Exploring the elements of teaching related to supportive classroom environment that improve the quality of teaching and enhance students learning outcomes

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Abstract

This study was conducted to explore the elements of teaching related to supportive classroom environment that improve the quality of teaching and enhance students learning outcomes in the subject of Biology at secondary level. The objectives of study were: (i) to explore the element of teaching related to teacher support in supportive classroom environment in teaching biology, (ii) to find out the elements of teaching related to student activity in teaching biology, (iii) to examine the element of academic engagement of students on teaching biology, (iv) to explore teaching element of students performance assessment criteria for teaching biology and (v) to find out teaching element of self regulation for teaching biology. In the study the elements of teaching quality were selected from literature to investigate the issue of improvement of quality teaching and enhance students learning outcomes. There were four participant teachers selected through purposive sampling technique from three secondary schools of district Rawalpindi. The qualitative method was used in the study. Classroom observations and in-depth interviews were used as a data collection tools. For analyzing the data thematic analysis was used. Conclusion and recommendations were drawn on the basis of common points in theme. The study concluded that regarding teacher support participant teacher A&D expressed that there should be good connection between teacher and students. Teacher B&C held that teachers should support the students as guider, motivator and controller. Expressing about the importance of academic engagement it was considered important (teacher A&C), the best way of learning (teacher B) and to build student interest in learning (teacher D). Stating about the element of performance assessment criteria (teacher A, B&C) had not any explicit statement to check the learning outcome of the student in detail while teacher D assessed it through questioning. Talking about the element of self regulation teacher A considered discipline the responsibility of the whole class while teacher B,C&D considered it the responsibility of class and class teacher. It is recommended that all the teacher should ensure classroom discipline to address the lethargic attitude of the student. Teacher should use checklist to assess the student. Positive learning environment should be created. The research was beneficial for biology teachers to improve the quality of teaching for motivating students learning. It was concluded that the participant teachers who were teaching in Government sector were professionally well qualified, trained and experienced as compared to private sector teachers.

Introduction

Quality education is still a major problem of Pakistani education system. Quality education demand effective teaching. Student success depends on effective teaching.

Students' intellectual, physical, social and emotional, and behavioral well-being are all impacted by effective instruction. When parents, legislators, community members, and educators all share accountability for student accomplishment and ongoing improvement, effective teaching happens most effectively. Effective professional development is the most effective strategy for teachers to support ongoing teaching improvement in the classroom. Explicit performance requirements for teachers are necessary for effective teaching, but so are procedures for enhancing and evaluating excellent practice. Teacher performance standards establish expectations for instruction, guide professional development, and provide metrics for evaluating efficacy.

For teachers in classrooms, effective professional learning is the single most powerful pathway to promote continuous improvement in teaching. Effective teaching requires not only explicit performance standards for educators but also processes for improving and assessing effective practice. Performance standards for teachers define instructional expectations and inform the individual improvement and criteria for measuring effectiveness (Joellen & Hirsh, 2011).

Building capacity and creating learning support systems through adept leadership are prerequisites for effective teaching. Leaders, educators and administrators alike, support professional development as a vital tool for ongoing enhancement of instruction and student outcomes (Joellen & Hirsh, 2011).

Students' behavioral engagement and school identification are considered a critical catalyst for their learning and performance. Students who value school and feel that they belong there are more likely to behaviorally engage in school activities, experience more in-depth learning, and improve their academic achievement. The feedback information that students receive and interpret from their schooling experience plays a crucial role in assisting students in improving their motivation and engagement and is a decisive factor implicated in academic achievement (Monteiro, Carolina, & Santos, 2021).

Therefore, teachers' feedback is crucial in improving this supportive class environment by establishing good relationships with students and offering both personal and academic support. Studies have also determined that a supportive class environment could improve students' school identification and behavioral engagement. Students need to be supported and cared for by teachers to develop and maintain a sense of identification with the school that reinforces their behavioral engagement with the school's activities. Feedback is more effective if it helps students understand what mistakes they made, why they made these mistakes, and what they can do to avoid them in future. The role of student engagement has been considered to be relevant it improves achievement and persistence in secondary school. Engagement is a complex multidimensional construct defined as:

> the energy and effort that students employ within their learning community, observable via any number of behavioral, cognitive or affective indicators across a continuum. It is shaped by a range of structural and internal influences, including the complex interplay of relationships, learning activities and the learning environment. (Monteiro, Carolina, & Santos, 2021).

