

Students' Satisfaction and Learning: Assessment of Teaching-Learning Process in Knowledge Organization

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Abstract - This study aims to assess parameters like student perception and student satisfaction towards the interactive teaching-learning process (TLP), which may help teachers at different educational levels to teach more effectively. The teaching-learning process included general regulatory teaching, teacher preparation for learning, regulatory assessment, and student perception and planning for learning. A questionnaire was administered to a sample of classes 11th and 12th with various streams, including Mathematics, Biology, and Commerce as their majors in Central India. This study examined the impact of student perception on their satisfaction with the teaching-learning process (TLP). The results indicated that students' perception of general regulatory teaching, preparation for learning & regulatory assessment significantly impact their satisfaction towards TLP, but preparation for learning and Regulatory assessment were not associated to satisfaction with teaching. However, it resulted in student learning positively. The findings further indicated that student satisfaction and learning are not different in-stream and class level.

Keywords: Perception, Teaching-Learning Process, Satisfaction, General Regulatory Teaching, Preparation for Learning, Regulatory Assessment, Student Planning, Perception of Learning

I. INTRODUCTION

The Indian education system has been considered one of the most demanding education systems attracting students from different parts of the world (Chanda & Betai, 2022). However, the ratio in school education is far higher as compared to higher education, so is the difference in knowledge infrastructure and culture of the knowledge organizations (Mathur & Chauhan, 2021). The system is focused on all round development of students, and this is undergoing many changes post NEP set up including sense of achievement through social responsibility (Nathani, Mathur & Dwivedi, 2019). The structure of school education in India is '10+2+3' till now, indicating the first ten years of schooling as basic education, followed by specialization in different streams viz, Arts, Commerce, and Science (Sharma & Sharma, 1996; Rohandi, 2017) with or

without Mathematics mainly (Bénéi, 2008). Subsequently, students are provided with an opportunity to pursue a graduate education, which is recognized as an integral component of higher learning (Mohan, 2010). The subjects during 10+2 are major decision-makers in terms of student's career, that's why 10+2 is considered a vital part of education. In the present study, the focus of research is TLP process among the students of 10+2 of different streams.

Teaching has been considered as one of the most respectable jobs since ancient times. Although it has been revolutionized and in the modern era, there is a need for students' involvement as active participants in learning and in evaluating Teaching-Learning processes (Almahasees *et al.*, 2021). The Teaching-Learning process includes proper planning of sessions, lecture delivery, and regulatory assessment preparation. This process is also extended to student perception and planning for learning. Way back in 1962, Ryans & Gage described teaching as an interactive framework of influencing the modes an individual behaves. Bottoms *et al.*, (1992) defined teaching as a way to apply academic learning to necessary "real world problems" and help students "see meaning and purpose in their studies."

Teaching-learning is a process of motivating, influencing, guiding the learner, and evaluating the educational outcome. Teaching-Learning area unifies the actions that are necessary to accomplish a goal in education. The target of Teaching-Learning is achieved only if the scholar is happy. It is instead an art to transform learning into a game through the usage of right teaching methods (Singh & Mishra, 2017). Teaching-Learning may be a method that has several variables affecting student satisfaction. These variables direct learner's efforts toward learning goals and incorporate new knowledge, behaviours, and skills to augment their learning experiences. Learning is a change in behaviour as an outcome of experience or observation (Vijayakumar & Ramesh Babu, 2018; Lachman, 1997).

Elliot & Shin (2002) depicted student satisfaction as a student's disposition by subjective analysis of educational outcomes and ability. Students' satisfaction ensures that students' instructional experiences were good enough. According to Annamdevula & Bellamkonda (2016), student satisfaction might be a positive antecedent of student loyalty and is the outcome of an instructional system. Student's satisfaction with teaching is explained in terms of student's preferences concerning specific teaching methods. For example, in a few cases, students feel happy throughout analytical teaching and project work. Student satisfaction with the teaching method is further expounded to the communication with the lecturers, Students experience happiness with teaching once they feel accepted and secured while communicating with lecturers. However, there are many ways of Teaching-Learning, and an individual's capabilities for learning and preference for teaching methods vary from individual to individual (Griggs *et al.*, 2012). Some pupils who wish to learn through games and experience more satisfaction with such teaching methods.

