Journal of Advance Research in Science and Social Science (JARSSC)
Publisher: Indian Mental Health & Research Centre

ISSN: 2582-2004
Volume 07, Issue 01

DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

An Insight into Student Life with the Flipped Learning Model

Mr. Angad Pratap Singh

U.G. student, Amity University

Email: angad.pratap.singh@gmail.com

Abstract

Education is one of the most influential factors in an individual's life, taking place at a crossroad of development across all domains. As such, innovations like the 'flipped learning/classroom model(FL)' that improve upon the current scenario harbour significant impact on the life of a student across academics, socio-cognitive, psychological, and other domains. As students learn the material and read up on topics outside the classroom in their own time, the teacher engages them with discussions and activities to expand and reinforce their knowledge. This paper assesses the impact of FL across various domains of the student life and understand the potential benefits, with comments upon ways to further improve the model through an extensive review of literature published in recent years on various aspects like academics, stress levels, anxiety, value perception etc. It was observed that FL reduced negative factors like stress and anxiety levels among others, while improving positive factors like academic achievement, value perception etc. across all ages. Further long-term implications of these benefits in an individual are discussed, as we see the impact of reducing stress and anxiety levels can lead them towards better functioning in all domains of life, with increased knowledge retainment and academic achievement resulting in a decrease in number of school dropout rates, better coping with the academic load and also an increase in the number of well-versed professionals for different fields among other benefits. Along with this, various helpful additions to this model are discussed, involving the use of technological advancements like AI, VR, Audiobooks among others.

Keywords: *Flipped learning/classroom model(FL), Stress, Anxiety, Value Perception, Academics*

Introduction

Learning in an individual's life occurs at one of the most important points in their life. Their formal education begins from the time they are around 3-5 years old and mostly continues well into their

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC)
Publisher: Indian Mental Health & Research Centre

ISSN: 2582-2004
Volume 07, Issue 01

DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

20s. This is also the period when a person goes through major developmental changes and milestones, which have been famously studied and labelled as early, middle and late childhood, adolescence and young adulthood. During these stages, the majority of an individual's social, emotional, psychological and physical development take place. As such, the education imparted to an individual during this time significantly impacts various aspects of their life. More specifically, the way an individual is imparted the knowledge, the way a teacher makes them understand and retain it significantly affects their academic life. The influence of the learning carried out in the classroom and home settings also influences other aspects of their life. Some of the commonly studied ones throughout time have been stress levels, anxiety and its manifestation in different forms, depression, school dropout rates, value perception of students and self-efficacy levels among others. The traditional classroom teaching method was developed many years ago for the average student. Keeping in mind the psychological understanding of people and individual differences, it was designed in a way that it benefits the most number of students, thus catering to the average student. As such, it should still work effectively, considering that the maximum number of students do still perform according to the norm. However, it fails to consider the growth in people through time. The average of today's time is higher than it used to be in the older times. Additionally, people have a deeper psychological understanding of issues, common issues like stress, anxiety etc. are much more prevalent, and people are also more attuned to the plight of others. Various reports and researches by governments and independent researchers show an upward trend in student performances. In comparison to 1971, the average reading score in 2020 was 12 points higher for the average 9-year old student, with average mathematics scores for the 9-year olds being 22 points higher in 2020 than 1973(The Nation's Report Card, n.d.). It has also been observed that over the year 2017, 74% of the people have reported feeling so stressed that they were unable to cope. The increase in stress levels over generations can also be seen as 30% of people aged 55 and older reported "never" feeling stressed in the year 2017, compared to only 7% of young adults(18-24 years) reporting the same(Mental Health Foundation, 2018).

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC) **ISSN:** 2582-2004
Publisher: Indian Mental Health & Research Centre Volume 07, Issue 01
DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

Since the situations surrounding the system have changed, the method itself should too. Innovations and advancements across the field of education are essential in helping make sure that the system benefits the maximum number of students, accommodating to the changing needs of the classroom and the society. Over the past few years, various such advancements have been implemented in varying sizes to classrooms all around the world, aimed towards the betterment of the learning process and making it more interactive and engaging. Some of the examples of such advancements are:

1. Audiobooks- The use of audiobooks to consume content at a faster rate has taken over a large part of the population. With companies like Audible introducing audio versions of books, audiobooks allow people to consume such content at any time, removing the need for physical copies of a book to achieve the same. This can prove to be a beneficial implementation in classes as audiobooks can allow students to consume the content in a non-conventional method with relative ease, especially for students with any difficulties like dyslexia, visual impairments etc.
2. Augmented Reality(AR)- AR is a highly useful addition to the field of education, allowing students of science and geography to learn and interact with content and images in a meaningful way, making the learning more immersive and engaging.
3. Virtual Reality(VR)- The recent changes in curriculums across all educational institutions have paved the way to ensure that the knowledge being provided to students can also be applied in real life. VR can help further that cause by helping the students immerse themselves in an interactive world where they can experience the lessons taught to them in real life too.