Building positive relationships with your students helps them feel as though they can come to you with questions on assignments or when they're facing a challenge. Collaboration among students can lead to a more engaged class of students. In order to foster collaboration that's productive, consider clarifying the expectations and reasons for collaboration before you allow them to work in groups or pairs. It's beneficial for them to understand their objective and why they're working together.

All things considered, developing a supportive classroom environment is essential to establishing a productive learning environment that supports student achievement. In the classroom, teachers can create an environment that inspires and supports students to achieve their objectives by fostering collaboration, promoting inclusivity, and encouraging open communication, to name a few examples. The importance of support for students' success must be emphasized. Remind them that asking for assistance when needed is not a sign of weakness and encourage them to do so. Teacher can greatly improve student performance and achievement and contribute to the success of education as a whole by providing sufficient resources and support (Reyes, 2023).

The present study investigated the elements related to supportive classroom environment that improve quality teaching and enhance students learning in the subject of Biology at secondary level in Pakistan. Monteris, Corvasto and Santus (2021) study focused on effective feedback Nikolic and Antonjrice (2024) research addressed problem solving activities. Lee et al. (2021) study addressed knowledge construction of the students. Likewise different studies as reviewed by the researches have their own objectives, perspective and level. Previous studies did not address the elements of teaching related to classroom environment especially in the context of Pakistani education system.

The objectives of the study were:
1. To explore the element of teaching related to teacher support and student activity in supportive classroom environment for teaching biology,
2. To examine the element of academic engagement and performance assessment criteria of students for teaching biology,
3. To find out teaching element of self regulation for teaching biology.

Procedure of the Study
Five elements of teaching were selected as a frame that were related to supportive classroom environment that improve the quality of teaching and enhance students learning outcomes in the subject of Biology at secondary level. The research was conducted with 04 biology teachers (02 females, 02 males) in the city of Rawalpindi, Pakistan, by using qualitative research methods. The data collection tools of this research were questionnaire, classroom observations and in-depth interviews. Thematic analysis was used to analyze the data to draw conclusions and to make recommendations. The research will be beneficial for biology teachers to improve the quality of teaching for motivating students learning.

Review of Literature

Supportive Classroom Environment

The dimension of Supportive Classroom Environment is associated with a range of important outcomes for students. Numerous studies have clearly demonstrated that the learning environment has a significant impact on student achievement, as well as emotional and social outcomes at all grade levels (Fraser, 1994; McRobbie & Fraser 1993). Students do not construct knowledge in isolation, but through social interaction with their peers. This means that processes that enable students to create ideas and negotiate meaning together are essential. Students also take responsibility for each other's learning, sharing their own discoveries and understandings by teaching each other (Cheng, 1994).
    There are five elements in this dimension:

1)   social support,
2)   academic engagement,
3)   self-regulation,
4)   students control in determining their learning activities, and
5)   Explicit criteria for high quality performance in learning.

The main purpose of this research is to use selected elements of teaching to examine teaching practices that currently exist in biology teaching in Pakistani secondary schools. In present study the dimension of supportive classroom and its elements were explored through interview questions which deal with quality teaching, quality learning, and motivational aspects.

In the current study these elements are aggregated in order to construct knowledge through them and to find a solution for a specific problem by amassing all the ideas. It deals with a sole activity that is given to the students to work with the problem in a manner that permits their ability to reason and apply knowledge to be challenged and evaluated appropriate to their level of learning. To explore motivational aspects of students' learning Supportive Classroom Environment dimension was used. The present study considers representative participation as engaging all students to participate in classroom activities, especially students who are intellectually weak in studies.

Lingard, Ladwig & Luke (1998) stated that Newmann et al's research of authentic Pedagogy presented a valuable account of how teaching practice might be improved translate into practical models of pedagogy. One research group that has worked on the development of such a practical model that is theoretically developed, comprehensive and multi-dimensional. And practically applicable, is the Queensland Study of Productive Pedagogy (QSRLS). The QSRLS pays simultaneous attention to already existing aspects of classroom practices and draws teachers' attention to what really matters in helping students to learn (Gore and Ladwig, 2003). The QSRLS productive pedagogy is different from other pedagogical approaches because it pays attention to many essential aspects of classroom teaching instead of focusing on just one aspect of teaching (Gore et al., 2003). The Queensland Study of Productive Pedagogy (QSRLS) The QSRLS extended the ground-breaking work of Newmann et al., (1996). It identified twenty elements of teaching that lead to enhanced student learning outcomes. These twenty elements of teaching are classified into four broad teaching dimensions. These dimensions are:
- Intellectual Quality,
- Relevance,
- Supportive Classroom Environment, and
- Recognition of Difference.

