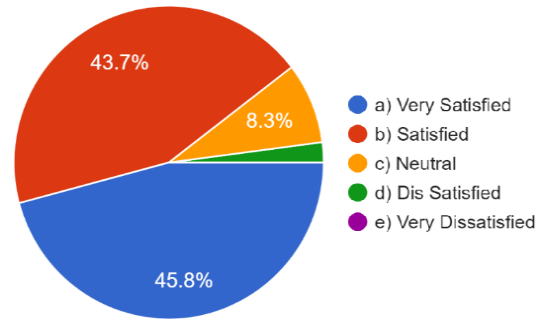

Figure 2.2- Frequency and Percentage distribution of Subjects level of satisfaction according to the flipped learning method

The above diagram shows that Majority of the students (51%) are very satisfied with flipped learning and (46.8%) students are very satisfied with Traditional learning

Section 3: Table 2.2: Association between the Traditional learning cognitive outcomes of student's with selected demographic variables.

Sl. No	Variable	Knowledge level			Chi Square	df	Significance
		Poor Knowledge	Good Knowledge	Excellent Knowledge			
1	Gender				8.15	2	**
	Male	9	6	3			
	Female	14	10	5			
2	Religion				3.724	4	**
	Hindu	7	14	3			
	Christian	4	7	2			
	Muslim	3	5	2			
3	Type of Family				0.812	2	**
	Nuclear family	10	19	6			
	Joint family	4	6	2			
4	Duration of Sleep				6.372	4	**
	5-6 Hrs	14	7	3			
	7-8 Hrs	7	4	2			
	>8 Hrs	3	2	5			
5	History of Illness				4.727	2	**
	No	5	32k	2			
	Yes	4	3	1			

6	Previous Knowledge				2.31	2	*
	Yes	20	14	7			
	No	3	2	1			

Note: **-Significant at 0.05 level of significance, *- Not significant at 0.05 level 0fsignificance

Table 2.2: Association between the flipped learning cognitive outcome among students with selected demographic variables.

Sl. No	Variable	Knowledge level			Chi Square	df	Significance
		Poor Knowledge	Good Knowledge	Excellent Knowledge			
1	Gender				1.325	2	**
	Male	5	8	6			
	Female	7	12	9			
2	Religion				2.775	4	**
	Hindu	6	11	8			
	Christian	3	6	4			
	Muslim	2	4	3			
3	Type of Family				1.351	2	**
	Nuclear family	9	15	2			
	Joint family	3	5	3			
4	Duration of Sleep				7.068	4	**
	5-6 Hrs	2	4	12			
	7-8 Hrs	2	4	10			
	>8 Hrs	6	1	6			
5	History of Illness				4.945	2	**
	No	1	3	2			
	Yes	11	17	13			
6	Previous Knowledge				5.168	2	*
	Yes	13	9	12			
	No	2	9	2			

Note: **-Significant at 0.05 level of significance, *- Not Significant at 0.05 level 0f significance

Interpretation:

The level of practice was significantly associated with sex, religion, type of family, duration of sleep and history of illness and not significantly associated with age and previous knowledge at 5% ($P<0.05$).

Conclusion:

This study has clearly demonstrated that the application of flipped learning has altered the culture of students' learning from a lecturer-centered to student-centered, with more class activities belonging to students. This research has implications for students' learning activities; the students learned through hands-on and project-based learning activities. With limited time dedicated to the lectures, students have more occasions to practice the contents with peers. The results of this study have contributed to better understanding of technology use in teaching-learning activities.

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