Another such recent advancement in classrooms has been the implementation of the flipped learning/classroom model(FL). The traditional teaching method uptil now has consisted of the teacher imparting knowledge and lessons in the class and then providing homework for students to complete in their own time to reinforce the concepts. This, like anything, has its drawbacks. Since the homework is often given to be completed outside the classroom, any doubts a student

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC)
Publisher: Indian Mental Health & Research Centre
ISSN: 2582-2004
Volume 07, Issue 01
DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

may have cannot be resolved by the teacher instantly. Additionally, since it is often based on the concepts the teacher has taught previously in a solidified manner, it can hinder critical thinking skills, not allowing the students to think for themselves, also discouraging group discussions on the same. Since almost no homes are equipped with places for students to try out experiments and test concepts, hindering the practical learning further. FL, however, quite literally, flips the traditional method on its head. It presents a learning model where the students are encouraged to read up on the study material and the concepts in their own time outside the classroom. This ensures that the students come to class with a pre-learned knowledge of the topics. Consequently, the classroom becomes a place for active and interactive learning. The teacher then takes on the role of a guide, as they help the students explore different aspects of the concepts by engaging them with in-depth discussions and activities. The classrooms can thus become a place where all learned concepts are applied practically and thus reinforced, with the addition of quizzes and small tests. Helping students engage in such discussions with their peers can foster important communication and teamwork skills in the classroom, thus helping them establish basic skills for later in life.

FL has the added advantage of reinforcing concepts, which can help increase knowledge retention and confidence in their ability to understand the topics, thus also helping reduce anxiety and stress levels. Such activities can be carried out with the help of AI, VR and other advancements. Being a recent development, FL is still under investigation and its impacts are being researched. The main question that FL poses is whether it can really help improve various factors across the student life, which may lead to a betterment in the quality of life for students. Some of the common issues that can plague a student's life if learning is not conducive enough are increased stress, anxiety levels, school dropout rates, and decreased academic achievement levels, leading students to perceive themselves as incapable of learning, thus hindering their self-concepts. There have been multiple researches into the effects of FL and replacing traditional teaching methods with the same, however they are quite scattered across various domains. This paper aims to summarise the impact of FL across various such domains of a student's life ranging from

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC) **ISSN:** 2582-2004
Publisher: Indian Mental Health & Research Centre Volume 07, Issue 01
DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

academics to the personal factors of the individual and provide a comprehensive review of the model's impacts, thus assessing its overall impact on the student life. For the same, an extensive review of literature spanning the past few years will be conducted to gather data following which, a comprehensive conclusion will be formed. Also, long-term implications of these benefits to an individual's life will be discussed along with ways to improve the model by including various techniques.

Review of Literature

Flipped classroom has been a new trend being implemented across educational settings. The testing of the effectiveness of this model was done by Atwe et. al.(2022) on the critical thinking, psychological stress and academic achievement of Grade 9 students. The study was taken up across 4 subjects: Science, Math, IT and English with responses gathered from 16 teachers and 385 students divided into control(traditional methods) and experimental(FL) group. With a pretest and posttest design, a quasi-experimental study was carried out. With the implementation of an open questionnaire for teachers and six research tools for students twice, before and after flipped learning, the researchers found that there were statistically significant differences in posttest levels of critical thinking skills(Control- 11.3; Experiment-28.9), math achievement(Control- 39.9; Experiment-73.7) and psychological stress(Control-2.51; Experiment-2.33), with the students who learned through FL showing higher levels of critical thinking and math achievement and lower levels of psychological stress.

The achievement levels of flipped classrooms in reducing assessment stress and increasing course success was studied in a quasi-experimental study with a pretest and posttest model by Aydin et. al.(2022). For the same, 44 undergraduate pre-service teachers, divided into an experimental and control group were assessed for a 11-week period using the Assignment Stress Scale and a multiple choice test developed by the researchers based on the course material along with semi-structured interviews. The results of the study were calculated using ANCOVA and showed that assignment stress was decreased in the experimental group as compared to the control group($p<0.01$), with an

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC) **ISSN:** 2582-2004
Publisher: Indian Mental Health & Research Centre Volume 07, Issue 01
DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

increased course success seen alongside($p<0.01$). Additionally, the reports of the students who experiences flip learning were fairly positive.

Sánchez et. al.(2020) conducted a study to assess the effect of the flipped classroom model on performance of students studying gastrointestinal and renal physiology, as both entrants and repeaters. Physiology is considered a difficult subject, with high rates of academic failure accompanied with higher stress and anxiety levels. To test the same, the researchers took 75 students, divided into 2 groups of traditional(46 students) and flipped classroom model(29 students) that were administered the SISCO scale for stress, Zung scale for anxiety and cortisol level testing for biological stress. The results showed better results in the entrants who were administered the flip model. A qualitative analysis revealed that while the flipped classroom model was favourable, the traditional method should be maintained for specific topics.

Learning performance, self-efficacy beliefs, intrinsic motivation and perceived flexibility are important precursors for determining academic achievement and much more in a student's life. Taking this into consideration, Thai et. al.(2017) conducted a study examining the impact of studying in different settings, like flipped classroom(FC), blended learning(BL), traditional learning(TL) and E-learning(EL) on the factors mentioned above. A sample of 90 students was taken with equal numbers of participants being placed in the four settings. The researchers determined that the student performance was superior in FC compared to other modes. In a similar fashion, both self-efficacy and intrinsic motivation were also higher in the FC method, with perceived flexibility being the only factor that did not exhibit a significant change.