Research from the QSRLS study suggested that some of these teaching elements are better suited to teaching certain skills and fields of knowledge than are others while some elements are better suited to certain student backgrounds, learning styles and abilities (QSRLS, 2001).

Related Researches
Monteiro, Carvalho, and Santos (2021) concluded in their study that in classrooms where teachers used more effective feedback creating a supportive classroom environment, students had higher school identification and behavioral engagement levels, regardless of their individual perceptions of teachers' feedback. The association between variables remained significant even after controlling students' characteristics (gender, nationality, mother's level of education, history of grade retention) and classroom characteristics

(grade level, type of school, number of students at grade level). Our findings support the potential of teachers' feedback practices to foster students' school identification and behavioral engagement to build a more inclusive school environment and value students' diversity.

Monteiro, Carvalho, and Santos (2021) conducted research study on "Creating a Supportive Classroom Environment through Effective Feedback: in classrooms where teachers used more effective feedback creating a supportive classroom environment, students had higher school identification and behavioral engagement levels, regardless of their individual perceptions of teachers' feedback. The association between variables remained significant even after controlling students' characteristics (gender, nationality, mother's level of education, history of grade retention) and classroom characteristics (grade level, type of school, number of students at grade level). Our findings support the potential of teachers' feedback practices to foster students' school identification and behavioral engagement to build a more inclusive school environment and value students' diversity.

Nikolić & Antonijević (2024) concluded in their research that problem-solving activities could be grouped into the following five areas: (1) analysing and planning problem-solving; (2) discovering solution(s) to the problem; (3) problem-solving evaluation activities; (4) additional activities involving the discussion of the problem; (5) the degree of student independence in the process of discovering a solution to a problem. The results show that with the increasing frequency of the realisation of the research problem-solving activities, the achievement of students also increases. With regard to achievement quality, a positive but low correlation was found in all three domains—knowledge acquisition, understanding and application.

Lee et al. (2021) stated that participation in Biology Education Research Influences Students' Epistemic Development. Knowledge construction is an essential scientific practice, and undergraduate research experiences (UREs) provide opportunities for students to engage with this scientific practice in an authentic context. While participating in UREs, students develop conceptualizations about how science gathers.

Lagoudakis et al. (2022) concluded in their research that the students of the experimental group had a significantly higher mean score than the students of the control group on an achievement test, which was delivered as post-test, indicating that the suggested teaching approach had a positive effect on the students' improvement in academic performance. These results are discussed in the context of improving teaching practices, and supporting the use of BBL elements in constructing more efficient teaching practices for Biology courses.

Fernández and Martínez (2022) expressed that educational theory inextricably links teachers to student learning, as the key factor mediating educational policies and student experiences in the classroom, with research consistently showing a relationship between a range of teacher and classroom variables that exert an important influence on student outcomes.

Cook, Watson and Webb (2024) research revealed that numerous studies have highlighted the significant role of Student Evaluations of Teaching (SETs) as a key metric for assessing teaching quality in Higher Education (HE). Building upon these insights, their study introduced an innovative four-tiered model, derived from diverse research, to examine the reliability of SETs. This model addresses biases associated with SETs, delving into both statistical anomalies and cognitive biases, with particular emphasis on often-overlooked hidden context and timing factors. They revealed that these biases could

distort SET scores, leading to potentially inaccurate representations of both individual and comparative <u>academic performances</u>.

Schunk, *et al.* (2022) mentioned in their study that Children's self-regulation abilities are key predictors of educational success and other life outcomes such as income and health. However, self-regulation is not a school subject, and knowledge about how to generate lasting improvements in self-regulation and academic achievements with easily scalable, low-cost interventions is still limited. Here we report the results of a randomized controlled field study that integrates a short self-regulation teaching unit based on the concept of mental contrasting with implementation intentions into the school curriculum of first graders. We demonstrate that the treatment increases children's skills in terms of impulse control and self-regulation while also generating lasting improvements in academic skills such as reading and monitoring careless mistakes. Moreover, it has a substantial effect on children's long-term school career by increasing the likelihood of enroling in an advanced secondary school track three years later. Thus, self-regulation teaching can be integrated into the regular school curriculum at low cost, is easily scalable, and can substantially improve important abilities and children's educational career path.

