

The Problems and Countermeasures in the Implementation of "Flipped Classroom" in Colleges and Universities: From the Perspective of Education Master's Students

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Abstract: *With emergence of Covid - 19 flipped classroom became essential not only in reducing the number of students in the face to face sessions but also provided more learning time. Kenyatta University is one of the first Universities in Kenya to have a fully - fledged digital school (DSVOL), which offers a wide range of courses from diploma to post graduate courses. Majority of the potential students targeted by the school are the working class group who attend classes either as part - time or full - time. Although Kenyatta University has made many strides in implementing the flipped classroom approach, little has been done on research to ascertain learners' attitude and perceptions on flipped classroom approach on academic performance of postgraduate diploma in education students in Kenyatta University. The study deployed a mixed - research approach, where both qualitative and quantitative techniques were used to collect and analyze data. The target population was heads of departments and post - graduate diploma students at Kenyatta University. The study used a purposive, convenience sampling technique to get 30 post - graduate diploma students and five heads of department, totaling to 35. Primary data was collected using questionnaire. Open and close - ended questions were used to maximize results. Data collected from the participants were analysed using two methods; statistical and thematic content analysis. Based on the findings, the study concluded that learners have positive attitudes and perceptions towards the flipped approach. The study further concluded that flipped approach is fun, engaging, motivating, and encourages active learning. From the conclusion the study recommended that the departments that implement the flipped learning approach should ensure that there is room for peer interaction and collaborative working.*

Keywords: Perceptions, Academic Performance, Flipped Classroom Approach, Attitude

1. Introduction

Flipped learning approach is a form of blended learning where students are first exposed to new material then teachers create short videos or links that are related to the learning objectives. Teachers use the face time with their instructors to apply what they have been taught online (Bond, 2020). The concept is referred to as the "flipped approach" because the information that teachers used to give in traditional face - to - face classrooms is now recorded as homework and practice that was traditionally meant for homework only is now done in class (McWhiter & Shealy, 2020).

In China, studies have shown that the flipped approach is effective at the college level for advanced and low - level learners. According to researchers, the approach makes students more engaged, independent yet collaborative and enhances their learning capacities. Yuan & Moran (2018) conducted a study that revealed that Chinese students are motivated to spend time in the online space and learn. The flipped approach also provides opportunities for learners and instructors to communicate both inside and outside the classroom. Yuan & Moran (2014) revealed that students made learning progress that was evident in the level of interaction and cooperative language learning. However, the study suggested that students should be more engaged in communicative learning exercises, especially in English Oral tests. However, Chinese educators admit that they experience practical issues that need to be addressed.

In Japan studies reveal that flipped approach fosters a more active learning attitude. Japanese students are known for being overly passive in class and all they do is to absorb what the tutors are saying. The introduction of the flipped classroom aimed at making learning more personal and giving students time to prepare questions that they can ask during physical sessions. However, the Country's education culture remains to be a barrier to the success of the flipped teaching approach (Hirata & Hirata, 2020). It has not been easy to adapt this approach to Japan's situation and teachers have to re - evaluate the content, classes and maybe find a better way to utilize the flipped approach.

The flipped classroom approach is still new in African Countries; however, Rwanda has made efforts to move away from traditional classroom - based learning to a more ICT - enhanced trajectory. The Country used the Analysis, Design, Development, Implementation and Evaluation (ADDIE model) Scott, Dunshime, Rusanganwa, Woskie, Attebery, and Binagwaho. (2019). During the first stages of implementation, the stakeholders noticed that learners' digital skills were limited and the ICT infrastructure was also limited. Efforts were made to address these limitations and the best trajectories were offered on blended learning. Today, Rwanda has undergone a far - reaching ICT transformation that has facilitated flipped learning.

Uganda has recorded notable success in the implementation of flipped learning approach. A study conducted by Bhagat (2020), shows that Ugandan students are more attracted to the flipped approach than the traditional learning approach.