Academic stress and achievement motivation play an increasingly large role in the lives of college students. As specialisation increases, the stress levels faced by students also increases. Therefore, it is important to counter stress and increase motivation and find ways to do so. One of the possible ways this can be achieved is through a flipped classroom method. This was tested by Ashraf(2022) by conducting a study to compare the effect of flipped classroom model and traditional teaching methods on academic stress and achievement motivation. The study was done on 30 students in the second semester, divided into an experimental and control group of 15

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC) **ISSN:** 2582-2004
Publisher: Indian Mental Health & Research Centre Volume 07, Issue 01
DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

students each. With the responses recorded from the Bhargava Progress Motivation Questionnaire and Gadzella Academic Stress Questionnaire, flipped classrooms played a significant role in improving motivation for achievement and reducing academic stress in the students.

Expanding the research to test the effectiveness of flipped classroom in Chinese students learning English as a foreign language(EFL), Zhao et. al.(2022) conducted a study for the same. The researchers took 50 Chinese EFL learners, divided into a control and experimental group and conducted pretest and posttest performances to learn the effectiveness of flipped classroom model in writing performance and anxiety. The study's results revealed that the flipped model significantly enhanced the students' writing performance, while reducing their writing anxiety significantly.

Houston(2020) conducted a study to discover how the flipped classroom model impacts middle school students' maths anxiety, self-efficacy and motivation. To conduct this study, 14 eighth graders were chosen, categorised as experiencing low, average, or high maths anxiety levels, self-efficacy and motivation. With the help of focus groups and individual interviews, it was seen that the flipped classroom model increased the self-efficacy of the students and their motivation levels, especially where a positive teacher-student relationship was identified. This also helped in providing the students with a sense of comfort, having already been familiar with the concepts before the class. This can be attributed to several reasons, as students were reported as having a better understanding, having already seen the kind of problems they would encounter.

Flipped learning has often been seen to increase engagement, seeing which, Polat et. al.(2022) conducted a study assessing the association between flipped learning readiness, engagement, social anxiety and achievement in online flipped classrooms. A sample of 200 freshman university students was taken from 2 Turkish universities from whom, data was collected using the Online Student Engagement Scale, the Online Learners' Interactions and Social Anxiety Scale, the FLR scale and achievement tests. The results of the researchers' study showed a positive correlation between flipped learninng and engagement, with a negative correlation between both, social anxiety and flipped learning, and social anxiety and engagement. Thus, these factors are related

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC) **ISSN:** 2582-2004
Publisher: Indian Mental Health & Research Centre Volume 07, Issue 01
DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

significantly, with flipped learning increasing engagement rates, which improves achievement levels, even holding true in an online scenario.

Flipped learning can be customised in many ways to further increase its benefits. This was tested by Eryilmaz et. al.(2018) by differentiating between the effect of cooperative learning integrated with flipped learning(FL) and sole FL implementation. The factors observed were student performances, social and computer anxiety in undergraduate students divided into a control(sole FL) and experimental(cooperative FL) group. Through a 10 week implementation, it was found that there was less social anxiety in the cooperative FL group, possibly owing to increased communication and collaboration with their peers. The performance and computer anxiety levels, however, did not differ between the two groups, showing that both models of FL were equally effective for the two factors concerned.

A study by Sirakaha et. al.(2018) took 64 students divided into an experimental and control group to test the effect of a flipped classroom model on academic achievement, self-directed learning readiness, motivation and retention. The results showed increased academic achievement in students who experienced the flipped classroom model. It also emphasised the importance of receiving immediate feedback due to interaction with the teacher as one of the motivators of such a result.

Self-directed learning is an important factor in increasing academic achievement in students. If the student can manage, assess and pursue their own learning activities, it can result in significantly decreased stress levels and higher academic achievement. This should be the eventual goal of flipped classroom learning. Whether the model achieves the same or not was put to test by Rutkowski and Moscinska(2013) as they surveyed 205 students studying Electric Circuit Theory before and after the implementation of flipped learning. Reviews by the students showed that their responses for usefulness of podcasts shifted from ‘not sure’ previously to ‘agree’ afterwards. The researchers emphasise the improvement in self-directed learning to be strictly important for the success of the flipped learning model.

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC) **ISSN:** 2582-2004
Publisher: Indian Mental Health & Research Centre Volume 07, Issue 01

DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

Building relationships with others around them is important for students, as it allows them to open their viewpoints to those of others, allows for a greater understanding of the people around them, and helps them build important communication and collaboration skills that can help them in future. A positive relationship between relationship formation and the flipped classroom model was seen by McCollum et. al.(2017). The researchers observed that a positive flipped learning model was highly dependent on peer-peer relationships, which seemed to improve significantly through the testing. Students were stated as saying it was easier for them to make friends, where the traditional classroom model had them wait for others to interact to form bonds.

As we discussed above, the traditional teaching method was suited best for the average student. However, not all students are same. Owing to individual differences, many students are on different ends of spectrums, which may exhibit themselves in the form of personality characteristics. One of these personality characteristics is shyness. Shy students are unable to perform well in traditional settings as trying to ask doubts from the teacher makes them feel as if they are being judged, hindering their learning process. The model of flipped classroom, should, in theory, provide a better place for shy students to learn. This hypothesis was proved in the results of a study conducted by Zainuddin and Attaran(2016). The researchers showed that shy students exprssed satisfaction with flipped classrom as it allowed such students to learn by repeating the video several times, having the power to regulate the pace of learning themselves. Such a setting also provided a forum-like space for shy students to engage in class activity while feeling space. It can help them ask questions without the whole group having to hear them(Seaton, King, & Sandinson, 2014).