Tasci, and Yurdugul, (2017) study explored that the experimental group did better in cognitive structure than the control group in terms of forming connections and central concepts. Accordingly, teaching students self-regulated learning strategies and providing support in the written material to activate the strategies influence the development of cognitive structure in a positive way in terms of the extent and the integration. Therefore, activation of the use of self-regulated learning strategies in the teaching are thought to contribute to the learning of biology.

The above studies concluded that teachers' feedback practices increased students' school identification to build conducive environment and students' diversity (Monteiro, Carvalho, and Santos, 2021). Self regulated teaching learning strategies in teaching contributed to build better cognitive structure for learning biology (Tasci and Yusidugal, 2017). Students learning in the classroom influenced students' outcome (Famanez and Matinex, 2022). Self regulation teaching can be integrated into regular in chool curriculum at low cost to improve students' abilities and educational path (Schunk et al., 2022). Statistical anomalies and cognitive biases can be distorted through student evaluations of teaching (Cook, Watson and Webb, 2024). All these studies have addressed different aspects according to the teaching learning process of different level of education. Due to filling this gap present study was conducted in the contest of Pakistani Education System to explore five most important elements of quality teaching related to supportive classroom environment to increase students learning outcome.

Methodology

Procedure of the study

The study was qualitative in nature. In qualitative research the selection of a sample is purposeful and small. Criterion sampling technique was used in this study. In present study 4 science teachers teaching biology at Sir Syed School & College for Girls, Dhoke Syedan, Rawalpindi, Govt Girls High School Gangal Gulzar e Quaid and Govt Boys High School Gangal Gulzar e Quaid were selected as a sample of study. In the first month, the researcher visited the sample schools to develop relationship among heads and participant teachers.

In the second and third months, classroom observations and interview of the participant teachers and students were conducted. Grade IX & X classes were observed during

scheduled biology classes. While sitting in the classrooms rough notes were made of what was happening in class. This included the things the teacher was saying and doing, and students' responses both in terms of whole class interactions and actions of the individual students sitting close to researcher.

The staff interview schedule was designed to obtain each teacher's views on teaching practices and students' outcomes based on each of the 5 selected elements. The interview schedule and observational schedule accompanied by a brief explanation that was provided to participants at least one day in advance of their interviews. During each interview, researcher took detailed notes. Each interview averaged approximately one and a half hours in duration. The data was collected through questionnaire, in depth interview and observations. The goal of qualitative study was to comprehend the significance of experiences of the participants. This type of research on the other hand enables us to know how to create their words to assign meaning to their experiences.

The researcher observed each lesson using the classroom Observational Schedule as described previously. In observation the researcher coded each of the 5 elements observed on a 5-point Likert scale with the indicators used: Very Frequently, Frequently, Infrequently, Very infrequently and Not Evident in class. The researcher also completed descriptive notes to document evidence of observation. To know more about the nature of teaching and learning in the subject of biology in these classes, their attitudes towards learning and the changes in classroom practices they wanted to enhance their motivation to learn Biology and improve their academic performance. The data was analyzed by using thematic analysis with inductive coding. Different researches have used and stated this method of data analysis (Medelyan, 2019, Saldana, 2015, Creswell, 2012 and Naz, 2023).

Results

Table 1 Showing qualifications and experience of teachers

Participant teachers code	Academic qualification	Professional qualification	Teaching Exp. (years)	Institution
Participant-A	M.Sc. (Statistics)	Nil	08	Sir Syed School & College for Girls,Dhoke Syedan, Rawalpindi
Participant-B	M.Phil (Chemistry)	M.Ed.	12	GBHS, Gangal, Rawalpindi
Participant-C	B.Sc. & M.A. (Pak Study)	B.Ed.	12	GBHS, Gangal, Rawalpindi
Participant-D	M.Sc. (Biology)	M.Ed.	28	GGHS, Gangal, Rawalpindi

Table 1 shows that public sector participant teacher had better academic and professional qualification as well as longer teaching experience as compared to private sector participant teachers.

