Academic Journal of Mathematics Education ISSN: 2645-8292

Students' Reflection in the Virtual Classroom

- Khadak Raj Adhikari

Abstract

The main objective of this research was to increase the students' interaction and find the effectiveness of online class from the students' perspectives. The action research methodology has been applied during Covid-19 period when the mode of instruction was fully virtual. A survey was conducted at the end of the year to find the perception of students towards online classes. The sample consists of 83 students of grade 9 from Kaski district who had been studying mathematics by virtual mode. The main problem was that there was very little interaction between the teacher and the students in the virtual classroom and interest of students was very low towards learning mathematics. Upon regular treatment for a couple of months, students began to show the sign of interaction by asking many more questions as well as sharing their problems with the teachers and participated in each and every activity in the virtual class. To the end 45.8% of students responded that the online class was effective and beneficial for them.

Keywords: Virtual Classroom, Classroom Interaction, Online Learning, Student's Reflection.

Introduction

During the Covid-19 pandemic, most educational institutions switched instruction to fully online. There were several problems to administer the online classes from teachers' perspectives, such as irregular power supply, lack of equipment, poor internet connection, if any, as well as the lack of proper teaching skills in an online environment. Students faced similar problems as well. Despite these problems, both teachers and students accepted and adapted to online teaching. One of the major challenge in virtual classrooms was the lack of interaction between teacher and students. Teacher delivered lessons but there were very few interactions from the students' side. The primary purpose of this study was to increase the students' interaction and find the effectiveness of online class from the students' perspectives.

Background

The role of teacher and student interaction in effective pedagogy cannot be underestimated. The student-teacher interaction plays a crucial role while dealing with various aspects of subject matter (Brown, 2014). There should be discussion, interaction, collaboration and participation among students in a democratic way. But most of the Nepalese classrooms are dominated by lecture methods, and students are expected to remain quiet and docile (Budhathoki,et al; 2016; Panthi & Belbase, 2017). Most of the educational institutions of Nepal have been shut down due to the pandemic situation of Covid-19 (Dawadi & Simkhada, 2020). The physical classes of various schools were also stopped and planned for the online classes using google meet, zoom, etc. and google classroom for learning management system.

This action research has been done in the secondary school of Nepal to solve the problems regarding interaction between teacher and students in the virtual classroom during the academic year 2078 BS (2021/2022 AD). Before Covid-19, students and teachers used to work together, communicate with each other and had a collegial relationship, traits

critical in effective mathematical pedagogy (Adhikari, 2021). But during the pandemic when we switched instruction to virtual modality, the level of interaction was found to be very low. Teachers and students both accepted the use of modern technology in the classroom (Momani,et al, 2017). Despite problems such as lack of electricity, devices, and internet connectivity, students were very much excited towards online classes in the beginning. However, as the schoolyear progressed, their responses and interaction with the teachers gradually diminished. The main objective of this action research is to improve the interaction between teachers and students in the virtual classroom. To fulfil the above objectives, the following research questions have been set;

i. Why do students interact less with the teachers in the virtual classroom?
ii. What strategies can be used to increase the interaction between teachers and students in the virtual classroom?
iii. What is the effectiveness of online instruction in mathematics?

Methodology

This action research methodology was used to improve the student's interaction in the virtual class room of the secondary school of Kaski District in the academic year 2078 BS (2021/2022 AD). 83 students were chosen from grade 9 who had been learning mathematics through online mode using Google Meet and Google Classroom as learning management system. The convenience sampling technique was used for the selection of sample as it makes easier to improve the student's interaction in the virtual classroom of targeted area. After the regular treatment of a couple of months, a survey was conducted to find the effectiveness of online instruction during Covid-19. Furthermore, problems, treatment, findings, conclusion and suggestions had done on the basis of regular observation of virtual classroom during the academic year.