A similar study as others was conducted in delivering an IT unit as Murray, Koziniec and McGill(2015) tested the efficiency of flipped classroom method in students' viewpoints with the help of a survey. Students were found to have positive reviews about the approach, especially in terms of the convenience and flexibility of the flipped videos. Despite a reduction in face-to-face teaching time, the students felt an increased sense of interaction with their peers and teachers. It also highlighted the essential point of flipped learning, which is providing more tutorial/application

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC) **ISSN:** 2582-2004
Publisher: Indian Mental Health & Research Centre Volume 07, Issue 01
DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

time for the concept. The students' responses suggested that they learnt the most during the interactive tutorial time, especially since they knew the concepts beforehand.

Though the studies concerning the positive results from the flipped classroom method are huge, there are still a number ot studies which show that the model did not result in any significant academic achievement. This might be due to an ineffective form of flipped classrooms, which simply moves the same formal lecture out of the classroom to a video(Guzik, 2019).

A study by Cabi(2018) investigated the impact of the flipped classroom model on students' achievement by dividing them into a control and experimental group. A sample of 59 pre-service teachers, who were taking a Computer I course was taken, the results of which showed no statistically significant difference between the mean scores of students in the posttest results for control and experimental group. There were still, some positive takeaways from the research. A qualitative analysis showed that the students expressed satisfaction in the fact that they did not have to do assignments outside the classroom, and that the topic learned outside could be consolidated in the class. One student was also recorded saying that doing assignments in group was more enjoyable than doing the same individually.

Another similar study was done by Sookoo-Singh and Boisselle(2018) which tested 27 14-15 year old students and the impact of flipped classroom model on their motivation and academic achievement. The results of the study conducted over a period of 4 weeks showed that while academic achievement was not significantly impacted, most students had a positive perception of the model, with student motivation showing a significant positive impact.

Though the flipped classroom model is already more likely than not a more effective method compared to the traditional model, it can no doubt be further bettered by integration of other advancements. Technological developments like AI, VR and Audiobooks can be used to further the results of flipped learning model. Such were the conditions tested by Lo and Hew(2023), who studied the impact of integrating AI-based chatbots into flipped learning after conducting an extensive literature review. The results of their review suggested that this integration could result in improved student interaction with the content, improved class preparation and a more data-

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC) **ISSN:** 2582-2004
Publisher: Indian Mental Health & Research Centre Volume 07, Issue 01

DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

driven teaching and learning. This proved to be extremely useful as chatbots can provide students with immediate feedback, which is especially helpful when a student sets learning goals(Gonda and Chu, 2019). Integrating chatbots even lead to increased confidence levels in an English-speaking course(Timpe-Laughlin et. al., 2022). It is important to note, however, that this does not come without limitations. The major ones include a limited technical functionality, a lack of authenticity, and insufficient student motivation.

Another use of AI is to deliver personalised content. Often, the content used in traditional method is standardised. Any information provided is delivered in a single way, which may not cater to the needs of every student. The content may be less explained than needed for the needs of a particular student. Alternatively, it could be over-explained, leading to a loss of motivation. Using an AI-enabled personalised recommendation could help resolve this issue. Huang, Lu & Yang(2023) used AI-enabled personalised video recommendations to test student learning motivation and engagement. A sample of 102 college students was divided into an experimental and control group and while both received content through the flipped learning model, only those in the experimental group received the personalised video recommendations. Indeed, the results revealed that the learning performance and engagement of students in the experimental group were significantly increased because of the personalised videos.

Another similar technology that can be used in combination with flipped learning is VR. Jiao, Qian and Zhu(2020) examined the impact of basing the flipped classroom model on VR technology for administering physical education and health care lessons. The results showed that student satisfaction rose from 4.19 to 4.6486. It was thus ibserved that the VR technology is able to realise the fair distribution of teaching resources and the distribution of personalised teaching resources, thus helping increase the comprehensive ability of students significantly.

Xiao-Dong and Hong-Hui(2020) researched the use of VR supported flipped classroom learning in English teaching in 62 students. It was seen that the VR could establish a 3D learning situation, presenting the user with an immersive experience which could stimulate their cognitive experiences in an entirely new fashion. The results of the study showed that this combination had

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC)
Publisher: Indian Mental Health & Research Centre
ISSN: 2582-2004
Volume 07, Issue 01
DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

significance in advancing the information delivery to improve cultural accomplishments overall, while also meeting the requirements of national, social and personal developments.

Audiobooks are a highly effective way of helping people learn information in a simplified manner. For struggling adults with lower comprehension and for visually impaired people, audiobooks can help make learning easier and simplified. As such, they are a great example of advancements that can be incorporated into education to improve learning. This was tested by Wagar(2016) who researched 27 adult students working on their GED certificate. Divided into a control and experimental group, the latter used an audiobook and text version for analysing Brothers Grimm Fairytale, while the former was only provided with the text version. The findings concluded that audiobooks could help learners increase their reading comprehension and enjoyment of reading.