Table 2: Observations of teachers in the classroom regarding element of Teacher Support

In the classroom teacher	Observations of Participant Teachers			
	A	B	C	D
The teacher supported all the Students during the lesson	1	1	1	2
Teacher involves all the students to	2	2	2	2

participate in learning activities				
The teacher provides extra help to all the students when they have difficulty to complete their work.	3	2	2	2
The teacher provides extra attention to those who are slow in their work	2	1	2	2
The teacher gives encouraging remarks even to the little efforts of students	2	1	1	2
Students show great interest in learning activities.	1	1	1	2

Very frequently=1, frequently=2, infrequently=3, very infrequently=4, Not evident=5

Table 2 shows that teacher A,B,C supported all the students during the lesson very frequently while teacher D frequently. All the teacher A,B,C&D involved all the students to participate in learning activities frequently. Teacher B&D provided extra help to all the students when they had difficulty to complete their work frequently while teacher A infrequently. Teachers B provided extra attention to those who were slow in their work very frequently while teacher A,C&D frequently. Teachers B,C gave encouraging remarks even to the little efforts of the students very frequently while teacher A&D frequently. Students of teacher A,B&C showed great interest in learning activities very frequently while teacher D students frequently.

Table 3: Observations of teachers in the classroom regarding element of Student Activities

In the classroom teacher	Observations of Participant Teachers			
	A	B	C	D
Most of the time students engage in individual activities	1	1	1	3
Almost all the students participate in learning activities	2	2	2	2
Most of the students complete their work in class	3	2	2	2
The teacher decides the classroom activities	2	1	2	2
Almost all the activities are students-centered	3	2	2	2
Students show great interest in participating in learning activities	2	1	1	2

Very frequently=1, frequently=2, infrequently=3, very infrequently=4, Not evident=5

Table 3 shows that students of teacher A,B&C engaged most of the time in individual activities very frequently while students of teacher D very infrequently. Almost all the students of teacher A,B,C&D participated in learning activities frequently. Most of the students of teacher B,C&D completed their home work in the class frequently and teacher A students infrequently. The teacher B decided the classroom activities very frequently while teachers A,C&D frequently. Teacher A,C&D activities were students centered frequently while teacher A activities were infrequently student centered. Students of teacher B&C showed great interest in participating in learning activities very frequently while teachers A&D frequently.

Table 4: Observations of teachers in the classroom regarding element of Academic Engagement

In the classroom teacher	Observations of Participant Teachers			
	A	B	C	D
Students are seriously engaged in their work	2	1	1	2

Students show eagerness to complete their work	2	1	1	2
Students raise questions about their work/ activities And problems	2	1	1	2
The teacher observes the on-task behaviour of the students	1	2	2	2
Students appear lethargic or make noise in class	3	3	3	3
Students are not involved in any activity in the class	4	4	4	3

Very frequently=1, frequently=2, infrequently=3, very infrequently=4, Not evident=5

Table 4 shows that students of teacher B&C were seriously engaged in their home work very frequently and teachers A&D students frequently. Students of teachers B&C showed eagerness to complete their work very frequently while teacher students D frequently. Students of teachers B&C raised questions about their work activities and problems very frequently and teacher A&D students frequently. Teacher B,C&D observed the on task behavour of the students frequently while teacher A very frequently. Students of all teachers A,B,C&D approved lethargic or make noise in the class. Students of teacher D were not involved in any activity in the class infrequently while students of teacher A,B&C not evident.

Table 5: Observations of teachers in the classroom regarding element of Performance Assessment Criteria

In the classroom teacher	Observations of Participant Teachers			
	A	B	C	D
Teacher uses a check-list to assess the student performance	3	2	2	2
Teacher assessing the student's performance throughout the lesson	2	2	2	2
Students raise questions about their work/ activities and problems	2	3	3	2
Teachers measure the quality of student's learning outcomes	1	1	1	2

Very frequently=1, frequently=2, infrequently=3, very infrequently=4, Not evident=5

Table 5 shows that teacher B,C&D used check list to assess the students performance frequently while teacher A infrequently. Teachers A,B,C&D assessed the students performance throughout the lesson frequently. Students of teachers B&C raised questions about their work or problems infrequently while students of teacher A&D very frequently. Teachers A,B&C measured the quality of students learning outcomes very frequently while teacher D frequently.

