

# Implementation Of Query-Based Flipped Classes For Active And Adaptive Learning In Online

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## ABSTRACT

The main aim of this study is to demonstrate a regular and adaptive online by exploring important factors for online student success. To produce a higher quality of learning the Flipped Classes (FC) were implemented which are more effective to interact with the students. The paper proposes a Query-Based Flipped Classes (QFC), where a set of questions related to the content are pre-prepared. Here, set of students are divided and questions are circulated among the students during the on-going online session for every 15 minutes. This theory increases the learning skills of students making the student more responsible towards the teachers and their progress in studies. Also, the theory helps the teachers in checking the attentiveness and regularization of each student by evaluating their answers for the visualized queries at the end of the session. At end of the session students' feedback about the query-based learning is collected to study the involvement in the new type of learning. A result analysis of students' enhanced progress after the proposed theory implementation is noted and produced.

**Keywords:** Flipped Classes (FC), QOL (Quality of Learning), Challenges, Query-Based Learning (QFC).

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## I. INTRODUCTION

Due to the COVID-19 situation, the mode of instruction (online learning and teaching) has become more prevalent [1]. Online learning is no longer an option it has become mandatory option, and an increasing variety of online categories have incorporated flipped classes (FC) as a tool to boost the standard of learning and instruction [2]. Despite varied results relating to the effectiveness of flipped learning in teaching [3]. A survey on online teaching indicated that the majority of lecturers had tailored their ways in which of teaching, and currently, most of them organize and conduct their lectures online lively (video/audio) or pre-recorded medium [4].

### 1.1 Challenges in Online learning in Students' Perspective and Teachers Perspective:

- **Students' Perspective:** For students, a sudden shift to the online learning causes stress among the students. The students may miss the lively session and interaction, and communication levels will be decreased. Lack of concentration on studies will

stop their career behaviour and reduced their self-motivation and self-confidence level.

- **Teachers Perspective:** More than students, the online classes are more challenging for the teachers. Engaging and interacting among every individual student is not at all possible in online classes. Covering the entire academic syllabus has become tough for teachers in online classes. Monitoring the attentiveness and presence of students inonline classes is becoming more difficult.

The main aim of this paper is to overcome the challenges, and provide a solution in providing a regularized online class. The digital technology advancement resulted in increasingly varied formats of quizzes and game-based activities [5]. Several researches have insisted the benefits of online quizzes in online learning, and preliminary results recommended that if these quizzes are used by students to test their knowledge rather than learning the material, they can enhance exam performance.

The contributions of the paper are as follows:

- The paper aims on providing query-based flipped classes with an interactive active online session.

- Specifically, students' gender, grade-level, and attitudes towards the sessions were investigated as well as class-material downloads discussion postings, and query via PC or mobile are formatted details of the variables in this study are well-explained.
- In the proposed a set of questions are pre-prepared for engaging the students, conforming the attentiveness in class and providing an interactive session.
- Further, the session is monitored and performance progresses of students are analyzed and reported.

The main focus of the study and section are deliberated as follows. In section 1 the utilization of online classes and challenges are discussed. In section 2 the researcher's study and solutions are discussed. The method implementation is performed in section 3. The results are reproduced in section 4. The paper is concluded in section 5.

## II. LITERATURE SURVEY

Since finishing pre-class assignments and procedures for interactive in-class activities are vital in Flipped Classes (FC), a high level of SRL is important for students to succeed. M. G. Urtel et al., in [6] stated the effects of online classes and quizzing technique to engage the students. Researchers have produced many challenges and barriers related to online teaching

[7] corresponding to reduced motivation for active learning, limitations within the interaction between student and educator [8], and problems with software compatibility [9]. Conducted a case study implementing 2 ways use of in-person review sessions and online analysis tools [10].

## III. METHODOLOGY

### 3.1 Query-Based Flipped Classes (QFC) for Adaptive Online Learning

Generally, the flipped class (FC) contains more activities and interesting quizzes to engage the students to be attentive in the online lectures. The paper produced a Query-Based Flipped Classes (QFC) concept for active and adaptable online learning to engage students.