Reflection of Virtual Classroom

With virtual modality, students neither responded to teachers nor got involved in the classroom interaction. Very few students ever asked questions. The teacher wanted to take feedback, give comments and take suggestions from the students but students were silent. At the beginning of the class, the teacher recalled the lesson and discussed about homework matters but very few students responded. Some students remained silent while others left the virtual classroom. A small text of classroom interaction is transcribed below.

Teacher: Hello students, have you done your homework?
Students: Yes sir, we have done (Very few students responded).
Teacher: Student A, have you done your homework?
Student A: Yes, sir I have done it.
Teacher: Can you show me using a camera?
Student A: Yes sir, have a look (Student turned on the camera).
Teacher: Thank you very much.
Teacher: Student B, can you show me your work?
Student B: Yes … But my camera is not working,
Teacher: It's all right but you have to post it in google classroom.
Teacher: Student C, can you show me your work?
Student C: Sir…… um…. um. I have not done it.
Teacher: Why?
Student C: ……..I forgot.
Teacher: Can you do it today and submit it tomorrow?
Student C: ..... (No response)
Teacher: Student D, have you done your work?
Student:..... (No response)

This conversation usually took anywhere between 5 and 7 minutes. After the initial check-in with the students about the assignments, the

conversation would move toward the content for the day as transcribed below.

Teacher: Dear students, in the last class, we talked about profit and loss, didn't we?
Students: .....(No response)
Teacher: Can you recall the formula to find profit and loss percent?
Students: .....(No response)
Teacher: Can anybody tell?
Students: .....(No response)
Teacher: Student A, can you try?
Student A: My mic is not working (responded in chat box)
Teacher: Student B, can you try?
Student: …No response (left the meeting)
Teacher: Ok, have a look at the PowerPoint presentation.

The teacher would then present the PowerPoint presentation to them. As the lesson went forward, the students did not speak at all. After each slide, the teacher would ask "shall I go ahead?", but the students did not respond.

Teacher: Does this concept make sense?
Students: ..... (No response)
Teacher: Any problem?
Students: .....(No response)
Teacher: Have you completed this solution?
Students: ..... (No response)

During the virtual class, teacher asked many questions like these, but the student's response was quite minimal. Most of the time, the teacher spoke to himself and finally asked for feedback but nobody responded. Lastly, homework was given using PowerPoint and posted in the google classroom.

Causes of the low Interaction

In the virtual classroom, the main causes for the low interaction between teachers and students were as follows:

i. Lessons were quite long and boring
ii. Few audio-visual materials were presented
iii. Majority of the lessons were delivered by demonstration and lecture methods
iv. Device problems
v. Internet problem and power-cut
vi. Lack of basic mathematical concepts
vii. Engagement of students in games and other social media activities
viii. Very little monitoring of virtual class by their parents

Treatments

Several strategies have been applied to solve the problem in two cycles, which are outlined as follows:

i. Lessons were made short, interactive and enjoyable.
ii. Audio-visual and quizzes were added in the lessons.
iii. Students were asked to prepare some lessons and present in the classroom
iv. Attendance was taken randomly either in the beginning or middle of the class or end of the class as opposed to only at the beginning of the lectures.
v. Students were asked questions by calling their names.
vi. Parents of students who did not respond were immediately informed by calling them over the cell phone.
vii. 20 marks was allocated as internal marks for classroom interaction, attendance and homework.
viii. Students were provided very basic conceptual knowledge of subject matter in the classroom.
ix. Students were provided additional support and counselling to students.
x. Regular feedback was provided to parents on how to manage power backup and better monitor their children during the virtual class.
xi. Virtual parents meeting was also organized to find the effectiveness of the class.

Findings

After the above treatment, some remarkable changes were observed in the

classroom. Students started to ask unknown questions, their problems, share their ideas and views as well as participated in every activity of the virtual classroom. Furthermore, they share their problems related to power cuts, internet problems as well as homework. After the treatment, a small text of the virtual classroom conversation is transcribed below.

Teacher: Dear students, in the last class, we talked about statistics, didn't we?