The flipped approach is implemented to supplement traditional learning rather than substituting it. However, study done by Guma, Buruga, & Taban (2019), reveals that students are resistant to education change and are likely to be unprepared for flipped activities. The main drawback across studies is that learners may not comprehend video materials and spend more time on them.

In Kenya flipped classroom is growing and empirical studies across the globe show that the approach has a potential for motivating and engaging students. Researchers have shown that the approach is more effective if learners are encouraged to work collaboratively and use interactive learning tools. Much support of the flipped approach is associated with the benefits of a collaborative learning design which is supported by the approach.

1.2 Statement of the Problem

With emergence of Covid - 19, flipped classroom became essential not only in reducing the number of students in the face to face sessions but also provided more learning time. Kenyatta University is one of the first Universities in Kenya to have a fully - fledged digital school (DSVOL) which offers a wide range of courses from diploma to post graduate courses. Majority of the potential students targeted by the school are the working class group who attend classes either as part - time or full - time. The University developed a learning management system known as Kusoma platform, which enables students to access e - learning materials as well as performing other academic actions such as doing assignments, participate in discussions, chats and answer quizzes. Furthermore, it allows students watch videos as well as interact with fellow students and lecturers. With flipped learning, the students learn by themselves through the Learning Management System {LMS} while classroom face to face lectures are used for discussions, applications and reviews. Although Kenyatta University has made a lot of strides in implementing the flipped classroom approach, little has been done on research to ascertain learners' attitude and perceptions on flipped classroom approach on academic performance of postgraduate diploma in education, a fact that necessitated the research on current study.

2. Literature Review

2.1 Theoretical framework

The study was anchored on self - determination theory. The self - determination theory is a theoretical framework for motivation, which was developed by Ryan and Deci in 2012. According to this theory, there are extrinsic motivation (based on external reward) and intrinsic motivation (inherent interest in the task) for completing a task (Chiu, 2021). One of the needs is competence, which means learners must know that they are building true mastery of the concepts that are important to them. Another factor is autonomy, as learners want an environment where they are in control of their behaviors and the mastery of the concept is within themselves, and not dependent on another person (Shah S. S, Shah A. A, Memon, Kemal, (2021). Lastly, learners need relatedness, a sense of connectedness, and belonging with what they learn and the environment in which they learn.

When the three needs are met, learners find enhanced levels of intrinsic motivation. Therefore, a learning environment must meet these three needs to build intrinsic motivation among learners, which would lead to increased performance. The flipped learning approach gives learners the autonomy, connectedness, and room for competence that motivate them significantly. The flipped learning approach's ability to create students and lecturer's self - satisfaction play a significant role towards boosting learners' performance (Sergis, Sampson, Pelliccione, 2018). By using self - reported questionnaires, the study established learners and lecturer's level of internal satisfaction, which translates to the ability of the model to increase mastery of content and boost performance.

2.2 Learners' attitude and perceptions on flipped classroom approach on academic performance

Flipped classroom technology is an innovation aimed at maximizing learners' participation; improve their attitude, motivation, communication and critical thinking skills. Farrah & Qawasmeh (2018) investigated the attitude of English students towards flipped classroom in the academic year 2017/2018. They used questionnaires and interviews in their study. A total of 150 pre - service teachers responded to questionnaires and 10 responded to the interviews. From their findings, they noted that flipped classroom promoted learner autonomy and self - efficacy. Moreover, learners considered flipped classroom to be more engaging, motivating and exciting. Their study differed from the current study in that it was on pre - service teachers while the current study is on Post Graduate Diploma in Education Students. Also, Aljaraideh (2019), used questionnaires to study the perceptions of 495 students from four Private Universities in Jordan on flipped classroom. The study concluded that the students' perceptions of flipped classroom in the Jordanian Private Universities were high and recommended the usage of flipped learning technique in the Universities; this study covered only Private Universities while the current study is on Public University. Moreover, Nouri (2016) administered questionnaires to 240 students to measure their perceptions on flipped classroom in general. The results revealed that the positive attitude of students towards the flipped classroom was strongly correlated to perceptions of increased motivation, effective learning and engagement. The use of a video as a learning tool in the flipped classroom increased the attitude of low achievers. Even though the studies gave some light to the current study, the different is that they were carried outside Kenya therefore; some of the findings may not be applicable in Kenyan's situation.