Table 6: Observations of teachers in the classroom regarding element of Self-Regulation

In the classroom teacher	Observations of Participant Teachers			
	A	B	C	D
Students regulate self- discipline	2	2	2	2
The lesson proceeded without interruption	2	2	2	2
Teacher regulate self- discipline	3	2	2	2
Teacher devoted most of their time to issuing orders	4	4	4	2
The teacher gave physical punishments to	4	5	5	3

regulate discipline in the class					

Very frequently=1, frequently=2, infrequently=3, very infrequently=4, Not evident=5

Table 6 shows that students of teacher A,B,C&D regulated self discipline in the class frequently. Teachers A,B,C&D proceeded lesson with interruption frequently. Teachers B,C&D regulated the students discipline frequently and Teacher A infrequently while teachers A,B&C devoted most of time to issuing order very infrequently but it was observed that teacher D devoted most of the time to issuing orders frequently. Teachers B,C&D gave Physical punishment to students to regulate discipline in the class it was not evident for teacher A&B.

Analysis of In-Depth Interviews of Teachers

Interview Participant Teacher-A
Teacher support
1. According to her, teacher support provided good connection between teacher and student.
2. She helped the students to learn by daily discussions about previous lectures.
3. She encouraged the students to participate in learning activities by giving them small gifts or appreciating them in front of while class.

Student activities
1. Her opinion about the classroom activities was that the class should be active in participation and cooperative.
2. She gave students challenging activities like performing at home science experiments to improve their outcomes.
3. According to her student cantered activities develop interest in students.

Academic engagement
1. She said that the on task behavior of students can be assessed by observing how much interest do they show in the class.
2. According to her academic engagement plays vital role in improving student's learning.

Performance assessment criteria
1. She assessed the understanding of students by asking questions about the lecture.
2. She said she doesn't have an explicit statement to check the learning outcomes of students.
3. She provided feedback on student's work by appreciating them.

Self regulation
1. According to her the whole class is responsible for maintaining discipline by cooperating with each other.
2. Her opinion on the regulation of discipline in class by the students was that all the students can maintain discipline by cooperating with each other.

Thematic Analysis of Participant Teacher-A
Participant teacher-A interview consisted of five elements related to supportive classroom environment.

Stating about the aspect of supportive classroom environment, she said that teachers support provided good connection between teacher and student. She discovered about precious lecture to help the student. She encouraged the students with small gifts and appreciation in front of the class learning. About the element of student activities, She considered active participation of class. She gave some science experiment to improve student learning outcomes. She thought that student cantered activities developed interest

in student. Talking about the element of academic engagement, she observed interest of the students on their own task behavior. She said that academic engagement played vital role for improving students learning. Stating about the element of performance assessment criteria, she assessed understanding of the students by asking questions. She had an essential statement to check the learning outcomes of the students. She appreciated the students for feedback. She maintained discipline in the class through mutual cooperation and it was the only way to maintain the discipline.

Participant-B Interview Regarding Supportive Classroom Environment and its elements
Teacher Support
1. I think teacher support as a guide, motivator, councellor etc. is helpful for students learning.
2. I can help the student in their learning by engaging with students.
3. I encourage the student by developing interest of topics.

Students Activities
1. I think class activities are the best way of learning.
2. I give students assignments and surprise quizzes as challenging activities to increase their outcomes.
3. I think student cantered activities make the students to improve themselves.

Academic Engagement
4. I assess on task behavior of the students how they are very keen to learn.
5. I think academic prepares the students for further competition.

Performance Assessment Criteria
1. I assess the understanding of the students by taking surprise quizzes.
2. I check the learning outcomes by asking daily life examples if any.
3. I provide feedback by pointing out students mistakes.

Self Regulation
1. I myself and the subject teacher maintained the discipline in the class by involving the students in class activities.
2. In my opinion student can regulate discipline in the class by involving them in class activities.

Thematic Analysis of Participant Teacher-B Interview
Participant teacher-B interview consisted of five elements related to supportive classroom environment.