#### a) Pre-Preparations of Queries

Initially, before every online session the teachers are responsible to pre-prepare a set of questions related to the current lecture content.

#### b) Segregation and Query Visual Process

Here, 4 set of students are divided and 3 questions are randomly circulated among them during the on-going online session for every 15 minutes time interval. The students are queried from the presently taught content.

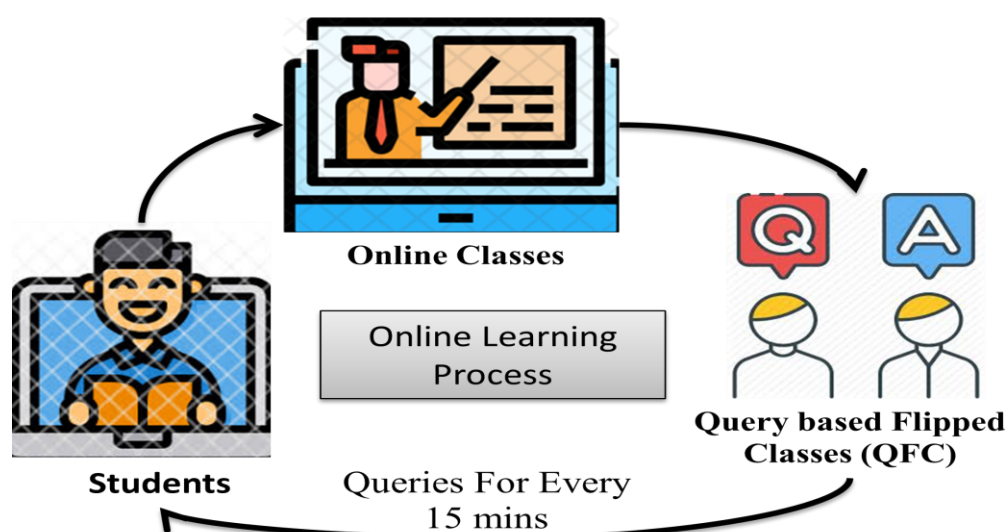


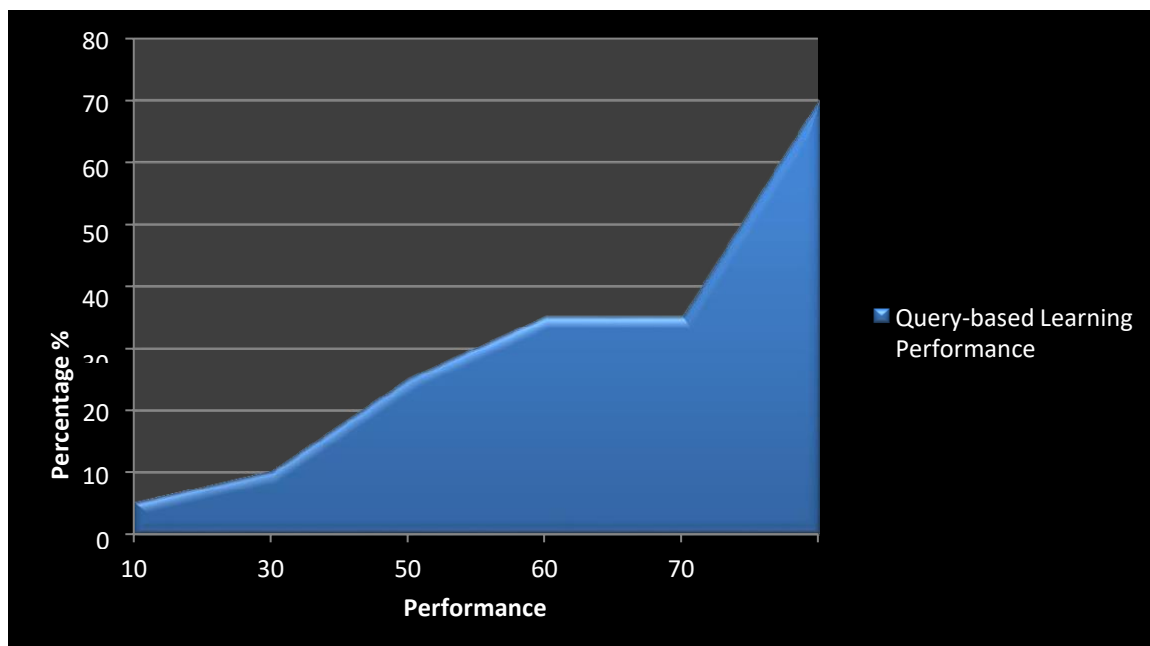
Figure 1: System Architecture

#### c) Prediction of Student activation

Through this, the student's active engagement throughout the class can be predicted. The devise of the platform is the presentation of the questions, and the transparency of technology to facilitate the user on achieving their goals in an optimal number of interactions with the online sessions. The proposed system creates an ability to interact easily learning skills.