Although the flipped learning is not a new concept, it is still not widely practiced in most parts of Africa. In South Africa, Cilliers & Pylman (2020) used questionnaires to get the views of 130 students on perceptions of the flipped classroom. The findings showed that the students had positive attitude and enjoyed the flipped classroom learning. Their study was not specific on which students were being researched on unlike the current study, which is specific on Post - Graduate Diploma in Education. However, students acknowledged that they worked harder and needed more assistance that is technical. A study conducted by Onojah,

Olumorin, Adegbiya, & Babalola (2019) in South West Nigeria revealed that undergraduate students perceived flipped classroom to be useful and easy to use. Their study was on undergraduate students while the current study is on Post - Graduate Diploma in Education. Furthermore, Makinde. (2020), carried out a quasi - experimental design on 275 senior secondary school students in Lagos, Nigeria with 147 experimental and 128 as control. The aim of the study was to examine the impact of flipped classroom on the learning outcome of Mathematics. From the research, it was noted that flipped classroom encouraged good performance in Mathematics and was recommended since the approach was student centered; his study differs from the current study in that his study was on secondary school while the current study is on University. From research done by Adedola (2016) in Nigeria on 273 pre - service teachers by use of questionnaires and focus group discussions showed that pre - service teachers had positive attitude towards the flipped classroom. The study noted that they faced challenges such as poor internet connection, power supply, and incompatibility of mobile phones and size of the video lessons among others. Adedola's study differs from the current study in that it was on pre - service teachers while the current study is on Post Graduate Diploma in Education.

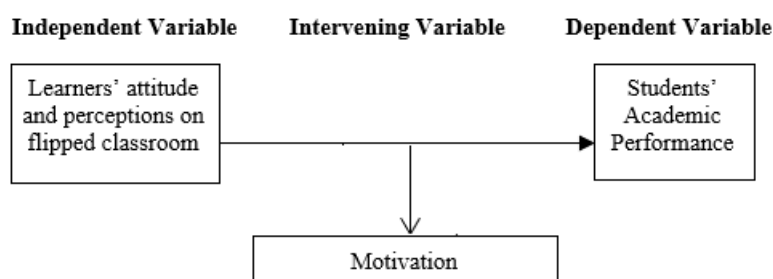
In Kenya, most institutions of higher learning still lack requisite ICT infrastructure and skills to run e - learning programs. Majority of the materials uploaded online by the lecturers were basically lecture notes and not interactive content. Otieno & Osoro (2014) carried out a study in one Private University in Kenya and found that learners embraced flipped learning since it saved them time of going to campus as well as balance studies and work. Their study differs from the current study in that it was carried in Private

University while the current one is on Kenyatta University, which is a public University. The learners were of the view that flipped learning required them to put more efforts and research for more additional content on their own hence needed a lot of discipline.

Flipped learning approach is fun, engaging, and effective based on students' experiences captured by above studies. Above literature also revealed challenges faced by learning institutions and students, especially in terms of ICT resources and skills. The literature forms a strong foundation for current research, establishing learners' experiences that translate to better performance. However, the studies focused on learners in two subjects only; English and Mathematics. The sample may not be a true reflection of the whole population, and there is a need to consider learners pursuing other courses/subjects too (Makokha & Mutisya 2016).

The studies also fail to identify which specific techniques the participants have experienced. In existing literature, the participants share their experiences, but do not make clear the specific tools they used. It becomes challenging to qualify the specific strategies or platforms that are engaging and interactive, since we cannot assume that all of them have fun/engaging/interactive features. The current study addresses the gaps by developing questionnaires that allowed participants to identify specific flipped learning platforms/techniques that they find to be fun and engaging. Addressing this gap would help lecturers focus on more effective flipped learning techniques to maximize learning outcomes.