About supportive classroom environment, teacher-A says that he supports the students as guider, motivator, controller etc. Students can be encouraged by engaging them in their studies for learning. He further added that he encouraged the students by developing the interest of the topics. He opined that classroom activities are the best way of learning. He expressed that he gave assignment and surprise quizzes to students to improve their outcomes. He said that student cantered activities can improve learning of the students. Responding about the element of academic engagement, he expressed that students feared to learn when they were given any task. Academic engagement prepared the students for future competition. For assessing clear understanding of all the content of lesson teacher took surprise quizzes. The teacher said that he assessed the learning outcomes of the students by asking them daily life examples if any. The teacher provided feed back to students by pointing out their mistakes. Regarding the element of self regulation the teacher said that class teacher and subject teacher maintain discipline in the class with the help of involving students in class activities. He suggested that classroom activities can be helpful to regulate the discipline.

Interview of Participant Teacher-C Regarding Supportive Classroom Environment and its elements

Teacher Support
1. There should be all types of support from the teacher.
2. The teacher helps the student by all means to learn.
3. By performing activities the students learn more easily and with less effort. I encourage the students for activities by giving them chance of actively based learning.

Students Activities
1. Classroom activities are very important for the learning of students. These activities develops various characteristics in the students.
2. I usually give them topic to teach to their juniors. I give some time to draw some diagrams in the class.
3. The classroom activities are very important for the learning of students. The student becomes more acceptable for the learning by these activities.

Academic Engagement
1. I assess on task behaviour of the students by oral test and written tests by making a competition between the groups of students.
2. Academic engagement is very important for student learning because the students are regularly engaged in the control of the topics.

Performance Assessment
1. I assess understanding of the student through oral question answering and the written test grades
2. No I have no explicit statement
3. I provide feedback by returning their written test to the students by checking their notes book and making correction in it.

Self Regulation
1. I my-self maintain the discipline in the class, by asking question to the different student and engaging them in the topic of the lesson.
2. Some student regulate discipline some time when teacher is not in the class by noting the names of the students.

Thematic Analysis of Participant Teacher-C Interview
Participant teacher-C interview consisted of five elements related to supportive classroom environment.

Stating about the aspect of supportive classroom enviornment he said that the teacher support should be in all types. Teacher helped the studnets by all means. He said the student centre activities helped the students to perform these activiteis. In this way they learnt easily and with little effort with the help of teacher encoruagement. Opining about the element of student activities he said that these activiteis developed serious characteristics in the students. He said students to draw diagram as a challenging activity he said that these activities helped the students to increase their learning by teaching some topics to juniors and by drawing diagrams. Talking about the element of academic engagement he said that he assessed on task behavour of the students in the class by oral and written tests through competition between the groups of the students. With the help of academic engagement students regular engagement improved their learning. Stating about the element of self regulation he told that I myself regulated the discipline in the class by asking questions to engage the students. He opined that students regulated the discipline by noting names of students who broke discipline in absence of teacher.

Interview of Participant Teacher-D Regarding Supportive Classroom Environment and its elements

Teacher support
1. According to her teacher support plays a key role in student's learning.
2. She helped students to learn by giving them moral support and encouragement.
3. She encouraged students to participate in learning activities by appreciating them.

Student activities
1. According to her, classroom activities were very fruitful.
2. She gave challenging activities in the form of practical experiments to improve student's outcomes.
3. She said that student cantered activities play a very important role in clearing concepts.

Academic engagement
1. She assessed on-task behavior of students by observing their behavior in classroom.
2. According to her academic engagement builds student's interest and improves learning.

Performance assessment criteria
1. She assessed the understanding of students by giving them worksheets or taking tests.
2. She checked the learning outcomes of the students by asking questions after lecture.
3. She provided feedback in the form of progress reports.

Self-regulation
1. According to her, she maintained discipline in the classroom by making strict rules.
2. She said that students can regulate discipline in class by abiding by the rules made by teachers.

Thematic Analysis of Participant Teacher-D Interview

Participant teacher-D interview consisted of five elements related to supportive classroom environment.

Stating about the aspect of suportive classroom enviornment she said that teacher support played key role in students learning. She helped the students to learn by giving moral support and encoruagement. She appreciated students to encourage them. Opining about the element of students activiteis she said that these activiteis were very fruitful. She gave challenging activiteis in the form of prractical experiences to improve student outcomes. These activiteis were important to clear the concepts of the students. Talking about ht eelement of academic engagement she said that she assessed on test behaviour of the students by observing their behaviour in the class. According to her academic engagement built student interest. Students to improve their learning. Stating about the elment of performance assessment criteria she assessed the understanding of the students by giving them worksheets or taking tests. She checked the learning outcomes by asking questions from students after lecture. She provided feedback in the form of progress report. Stating about the element of self regulation she said that she maintained disciplines in the class by making strict rules.