Dutta et. al.(2023) researched the use of an AR-based learning system in a flipped learning model to measure the impact on critical thinking, learning motivation and knowledge of engineering students. In an experimental study with 128 undergraduate engineering students, the AR was seen to have a significant positive impact on the critical thinking skills and motivation levels in the experimental group. It was seen that both these factors translated into a significant positive correlation with the knowledge gain of students.

Discussion

The traditional method has long been the standard for delivering information to young minds and training them. Teachers have often stood in front of a classroom full of students and delivered the lectures, introducing new concepts to them, and giving them homework to be completed outside the classroom to reinforce them. However, it is understandable that the time spent completing the homework is when students have the most doubts and other queries. This, however, is not feasible as there is no one for the student to solve their queries and give immediate feedback, thus discouraging critical thinking. A good feedback is one that is combined with instructions to the point where it takes on the shape of a new instruction, rather than just commenting upon the correctness of the work done by the student(Kulhavy, 1977, p. 212). Since feedback cannot have

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC)
Publisher: Indian Mental Health & Research Centre
ISSN: 2582-2004
Volume 07, Issue 01
DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

an effect in vacuum, it will have little effect on performance if the student is unfamiliar with the material(Kulhavy, 1977, p. 220). In addition, a practical application of a concept can reinforce any material faster and stronger than a theoretical revision of the same(Shana & Abulibdeh, 2020). Homes of students are rarely equipped with materials capable of delivering practical reinforcement of the concepts. While the schools are equipped with such materials, the valuable time in schools is spent delivering lectures instead of working on practical reinforcement.

If the concepts are not clear, the student will inevitably spend more time stresing and rushing to learn the concepts themselves. This can also lead to increased anxiety levels as the student might not be sure of their knowledge retention and may thus fear writing about the same in exams. Additionally, since the traditional teaching method is standardised and the lectures delivered are made catering to the average population, inability to understand can lead to lower academic self-concept, which can lead to disengagement and lack of motivation in students who may deviate to other ends of the spectrum of understanding. All of this can result in lower levels of academic achievement and readiness to learn(Schnitzler, Holzberger & Seidel, 2020). The final goal of education should be to foster a sense of self-directed learning in students, to ensure they can manage their time and resources accordingly, to set an example for all their future endeavours.

All these are issues that can be resolved by introducing the flipped learning/classroom model(FL). The FL makes full use of all the resources available to a student, and the time at which they are available. It encourages students to learn about the concepts outside the classroom in their own time with video lectures, podcasts etc. Since students can rewind and replay the lessons any number of times, it gives them a sense of power over the way they learn and manage their academics. The concepts learnt are then discussed in the classroom by the teacher with practical lessons, group discussions, and other activities. Since the school is a perfect environment for fostering practical application of the concepts, such activities are performed in the class time. This helps ensure that the students understand the concepts and can retain them. Indeed, this is also seen in the researches conducted on the benefits of FL. Compared to traditional methods, FL helps increase levels of critical thinking, self-efficacy, motivation and indirectly and directly increases

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC) **ISSN:** 2582-2004
Publisher: Indian Mental Health & Research Centre Volume 07, Issue 01
DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

levels of academic achievement and course success. Additionally, FL can also result in the development of a positive relationship between peers and between the student and the teacher, while also reducing levels of physiological, psychological and academic stress along with social, written, performance and academic anxiety.

But what do all these results mean for the student life? While these are all individually important variables to help increase academic achievement, we must look at the overall picture. The purpose of education is not just to help students achieve academically, but help them self-actualise and become strong individuals capable of self-growth. This is achieved by inculcating in them values like self-efficacy and intrinsic motivation along with skills like collaboration and communication that can be used by them in the real world. And the values a student can develop with the help of FL are useful in just that.

One of the benefits of FL is increased levels of self-efficacy. When carried forward to adulthood, this plays a major role in determining many incidents, especially health. Multi-morbid primary care patients that display lower self-efficacy levels also have lower quality of life(Peters et. al., 2019). Increased self-efficacy levels combined with problem-oriented coping and internal locus of control also lead to improved mental health(Bavojdan, Towhidi & Rahmati, 2011). It also leads to increased work output because of increased training effectiveness in individuals(Goulart, Weymer & Moreira, 2022).

Increased levels of intrinsic motivation result in increased employee performance in a significant impact(Manzoor, Wei & Asif, 2021), the former being a result of the FL model being administered in classroom settings. Higher levels of intrinsic motivation also help individuals maintain their performance over time, as such individuals seem willing to invest more effort (Herlambang et. al., 2021).

Another factor positively impacted by FL is critical thinking. Critical thinking is an important requirement for individuals to be able to carry out jobs as it ensures that a person has intact decision making skills, can reason and find rationale when confronted with complex problems.

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC) **ISSN:** 2582-2004
Publisher: Indian Mental Health & Research Centre Volume 07, Issue 01

DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

In fact, critical thinking also plays a crucial role in mental health. Deficiencies in critical thinking are associated with mental problems in individuals(Liu et. al., 2021).

By getting students to engage in collaborative activities inside classroom settings, FL also reduces anxiety among students. While low levels of worry and anxiety about social interactions are common, especially in adolescence, it is important to note that if not addressed, it may lead to more serious forms of social anxiety. This can also result in poor education outcomes, lower levels of job performance, decreased relationships with others and a decreased quality of life.