2.3 Conceptual framework



3. Research Methodology

3.1. Introduction

This chapter presents the research methodology, which was employed to conduct the study. It focuses on the research design and target population. It also includes sampling procedures and sample size, pilot study, instrumentation, ethical considerations, data collection and analysis procedures.

3.2. Research Design

Research design refers to the method used to carry out a research (Kothari, 2004). The study deployed a mixed - research approach, where both qualitative and quantitative techniques were used to collect and analyze data. The integration of qualitative and quantitative data in a single

study reflected participants' viewpoints and ensured the study was grounded on participants' experiences.

3.3. Population

Target population refers to all the members of a hypothetical or real group of subjects, objects or individuals to whom a researcher desires to generalize the conclusions of the study (Kothari, 2012). The target population was heads of departments and post - graduate diploma students at Kenyatta University. After identifying prospective study participants, the researcher approached them physically and requested them to take part in the interview. During the physical invitation, the researcher took their email addresses to send the consent form and the questionnaires.

3.4. Sampling Techniques

The study used a purposive, convenience sampling technique to get participants. In this technique, the participants are selected based on their availability and willingness to participate in the research, as well as the researcher's judgement on their ability to give reliable and valid responses (Lines, Burdick, Dewez, Aldridge, Neal - Williams, Walker, & Taylor, 2021). The strategy is termed as purposive, convenience sampling because the participants are selected purposively, but also based on convenience. Purposive sampling is subjective and judgmental because the researcher relies on own exclusive and inclusive criteria. For student participants, one must be a post - graduate student at Kenyatta University. Secondly, the students must have experienced flipped learning approach to be able to explain their experiences. For Heads of Department, one must have at least interacted with Kusoma Learning Management System or been a member of the committee responsible for the implementation of flipped learning at Kenyatta University. The technique is also convenience based, because the participants must be willing and available to take part on the study. At the end of the sampling, the sample consisted of 30 post - graduate diploma students and five heads of department, totaling to 35. The choice of the sample size is based on the inferential goals of the researcher, and there is a high level of confidence that the number is an actual representation of the targeted population, and has the ability to give reliable findings, which will influence practice.

3.5. Data Collection Instruments

Primary data was collected using questionnaires. The questionnaires were written and printed and spaces for answers were provided. At the top of the questionnaires, the purpose of the research was indicated in plain English and in a precise form. There was also a note on the deadline and the researcher offered assurances on anonymity and confidentiality. Open and close - ended questions were used to maximize results. For closed - ended questions, participants were required to give a rating based on a scale provided. For open - ended questions, participants were required to provide answers in open text format to enable them share their experiences fully. There were two questionnaires which were slightly different from each other. Lecturers were required to answer questions relating to their professional development, their attitudes and experiences and how the flipped approach influenced learners' knowledge base and performance. For students, they responded to questions pertaining to their experiences with Kusoma Learning Management System, their attitudes and perception, and how the flipped learning approach affected their performance and knowledge base. The questionnaires were structured in sections, each addressing a single research objective.

3.6. Procedure for Data collection

The study involved sending the invitation to participate in research via email as well as reaching out to them physically. The email invitation was accompanied by an informed consent form that clearly articulated the purpose of

the research and terms of engagement. Those who responded positively received the questionnaires. Respondents were requested to give answers to an identical list of questions that were delivered to them via email. The questions were mixed up from different topics of the study to prevent biasness and ensure the questionnaires attract valuable data that addressed the research problem.

3.7. Data Analysis

The data collected from the participants were analysed using two methods; statistical and thematic content analysis. The statistical analysis was used for closed - ended questions where participants were required to give ratings. A value was attached to each rate, and a t - test used to test the hypotheses. A thematic content analysis was used to analyze responses to open questions where participants were required to provide their experiences. The analysis was done by categorizing data into the four main themes in the research. After organizing data, themes and patterns were generated through critical thinking and creativity (Neuendorf, 2018). When categories emerged, the patterns were uncovered to help answer the research questions.