Satisfaction is also expressed by the students preferring standard teaching strategies and by those who feel that they learn most once a lecturer orally teaches the teaching contents while they listen. A competent teacher can offer higher student satisfaction with the teaching method by combining traditional and up to date teaching strategies (Ivić, Sonja, 2017). Schools and Universities are focused on student evaluations. Students are considered the customers of schools and universities, the students must be satisfied therefore, student feedback must be collected (Cremonini *et al.*, 2008; Sinclair, 2011; Taylor *et al.*, 2008). Student satisfaction is measured through various stakeholders' evaluations (Griggs *et al.*, 2012), specifically in terms of teaching-related factors (Bhatnagar & Nathani, 2013). From the review, it is found that there is an effect of 'attitude affected mentality' on scholarly accomplishment after academic achievement and found that a favourable attitude is must for better achievement and ideal demeanour is must for better accomplishment. Furthermore, passion for any subject is legitimately related to the scholastic attainment in that subject (Ke & Kwak, 2013).

A. Theoretical Background

Interactive learning is mostly guided through the theory of Constructivism by Jean Piaget, and Vyogotsky acts as a torchbearer to the internalization of learning as it explains the reasons how people know various things. Constructivism is "an approach to learning that holds that people actively construct or make their knowledge and that reality is determined by the experiences of the learner" (Elliott *et al.*, 2000, p. 256). The learning is the outcome of constructivism, so constructivism theories are basically learner-oriented and help teachers understand that learning is not a passive process (Sjoberg, 2007). The students, along with teachers, need proper planning for the sessions. The planning leads to inquisitiveness among students and thereby challenges teachers to be more thorough with the

conceptual as well as application orientation of the topic. Since teaching is not restricted to one-way communication it is more likely that learning becomes interesting (Fernando & Marikar, 2017). Moreover, learning is not limited to gaining knowledge in terms of conceptual understanding but extended to the application of those concepts in the real world. A number of researchers explained the role of constructivism in learning (Bhattacharjee, 2015). The current paper is an extension of the ideology of the theory of constructivism to the Teaching-Learning process (Khan, 2019). The study's overall objectives were to relate General Regulatory Teaching, Preparation for learning and assessment and Student's perception and planning to student satisfaction with teaching and learning.

II. REVIEW OF LITERATURE

As per Colker (2008) an effective teacher commands the subject, takes an individual interest in each student, establishes an affectionate learning environment, and shows devotion in student activities. Teaching method is regulative once the activities of teaching, learning and assessment are interconnected within the purview of autonomous, constructive, cooperative, and varied learning processes (De la Fuente *et al.*, 2007). Efficient teaching is maximizing students 'academic achievement through course fulfilment (Bastick, 1995). Efficient teaching was also measured from the viewpoint of learning experiences that reach out to student's dissimilar learning styles and preferences (Tanner & Allen, 2004).

In order to create an effective model of teaching the Teacher has to create an academic setting where students are deeply engaged in the process of learning (Entwistle & McCune, 2004). In the 90s of last century the criteria for teaching emphasized on student orientation based upon teacher adaptation to individual requirements, promotion and motivation of active student learning, two-way feedback etc (Smith & Cranton, 1992). General restrictive teaching refers to teaching power, involving adequately structured teaching, facilitating and induces self-regulated learning (Kramarski & Michalsky, 2009). In this respect, teachers are further required to regulate teaching pedagogy.

The style of teaching, student-teacher interaction and sincerity among students generally vary among streams. For example, in India, students of 'Arts' are generally more involved in the university's extracurricular activities because of less load perception of studies whereas 'Science' is considered one of the most challenging streams among others. As per Rohandi (2017) the Teacher's pedagogy and interaction with students may result in significant learning. In fact, teachers' role is evident in determining student satisfaction among commerce streams (Suarman, 2015). One more study on commerce students done in Punjab and Delhi perceived student's satisfaction can be increased manifold by incorporating various teaching styles and methodology (Gill *et al.*, 2011). The pattern of the teaching differentiated on the basis of courses or discipline, so is the learning.

H1: Student's satisfaction with teaching varies between streams.

H2: Student's satisfaction with learning varies between streams.