Students: Yes sir.

Teacher: Can you tell me the formula to find the mean?

Students: Summation fx is divided by n.

Teacher: You are right. What about your assignment?

Students: We did sir.

Teacher: Everyone?

Students: Yes sir.

Teacher: Student A! were you absent yesterday?

Student A: Yes sir. There was power-cut problem, So I could not join the class.

Teacher: Its Ok, and let's start today's class (presented the PowerPoint and the lesson was continued….).

The conversation between teacher and students in every class after the treatment went well. Students were actively participated in the interaction. But the students' responses towards online classes were less positive. The student's perception towards online class is presented below.

Table 1

The reason for decreasing interest of students in mathematics

Reason for decreasing interest to learn mathematics	Percent
Because of teacher	3.6
Because of online	53.0
Lack of basic concepts	39.8
Lack of proper guidance	3.6
Total	100.0

Table 1 presents the reasons for declining interest in learning mathematics. 3.6% of students responded that their interest towards learning mathematics decreased because of the mathematics teacher, followed by 53% responding because of online class. Similarly, 39.8% of students' interest decreased because of lack of basic concepts of mathematics. Interest of 3.6% of the students decreased because of lack of proper guidance.

Table 2

Duration of student's study time per day at home during Covid-19

Study hour per day	Percent
No study at all	7.2
Less than 1 hour	48.2
One to two hours	41.0
More than 2 hours	3.6
Total	100.0

Table 2 shows that the time allocated by the students to study mathematics at home during Covid-19. 7.2% of students did not study at home at all. 48.2% of the student studied mathematics less than 1 hour. 41% of students studied one to two hours a day and 3.6% of the students studied more than 2 hours. This shows that the majority of students studied mathematics for less than 1 hour.

Table 3

Effectiveness of online class in mathematics learning during Covid-19

Effectiveness of online class in Mathematics	Percent
Not at all	18.1
Little bit	42.2
Helped a lot	3.6
Decrease my knowledge	36.1
Total	100.0

Table 3 shows students' perception about the effectiveness of online class in learning mathematics. 18.1% of the students responded that online class did not help at all. 42.2% of

the students responded that online class helped to learn mathematics by a little bit. 3.6% of students responded that online classes helped a lot in mathematics while 36.1% of the students responded that the online class actually decreased their knowledge. This shows that the majority of students' response was that the online class helped to some extent to learn mathematics.

Conclusions and Suggestions

Remarkable changes have been seen in classroom participation, assignments, classroom interaction and other activities in the virtual classroom. Students started to ask unknown questions, their problems, share their ideas and views as well as participate in every activity. Furthermore, they shared their problems related to power cuts, internet problems as well as homework. The result showed that 53% of the students' interest in mathematics decreased by online mode so that 7.2% students did not study at home at all and 48.2% students studied mathematics less than one hour a day. Furthermore 36.1% of the student felt that their mathematical knowledge was decreased by online classes. 45.8% of students responded that the online class was effective and beneficial for them. Finally, the virtual class was helpful because there was no other alternative option to learn during Covid-19 but less effective compared to the physical class.

From the students' view of online teaching, it is necessary to make it fruitful and effective. The school administration should organize virtual meeting with parents and students to address their problems. The class teacher should follow, counsel and report to the parents of students who are absent in class and do not attend class regularly. The parents should manage devices, internet, and electricity backup facility to their children. The parents should guide and follow their students during the virtual class. Additionally, the school administration should organize parents and subject teachers' meeting virtually every month.

Acknowledgement: This research work was supported and funded by Research and Development (R&D) Cell, Gandaki Boarding School (National School) Lamachaur, Pokhara Nepal.

Author's Biography:

Khadak Raj Adhiakri *is Mathematics Teacher in Gandaki Boarding School, Pokhara, Kaski. Currently he is M.Phil. Scholar in Nepal Open University. He has published many papers in different reputed journals. He is interested in research in Mathematics Education.*

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