4. Results and Discussions

4.1. Introduction

This section entails analyzing, summarizing and presenting the information collected. The chapter has detailed presentations and discussions of the findings and results of the study that sought to attain the research objectives

4.2 Responses

The researcher issued out 34 questionnaires, one was considered invalid due to non - response and irrelevant answers. Therefore, 33 responses were used for analysis. The chapter presents the information from the respondents, such as the attitude and perceptions, knowledge base, level of experience and academic experiences about the study variables. A quantitative analysis technique through summary statistics, t - test and correlational analysis were used to analyze the study's data sets.

4.3 Analysis

This study used correlation and t - test techniques for data analysis. The results in Table 1 below present the relationship between attitude and perception and academic performances.

Table 1: Correlational Analysis of academic performance and attitude and perception

		Attitude and perception	Academic Performance
Attitude and perception	Pearson Correlation	1	-.223
	Sig. (2 - tailed)		.212
	N	33	33
Academic Performance	Pearson Correlation	-.223	1
	Sig. (2 - tailed)	.212	
	N	33	33

Source: Research Data 2022

The results show a weak negative correlation between the attitude and perception and academic performances, $r = -0.223$; indicating that the R square will be $R^2 = 0.05$; therefore, 5% of the variations in the academic performances are determined by the attitudes and perception. The

conclusion was reached that there is an insignificant relationship between attitude and perception and academic performances at 5%. The researcher conducted one - sample t - tests for knowledge base and learners' experiences.

Table 2: t - Test

One - Sample Test						
	Test Value = 0					
	T	Df	Sig. (2 - tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Knowledge base	35.672	32	.000	4.727	4.46	5.00
Learners Experience	33.101	32	.000	3.909	3.67	4.15

Source: Research Data 2022

The results show that there is a significant mean difference in the knowledge base between the sample and population, $t(32) = 35.67$. Using the significance level at 0.05, the p - value was reported as $p < 0.001$. Also, the results show that there was a significant mean difference of the learner's experiences between the sample and population, $t(32) = 33.10$, $p < 0.001$.

From the thematic analysis students who used the flipped approach revealed that the approach enhances the mastery of the concept. When asked about mastery of concept, most of the participants mentioned that learners who used the flipped approach mastered the concept more than those who used the traditional approach. In terms of preference majority of the respondents stated that they don't flipped learning approach over traditional classroom. The advantages of the flipped approach that make it more preferred than the traditional approach include independence in learning, less time in introducing topics, reusing the content and allowing learners to learn at their own pace. Clearly, the convenience associated with the flipped approach is what makes it better than the traditional classroom. Moreover, the results showed that Learners

have positive experiences with the Kusoma learning system. On a scale of 1 to 5, the majority of the students rated the performance at 4 (good experience). When tasked to explain their ratings, the common themes that emerged in the responses include getting the chance to learn at their own pace and active engagement with the learning materials.

5. Conclusion

Based on the findings the study concluded that learners have positive attitudes and perceptions towards the flipped approach. The study further concluded that flipped approach is fun, engaging, motivating, and encourages active learning. When compared to the traditional learning approach, students preferred the flipped learning approach because of the conveniences associated with the latter. They stated that the approach is effective compared to the traditional face - to - face classroom. It is also clear that the approach has limitations that need to be worked on to enhance its effectiveness. The common challenges that come out in this study are; lack of peer interaction and collaboration, lack of timely feedback, and technical challenges.

6. Recommendations

From the conclusion, the study recommended that departments that implement the flipped learning approach should ensure that there is room for peer interaction and collaborative working. In Kusoma platform, it is also important to integrate collaborative tools that ensure learners can work in groups and hold discussions on topics that may be challenging for an individual. The benefit of integrating such tools and approaches is to enhance mastery of contents and boost academic performance.

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