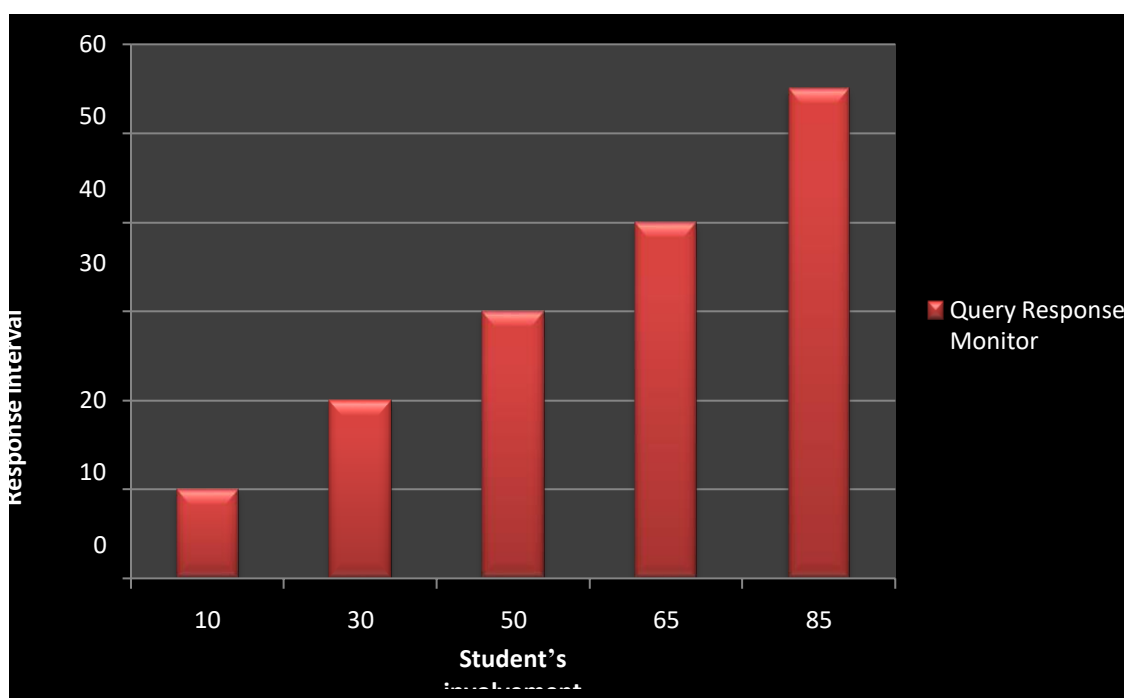
#### IV. RESULT ANALYSIS

The graph shows the progressive variation of online classes implementing the Query-Based Flipped Classes (QFC). The second graph deliberates the responses of different students to the queries and their involvements are noted.



**Graph 1: Performance of Query-Based FC Learning**

**Graph 2: Students Responses over the queries**



## **V. CONCLUSION**

The paper uses a Query-Based Flipped Classes (QFC) to create Interactivity among students and teachers. The implemented process facilitates knowledge acquisition, increased skills and gaining new experiences for students. The proposed method is proved to be more effective providing the speed and motivation among the students. The system definitely helps students to stay focused and provide better understanding in the online lectures.

In future the quick responses are rewarded with marks to motivate students learning career.

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