The learning and satisfaction vary with level of course. For example, Hyun *et al.*, (2017) considered level of course as one of the predictors for satisfaction. A study among commerce students indicated that lack of coordination was reported while teaching accounting subjects among the students of class 12th (Sharma & Shukla, 2019). Student achievement among commerce subjects was studied in detail but the differences were not significant between demographics (Sachithanandam & Raju, 2019). Though there are many studies conducted on students of various classes, but fewer research was reported for students of Class 11 and Class 12. For the purpose of this research following hypotheses were drawn:

H3: Student's satisfaction with teaching varies between classes.

H4: Student's satisfaction with learning varies between classes.

General Regulatory Teaching is a code of conduct applied for teachers. The Teacher is compelled to confirm that the scholar understands what is taught and facilitates students to correct their mistakes. These practices for the teachers have a strong bearing on the scholar's satisfaction. According to Kramarski & Michalsky (2009) General Regulatory Teaching, teaching effectiveness involves adequately structured teaching and makes self-regulated learning a relatively easy process. The literature leads to following hypotheses:

H5: General regulatory Teaching predicts student's satisfaction with teaching positively.

H6: General regulatory Teaching predicts student's satisfaction with learning positively.

Preparation of learning and regulatory Assessment implies that the teachers need to make necessary arrangements of materials required for learning and to gauge the performance of the scholar on a regular basis. Regulatory assessment is beneficial for every Teacher and in turn for the scholar. Student perceptions will offer a sound and reliable image of the training, as students have intensive expertise in creating observations throughout their academic careers (Marsh & Roche 1993). When students perceive things positively, it directly affects specific learning outcomes like tutorial development and accomplishment, talent performance and motivation for learning (Lizzio *et al.*, 2002).

H7: Preparation of learning and regulatory assessment predicts student's satisfaction with teaching positively.

H8: Preparation of learning and regulatory assessment predicts student's satisfaction with learning positively.

The student's active involvement in learning provides them a higher level of satisfaction through engagement (Hyun *et al.*, 2017). A study by Sharma and Shukla (2019) suggested that proper planning as per the student's requirement is a prerequisite for learning. In the subjects including Mathematics and English leaning environment created by teachers result in higher student achievement in student satisfaction (Akram *et al.*, 2019). Interestingly in 2012, Ferguson stated that student perception plays a vital role in improving Teaching-Learning and satisfaction eventually.

H9: Student's perception and planning predict student's satisfaction with teaching positively.

H10: Student's perception and planning predict student's satisfaction with learning positively.

III. RESEARCH QUESTIONS

In light of this, the following research questions are chosen for the investigation.

RQ1. How do levels of satisfaction with teaching and learning differ among students in distinct academic streams, specifically Arts, Commerce, and Science?

RQ2. What impact do different course levels (Class 11 and Class 12) have on student satisfaction with teaching and learning?

RQ3. To what extent does General Regulatory Teaching predict overall student satisfaction with teaching and learning?

RQ4. How does preparation for learning and regulatory assessment influence student satisfaction with teaching and learning?

RQ5. What correlation exists between student perception and planning and their satisfaction with teaching and learning?

IV. RESEARCH OBJECTIVE

The research seeks to investigate key determinants influencing student satisfaction in the Teaching-Learning process within the Indian education system. The specific objectives are outlined as follows.

1. To scrutinize the variability in student satisfaction concerning teaching and learning across diverse academic streams.
2. To assess the impact of different course levels (Class 11 and Class 12) on student satisfaction with teaching and learning.
3. To evaluate the predictive role of General Regulatory Teaching in determining student satisfaction.
4. To explore the influence of preparation for learning and regulatory assessment on student satisfaction.
5. To analyze the correlation between student perception and planning and their satisfaction with teaching and learning.