Conclusions

Comparatively participant teacher from public sector schools were well qualified and experienced as compared to private sector teachers. Public sector participant teachers also had long teaching experience as compared to private sector.

About the element of teachers support, participant teachers A&C opined that there should be good connection between teacher and studnets. Teacher B opined that teacher should support the students as guider, motivator, controller etc. Teacher B expressed that the teacher should provide all types of support to studnets while teacher D held that teacher support should play key role for studnets learning. Teacher might help the students to learn through daily discussion of the previous topic (Teacher A) through engagement the studetns (Teacher B), moral support and engagement (Teacher D).

Teachers B&C opine that teacher can help the students in learning by encouraging and engaging them in their studies while teacher-B says that teacher can help by all means. Teacher-D expresses that teacher can help the student in learning through moral support and encouragement. Teachers A&D expressed that they encouraged the students to participate in learning by giving them interesting activities, teachers B&C by engaging them in their studies and Teacher-D by giving challenging activities in the form of practical experiment to improve students outcome. Opining about working of student activities in learning teachers A,B&C said that it developed interest in student, Teacher D said that these activities played very important role in learning.

Expressing their views about the element of academic engagement for assessing the on task behavior of the students in the class teachers A&D said that student interest showed their behavior. Teachers B said that when they feared to learn. Teacher-C assessed the behavior through observations and competition in oral and written test and teacher. Opining on the role of academic engagement to improve the students learning teachers A&C considered it important, Teachers B considered it the best way of learning, teacher-D it the best to build student interest in learning.

Expressing about the element of performance assessment criteria, teacher A delivered lecture, teachers B&D assessed through surprise quizzes while teacher-C assessed through oral questions and written tests and teacher E assessed by giving them worksheet or taking tests. Teachers A,B&C had not any explicit statement to check the learning outcomes of the students in detail while teacher D asked questions after lecture talking about the provision of feedback on the student work. Teacher A appreciated the students, teacher B by pointing out their mistakes and teacher-D by providing progress reports.

Talking about the element of self regulation teacher A say that whole class is responsible for discipline in the class. Teachers B,C&D considered it the responsibility of class and subject teachers. Opining about how students regulate disciplines in this class teachers A&D expressed that discipline was regulated with mutual respect and cooperation. Teacher B maintained discipline through classroom activities and teacher-C maintained discipline through abiding by the rule set by the teacher.

Observation showed that teacher A did not provide extra help to all the students when they needed it. Regarding the element of student activity it was observed that most of the time Teacher D students engaged in individual activities very infrequently while almost all the students were involved in activities very infrequently. As far as academic engagement is concerned, students of all the participant teachers (A,B,C&D) appeared very infrequently lethargic or make noise in the class. Likewise it was not evident that students were not involved in any activity in the class. About the element of performance assessment criteria it was observed that teacher A used very infrequently a checklist to assess the students' performance. In the context of element of self regulation it was observed that they very infrequently devoted most of the time issuing orders. Similarly, all the teachers gave

physical punishments to regulate discipline in the class infrequently, very infrequently and not evident.

Recommendations

Following recommendations are made on the basis of thematic analysis. This study is phenomenological study so its recommendations cannot be generalized for larger population.

- The head of institution should arrange teacher training programmes in their institutions. The department of Education should make B.S. Education and M.Phil. Education compulsory for secondary teachers as a professional education both for public and private institution.
- Teacher A should give due support to his/her students for minimizing their learning difficulties. Teacher A&D should engage their students in individual activities or student cantered activities.
- All the participant teachers should ensure classroom discipline and be addressed lethargic attitude of the students. Teacher A should use checklist to assess the student performance.
- It is recommended that a positive learning environment may be created because it is essential to boost students performance and quality of teaching. This is possible by establishing a supportive classroom environment through teaching methods, building positive relationships, providing adequate resources and encouraging a growth mindset.
- Teacher should avoid physical punishment to students.

Delimitation and suggestions for future Research

- The study was delimited to three schools four participants of biology teachers. Its conclusions cannot be generalized for larger population like other qualitative designs. Further research may be conducted at Intermediate or college level in both science and arts subjects.

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