It is thus important to understand that when analysing the potential benefits of FL against traditional classroom methods, it is important to look at the broader picture and see how the positive effects of such a model may impact an individual in the long-run. Only then can we get a true picture of the effect of flipped learning on student life.

Like any other model, this model of learning is not perfect. It certainly has aspects which can be improved to better the outcomes gained from it. The involvement of certain advancements in the model can help give more positive outcomes and give solutions to the problems this model might encounter. One of the problems as discussed this model is also susceptible to, is standardisation of the content being delivered. While most content made is set according to the pace of average students, this can lead to disengagement for students on the other ends of the spectrum, thus again leading to poor performance. This can be resolved with the use of AI to deliver personalised video-recommendations for students. This can be done by using AI to analyse test scores of students, identify problem areas in concepts covered and thus, provide material pertaining to each student's specific problem area. This allows for a more inclusive learning model where all students can feel included.

Another common issue that is encountered in schooling systems is disability. Often, a student with lower comprehension levels or visual impairment may be troubled due to lack of proper resources. This is where audiobooks can come in handy. It has been seen that audiobooks can increase comprehension levels along with engagement in reading. This can help ensure that even such students feel included.

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC)
Publisher: Indian Mental Health & Research Centre
ISSN: 2582-2004
Volume 07, Issue 01
DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

An innovative way to provide practical application of problems and concepts is through the use of virtual technology(VR). The use of VR to provide an immersive learning experience for the individual can help deliver practical explanations for the most difficult of concepts. This can help increase the educational information being delivered too.

This too, however, is not without its limitations. Like any other technological advancement, AI, VR and Audiobooks among others also face a lot of issues. Most third world countries do not have sufficient resources in educational institutions to buy such expensive equipment and get it installed. Additionally, the implementation of such technology on a larger scale is extremely slow.

It is highly important to carry out researches that prove whether the inclusion of these models on a large scale is beneficial or not. Furthermore, more problem areas and gaps need to be identified in the implementation of these advancements so they can be resolved. At present, the body of literature involving flipped classrooms is quite scattered. Most of these researches take small sample sizes, which may fail to represent the population. Additionally, only a handful of these researches discuss the future implication of values instilled by FL in the development of an individual. Even rarer is the body of literature that deals with inclusion of such technologies into flipped classrooms. Most of these studies are smaller, limited to a highly specific geographical region. Thus, continued efforts need to be made to gather data on the gaps for proper implementation of the flipped classroom model.

Conclusion

The flipped classroom/learning model is considered an improvement on the traditional teaching model. Making use of the school's abundant resources fit for practical applications, FL encourages students to review the concepts before the class in their free time, while the teacher expands and reinforces their knowledge on it in class further with the help of group discussions, activities, and pop quizzes among others. This is a highly effective way, as seen, since it helps provide immediate feedback(Sirakaha et. al., 2018) to the student about their responses and thus drives self-directed learning(Rutkowski & Moscinska, 2013).

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC)
Publisher: Indian Mental Health & Research Centre

ISSN: 2582-2004
Volume 07, Issue 01

DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

In other aspects of student life, anxiety, stress, self-efficacy and academic achievement are major factors shaping the person for the future. As seen above, flipped learning has been shown to reduce stress in students(Atwe et. al., 2022; Aydin et. al., 2022; Sánchez et. al., 2020; Ashraf, 2022), and decrease levels of different types of anxiety, like social anxiety, written anxiety etc.(Sánchez et. al., 2020; Zhao et. al., 2022; Houston, 2020; Polat et. al., 2022; Eryilmaz et. al., 2018). Additionally, using FL can also be used to increase levels of critical thinking(Atwe et. al., 2022), self-efficacy(Thai et. al., 2017; Houston, 2020), motivation(Thai et. al., 2017; Ashraf, 2022; Houston, 2020; Sirakaha et. al., 2018; Sookoo-Singh & Boisselle, 2018) and indirectly and directly increases levels of academic achievement and course success(Atwe et. al., 2022; Aydin et. al., 2022; Thai et. al., 2017; Polat et. al., 2022; Eryilmaz et. al., 2018; Sirakaha et. al., 2018; Sookoo-Singh and Boisselle, 2020).

Additionally, FL can also result in the development of a positive relationship between peers and between the student and the teacher(Houston, 2020; McCollum et. al., 2017).

The overall reception of FL has also been seen as positive by students, even if the researches examined did not yield any significant improvement scores. Among other remarks, some of the most common ones include feeling a sense of comfort as they are familiar with the concept beforehand(Houston, 2020), the podcasts used agreed for as being useful(Rutkowski & Moscinska, 2013), being better for shy students as it allows them to learn by repeating the video several times(Zainuddin & Attaran, 2016), being able to learn the maximum during interactive tutorial time(Murray, Koziniec & McGill, 2015) and having fun doing assignments collaboratively(Cabi, 2018).

While the model of FL is already an improvement over the traditional teaching method, it is in no way perfect. There can be a lot of additions that can be done to it to further improve the model. One of the similar problems as the traditional method that the FL is also susceptible to is the problem of standardisation. While the idea of videos to explain the concepts allows students to repeat them as much as they'd like, the content is still only explained in a generalised way. A further addition to the model can be the use of other technologies like AI, VR, AR and Audiobooks.