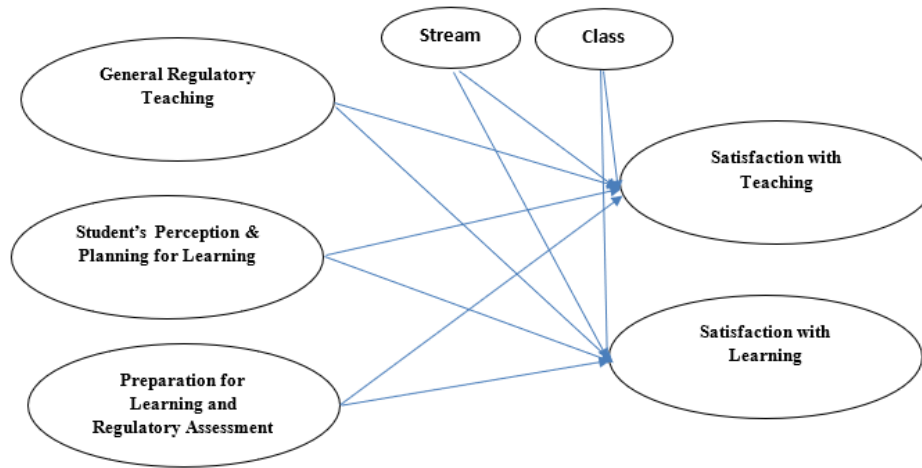


Fig. 1 Proposed Model

V. RESEARCH METHODOLOGY

A. Study and Sample

A quantitative and explanatory method is used for the present research work. The population of the study included all the students (both male and female) of Class 11 and 12 aged between 15 to 18 years studying in different schools of the Central Region of India. The unit of analysis was individual school students. The students were contacted during school hours with the permission of management. In order to obtain responses 210 questionnaires were used out of 300 questionnaires showing 70% response rate. After deleting incomplete responses data for this study were obtained from 200 respondents. The students were not disclosed about the intentions of study to avoid bias. Moreover, the technique used in the study was judgemental sampling technique.

B. Instrumentation

A two-part self-reported survey on Perception of the Teaching-Learning process and product including questionnaire published by De la Fuente *et al.*, (2010) had been used to measure the perception of Teaching-Learning process and satisfaction on a five-point scale. Part A further segregated into concepts such as General Regulatory Teaching, Preparation for Learning, Regulatory Assessment, Student planning and perception about learning for measuring Teaching-Learning Process (TLP) and Product including Satisfaction with teaching and satisfaction with learning. However, few changes were made in the framing of statements to suit the needs of the current study. This forms part A of the questionnaire. The second part (Part B) of the questionnaire contained personal information including gender, class, age, and school. Total responses were elicited on 31 items, which took approximately 10 minutes to answer.

The alpha values were ($\alpha=0.872$) for General Regulatory Teaching, ($\alpha=0.741$) for preparation for learning and regulatory assessment, ($\alpha=0.740$) for Student planning and

perception about learning, ($\alpha=0.707$) satisfaction with teaching and ($\alpha=0.731$) satisfaction with learning indicating high reliability of all the measures (Nunnally, 1978).

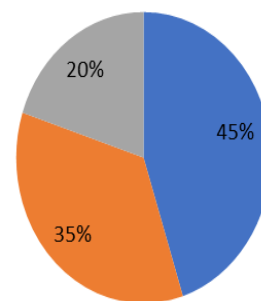
C. Demographic Profile of Students

TABLE I SHOWING STUDENT'S SAMPLING DESCRIPTION

Particulars		N	Percentage
Stream	Biology	49	25%
	Commerce	61	31%
	Mathematics	90	45%
Class	11 th	91	46%
	12 th	109	55%
Schools	Govt. owned Schools	70	35%
	Privately owned schools	90	45%
	Missionary School	40	20%

Source: Computed by authors

■ Private Schools ■ Government Schools ■ Missionary Schools



Source: Computed by authors

Fig. 2 Representation of School Diversity

To keep a spread over data the students were chosen from the streams of Science with Mathematics, Science with Biology and Commerce as these streams were common in all the schools selected for analysis. Few schools also have options for Arts & Humanities. These are considered as major areas of studies for students. Out of 200 respondents

25% were from Science stream with Biology, 31% were from Commerce Stream and 45% were from Science with Mathematics stream whereas 46% were from 11th class and 55% from 12th class. The data included all the schools representing diversity among students as the schools selected were inclusive of Government schools, and Government aided schools, missionary schools, and private

owned schools. Out of 200 students, 35% were from Government owned schools, 45% from Private Schools and 20% were from missionary schools. Further care has been taken to ensure that the classes have students with differential abilities and response from such students and others.