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC)
Publisher: Indian Mental Health & Research Centre

ISSN: 2582-2004
Volume 07, Issue 01

DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

Integrating AI-based chatbots can help significantly improve the benefits of the flipped learning model(Lo & Hew, 2023). Such chatbots can help provide immediate feedback to the students and help them achieve goals(Gonda & Chu, 2019) and even lead to increased confidence levels(Timpe-Laughlin et. al., 2022). AI can further be used to deliver personalised content, ie. videos that explain concepts in ways unique to the needs of each student. Such an intervention combined with FL can significantly increase performance and engagement(Huang, Lu & Yang, 2023).

VR can also be used for the purpose of practical applications in classrooms in the case of FL as it can provide the user with an immersive experience of the content they study, thus advancing the way information is delivered and personalised resources are used(Jiao, Qian & Zhu, 2020; Xiao-Dong & Hong-Hui, 2020).

In addition, audiobooks are a great way to deliver information, especially in the case of individuals with lower comprehension and, visual impairments. The use of audiobooks can help learners increase their reading comprehension and enjoyment of reading(Wagar, 2016).

References

Ashraf, H. (2023). Comparison of the Effect of Flipped Classroom Teaching and Traditional Teaching Methods on Students' Achievement Motivation and Academic Stress in English Language Course. *Educational and Scholastic studies*, *11*(4), 388-367. https://pma.cfu.ac.ir/article_2720.html?lang=en

Atwe, Z., Sulayeh, Y., Abdelhadi, A., Jazar, H. A., & Erigat, S. (2022). Flipped Classroom Effects on Grade 9 Students' Critical Thinking Skills, Psychological Stress, and Academic Achievement. *International Journal of Instruction*, 15, 737-750. https://doi.org/10.29333/iji.2022.15240a

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC) **ISSN:** 2582-2004
Publisher: Indian Mental Health & Research Centre Volume 07, Issue 01

DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

Aydin, B., Demirer, V. Are flipped classrooms less stressful and more successful? An experimental study on college students. *Int J Educ Technol High Educ* 19, 55 (2022). https://doi.org/10.1186/s41239-022-00360-8

Cabi, E. (2018). The impact of the flipped classroom model on students' academic achievement. *International Review of Research in Open and Distributed Learning*, 19(3). https://doi.org/10.19173/irrodl.v19i3.3482

Dutta, R., Mantri, A., Singh, G. *et al.* (2023). Measuring the Impact of Augmented Reality in Flipped Learning Mode on Critical Thinking, Learning Motivation, and Knowledge of Engineering Students. *J Sci Educ Technol* (2023). https://doi.org/10.1007/s10956-023-10051-2

Eryilmaz, M., & Cigdemoglu, C. (2019). Individual flipped learning and cooperative flipped learning: their effects on students' performance, social, and computer anxiety. *Interactive Learning Environments*, 27(4), 432-442. https://doi.org/10.1080/10494820.2018.1522652

Gonda, D. E., & Chu, B. (2019). *Chatbot as a learning resource? Creating conversational bots as a supplement for teaching assistant training course* [Conference Paper]. *2019 IEEE International Conference on Engineering, Technology and Education (TALE)*, Yogyakarta, Indonesia. https://doi.org/10.1109/TALE48000.2019.9225974

Goulart, E. L., Weymer, A. S. Q., & Moreira, V. R. (2022). The Influence of Self-Efficacy on Training Effectiveness in Cooperative Organisations. Revista de Administração da UFSM, 15(2), 331-353. https://doi.org/10.5902/1983465967213

Herlambang, M. B., Cnossen, F., & Taatgen, N. A. (2021). The effects of intrinsic motivation on mental fatigue. *PloS one*, *16*(1), e0243754. https://doi.org/10.1371/journal.pone.0243754

Houston, K. (2020). *The Flipped Classroom's Impact on Math Anxiety, Self-efficacy, and Motivation at the Middle School Level.* [Unpublished Doctoral Dissertation]. Cabrini University

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC)
Publisher: Indian Mental Health & Research Centre

ISSN: 2582-2004
Volume 07, Issue 01

DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

Huang, A. Y. Q., Lu, O. H. T., & Yang, S. J. H. (2023). Effects of artificial Intelligence–Enabled personalized recommendations on learners' learning engagement, motivation, and outcomes in a flipped classroom. *Computers & Education*, 194. https://doi.org/10.1016/j.compedu.2022.104684

Jiao, C., Qian, K., & Zhu, D. (2020). Application of Flipped Lassroom Teaching Method Based on VR Technology in Physical Education and Health Care Teaching. *IEEE Access*. https://doi.org/10.1109/ACCESS.2020.3019317

Kulhavy, R. W. (1977). Feedback in written instruction. *Review of Educational Research*, 47(1), 211-232

Liu, Z., Li, S., Shang, S., & Ren, X. (2021). How Do Critical Thinking Ability and Critical Thinking Disposition Relate to the Mental Health of University Students?. *Frontiers in psychology*, *12*, 704229. https://doi.org/10.3389/fpsyg.2021.704229

Lo, C. K., & Hew, K. F. (2023). A review of integrating AI-based chatbots into flipped learning: new possibilities and challenges. *Frontiers in Education*, 8. https://doi.org/10.3389/feduc.2023.1175715