TABLE II SHOWING RESULTS OF HYPOTHESIS TESTING

Particulars	Satisfaction with Teaching		Satisfaction with Learning	
	F Value	P value	F Value	P value
General Regulatory Teaching	25.322	.000	26.06	.000
Student's Perception & Planning of Learning	37.68	.000	6.62	.011
Preparation for Learning and Regulatory Assessment	1.124	.290	6.977	.009
Stream	1.416	.245	.178	.837
Class	1.142	.286	.119	.731
Stream*Class	.227	.797	1.109	.332

Source: Computed by authors

Multivariate analysis has been carried out to measure the main and interaction effects of stream and teaching and learning. The values under Test of Between subjects effects for General regulatory teaching $F(1,164.867)=25.322$, $p=.000$ on Satisfaction with Teaching and $F(1,292.7)=26.06$, $p=.000$ on satisfaction with learning suggest that there is a positive significant effect. Similarly, in case of Student's perception & planning of learning was also found to be significantly related to $F(1,245.38)=37.68$, $p=.000$ satisfaction with teaching and $F(1,74.37)=6.62$, $p=.011$ with satisfaction with learning both. Whereas in the Preparation for learning and Regulatory assessment $F(1,7.32)=1.124$, $p=.290$ was not found to be related to Satisfaction with teaching but was positively related to $F(1,78.38)=6.977$, $p=.009$ satisfaction with learning. In case of Stream $F(2,9.217)=1.416$, $p=.245$; $F(2, 2.003)=.178$, $p=.837$ and

Class $F(1,7.437)=1.142$, $p=.286$; $F(1,1.334)=.119$, $p=.731$ there was no main effect on both satisfaction with teaching and learning. Additionally, there was no interaction effect of Stream*Class as well $F(2,1.478)=.227$, $p=.797$; $F(2, 12.46)=1.109$, $p=.332$ on both satisfaction with learning and teaching.

There is numerous research in a more or less similar context whereby de la Fuente & López-Medialdea (2007) have found that the process, specifically regulatory teaching significantly predicts product outcome i.e., satisfaction. There are studies where planning for learning was a predictor of academic achievement. However, very few studies have reported the impact of stream and class on satisfaction. Similarly, stream or discipline was not found to be related to satisfaction.

TABLE III SHOWING OUTPUT OUTCOME OF HYPOTHESIS

Hypothesis	Outcome
H1: Student's satisfaction with teaching varies between streams	Not Supported
H2: Student's satisfaction with learning varies between streams	Not Supported
H3: Student's satisfaction with teaching varies between classes	Not Supported
H4: Student's satisfaction with learning varies between classes	Not Supported
H5: General regulatory Teaching predicts student's satisfaction with teaching positively	Supported
H6: General regulatory Teaching predicts student's satisfaction with learning positively	Supported
H7: Preparation of learning and regulatory assessment predicts student's satisfaction with teaching positively	Supported
H8: Preparation of learning and regulatory assessment predicts student's satisfaction with learning positively	Supported
H9: Student's perception and planning predict student's satisfaction with teaching positively	Supported
H10: Student's perception and planning predict student's satisfaction with learning positively	Supported

Source: Computed by authors

During NEP the concept of specific streams with specified subject will not be in place anymore, adding advantage to the students who want to go for variety of subjects. Moreover, the disciplines were not so important for them

even as indicated by results. In an interesting study, Scerbo *et al.*, (1992) found that among ten disciplines, faculty in education and humanities rated among the highest on the facilitator teaching style. However, in present research the

streams Mathematics, Biology and Commerce were considered as Humanities as a ‘discipline ‘is not so popular in a nearby area.

Furthermore, Sahin (2007) indicates that student satisfaction is related to instructor support, active participation in learning as well as with authentic learning. A plethora of research is available on online research discovering various predictors; for example, Drennan, Kennedy & Pisarski (2005) stated that positive perceptions of technology affect student satisfaction significantly (Nikou & Maslov, 2022). The study results are an addition to past studies where Davis & Murrell (1993) reported that student efforts are correlated to perceived student gains. The emphasis in NEP, 2020 is also wholistic development of students with creation of versatility based upon interest with an input of creativity and critical thinking. In contrast, instructional effectiveness was found to be predicting student’s academic gains.