Manzoor, F., Wei, L., & Asif, M. (2021). Intrinsic Rewards and Employee's Performance With the Mediating Mechanism of Employee's Motivation. *Frontiers in Psychology*, 12. https://doi.org/10.3389/fpsyg.2021.563070

McCollum B. M., Fleming C. L., Plotnikoff K. M., & Skagen D. N. (2017). Relationships in the flipped classroom. The Canadian Journal for the Scholarship of Teaching and Learning, 8(3). Retrieved from http://ir.lib.uwo.ca/cjsotl_rcacea/vol8/iss3/8

Murray, D., Koziniec, T., & McGill, T. (2015). *Student perceptions of flipped learning* [Conference Paper]. 17th Australasian Computing Education Conference (ACE) 2015, Sydney,

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC)
Publisher: Indian Mental Health & Research Centre

ISSN: 2582-2004
Volume 07, Issue 01

DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

Australia. https://researchportal.murdoch.edu.au/esploro/outputs/conferencePaper/Student-perceptions-of-flipped-learning/991005540723707891/filesAndLinks?skipUsageReporting=true&skipUsageReporting=true&recordUsage=false&recordUsage=false&institution=61MUN_INST&index=0

NAEP Long-Term Assessment Results: Reading and Mathematics. (n.d.). The Nation's Report Card. https://www.nationsreportcard.gov/ltt/about/ltt-mathematics/?age=9#1973-mathematics-result

Peters, M., Potter, C.M., Kelly, L. *et al.* Self-efficacy and health-related quality of life: a cross-sectional study of primary care patients with multi-morbidity. *Health Qual Life Outcomes* 17, 37 (2019). https://doi.org/10.1186/s12955-019-1103-3

Polat, E., Hopcan, S. & Arslantaş, T.K. The Association between Flipped Learning Readiness, Engagement, Social anxiety, and Achievement in Online Flipped Classrooms: a Structural Equational Modeling. *Educ Inf Technol* 27, 11781–11806 (2022). https://doi.org/10.1007/s10639-022-11083-8

Sánchez, J. C., López-Zapata, D. F., Pinzón, Ó. A., García, A. M., Morales, M. D., & Trujillo, S. E. (2020). Effect of flipped classroom methodology on the student performance of gastrointestinal and renal physiology entrants and repeaters. *BMC medical education*, *20*(1), 401. https://doi.org/10.1186/s12909-020-02329-5

Schnitzler, K., Holzberger, D. & Seidel, T. All better than being disengaged: Student engagement patterns and their relations to academic self-concept and achievement. *Eur J Psychol Educ* 36, 627–652 (2021). https://doi.org/10.1007/s10212-020-00500-6

Seaton K. A., King D. M., & Sandison C. E. (2014). Flipping the maths tutorial: a tale of n departments. Australian Mathematical Society Gazette, 41, 99-113. https://www.austms.org.au/wp-content/uploads/Gazette/2014/May14/Seaton.pdf

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024

Journal of Advance Research in Science and Social Science (JARSSC)
Publisher: Indian Mental Health & Research Centre

ISSN: 2582-2004
Volume 07, Issue 01

DOI: 10.46523/jarssc.07.01.06
Multidisciplinary, Open Access
Impact Factor: 3.612

SIRAKAYA, D. A., & ÖZDEMİR, S. (2018). The Effect of a Flipped Classroom Model on Academic Achievement, Self-Directed Learning Readiness, Motivation And Retention. *Malaysian Online Journal of Educational Technology,* 6(1), 76-91. https://eric.ed.gov/?id=EJ1165484

Sookoo-Singh, N., Boisselle, L. N. (2018). How does the "flipped classroom model" impact on student motivation and academic achievement in a chemistry classroom? *Science Education International*, 29(4), 201-212. https://eric.ed.gov/?id=EJ1205443

Sshana, Z.J., & Abulibdeh, E.S. (2020). Science practical work and its impact on students' science achievement. Journal of Technology and Science Education, 10(2), 199-215.

https://doi.org/10.3926/jotse.888

Thai, N. T. T., Wever, B. D., & Valcke,. (2017). The Impact of a flipped classroom design on learning performance in higher education: Looking for the best "blend" of lectures and guiding questions with feedback. *Computers & Education*, 107, 113-126. https://doi.org/10.1016/j.compedu.2017.01.003

Timpe-Laughlin, V., Sydorenko, T., and Daurio, P. (2022). Using spoken dialogue technology for L2 speaking practice: What do teachers think? . *Assist. Lang. Learn.* 35, 1194–1217. https://doi.org/10.1080/09588221.2020.1774904

Wagar, C. (2016). *The Impact of Audiobooks on Reading Comprehension and Enjoyment* [Thesis for Masters of Education]. West Governors University. https://doi.org/10.13140/RG.2.1.1382.0409

Xiao-Dong, L., & Hong-Hui, C. (2020). Research on VR-Supported Flipped Classroom Based on Blended Learning- A Case Study in "Learning English through News". *International Journal of Information and Education Technology*, 10(2), 104-109. https://doi.org/10.18178/ijiet.2020.10.2.1347

Received: 13.02.2024 **Accepted:** 17.03.2024 **Published**: 21.04.2024