Punzón & Lara (2003) confirmed that teacher regulatory behaviors and learning strategies significantly contribute to students learning. The present study posits that preparation for learning and regulatory assessment does not result in satisfaction with teaching. Still, it provides satisfaction with leaning among students, implying that the preparation ultimately results in learning though students could not assess that it might be helping in teaching as well. Punzón & Lara (2003) further suggested that planning for learning includes supportive learning strategies as it measures student’s perception also about learning strategies and hence influences satisfaction with learning.

VI. RESEARCH LIMITATIONS AND SUGGESTION

The research was limited to central India’s cities, whereas the inclusion of a larger part of the country would have had strong generalizability. Extension of a more diversified respondent’s profile in terms of area, physical, and mental abilities would have been an added advantage. Inclusivity in education refers to an environment where students with differential abilities learn things with others. This will require special efforts on the part of teachers and students. The Teaching-Learning process should be designed in such a way that it ensures maximum learning for all. It is about providing a conducive environment to ensure learning by all, irrespective of challenges faced by individuals. For example, the teaching pedagogy might incorporate a tripartite system through teachers, students, and specialists to develop course material and teaching pedagogy.

VII. IMPLICATIONS OF THE STUDY

Rather than evaluating the teacher, the quality of teaching should be assessed systematically, and hence study recommends that policymakers and educationalists should design a curriculum while addressing the customized needs of students. This implies that students with diverse abilities and skills will have equal opportunities for learning.

Differentiated assessment methods can cater to customize their individual needs. Collaborative learning initiatives will foster interactions among students from various schools, promoting diversity and enriching the learning experience. The research contributes to promoting social justice by removing barriers and biases in the education system and offering opportunities to all students through inclusivity, regardless of their backgrounds or abilities.

VIII. FUTURE DIRECTION AND CONCLUSION

The study has explored a wide range of factors, specifically focusing on the satisfaction of students from diverse backgrounds and its implications for various outcomes. The assessment of satisfaction, particularly linked to inclusive teaching pedagogy, acknowledges the varying learning paces among students with different abilities. It is recognized that a uniform measurement may not adequately capture satisfaction across different constructs, highlighting the necessity for a more nuanced evaluation. Distinct measurement approaches were employed for the two satisfaction variables, concentrating on the effectiveness of teaching and learning. Building on the insight from Cashin & Downey (1992) that teaching effectiveness is intricately tied to student perceptions of learning, the research emphasizes the discerning nature of students in evaluating teaching and learning processes. While teacher preparation is acknowledged as valuable, the study suggests that it may not fully meet students’ expectations, especially considering diverse perceptions of teaching among students with varying capabilities.

The study underscores the bidirectional nature of the Teaching-Learning process, shedding light on the challenges students face, particularly in India’s 12th Class, a national or state-level evaluation system. It points out the complexities teachers encounter in adapting to the diverse capacities of students, emphasizing the importance of addressing responsiveness to student queries, clarity in expectations, and the teacher’s self-enthusiasm (Iswati, 2021; Camarero *et al.*, 2010). A key takeaway from the study is the advocacy for an interactive Teaching-Learning process, emphasizing a shift towards a more amicable teacher-student relationship, particularly for students with special needs. The satisfaction level of students is closely tied to their perceptions of the teacher’s style and the resulting learning outcomes. The study recommends that supporting and training teachers before teaching is crucial, as the findings reveal potential inadequacies in preparation, leading to student dissatisfaction. Furthermore, the study highlights a significant oversight in aligning educational practices with the principles outlined in the National Education Policy (NEP) 2020, specifically the promotion of critical thinking and creativity. The research proposes the adoption of multifaceted learning models for preparatory classes, incorporating technology to enhance teachers’ understanding of students and facilitate the creation of new learning experiences.

In conclusion, the study advocates for a holistic approach to teaching that considers the diverse needs of students, fosters interactive learning environments, and aligns with educational policies to cultivate critical thinking and creativity (Seethalakshmi & Shyamala, 2022; Policy, 2019). The findings underscore the importance of continuous teacher support and training to bridge the gap between student expectations and teaching effectiveness.

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