

## The Effects of Flipped Classroom as a Blended Learning Paradigm on Students' Soft Skills, Engagement Level, and Academic Achievement: An Experimental Design

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### Abstract

**Background:** Recently, several higher education institutions have been utilizing technology to provide a form of blended learning in which some of the educational processes are conducted face-to-face and the remainder is conducted via the internet. This strategy serves as the foundation for the "flipped classroom" strategy. **Aim:** This study aimed to evaluate the effects of the flipped classroom as a blended learning paradigm on students' soft skills, engagement levels, and academic achievement. **Material and methods:** An experimental research design (the posttest-only) was used. 844 fourth-year nursing students were recruited using a purposive sample in the Faculty of Nursing, Mansoura University, Egypt. **Data collection tools:** Including the students' soft skills questionnaire, learning engagement scale, and academic achievement. **Results:** The study results pointed out that the experimental group employing the flipped paradigm had higher mean scores for engagement, soft skills, and academic achievement ( $165.95 \pm 14.59$ ,  $144.81 \pm 13.75$ , and  $218.82 \pm 27.59$  respectively) compared to the control group. Additionally, ( $\eta^2$ ) values for engagement, soft skills, and academic achievement are (0.04, 0.05, and 0.09), demonstrating a negligible impact of the deployment of the flipped paradigm. **Conclusion:** The mean scores of the experimental and control groups do not differ significantly. **Recommendations:** In the first academic year, training programs could be implemented in the flipped classroom to demonstrate its far-reaching effects. More research is needed to investigate interpersonal skills and determine whether other soft skills are as important as the attributes discovered in this study.

**Keywords:** *Academic achievement, Engagement, Flipped paradigm & Soft skills.*

### Introduction

The COVID-19 pandemic has sparked digital developments in higher education and forced universities to close in-person classes. Because of the ongoing crisis, there is an urgent need to revitalize virtual learning opportunities. UNESCO suggested using distance learning and open-access platforms to reduce disruption to the learning process. As a result, during the COVID-19 pandemic, online learning methods were introduced as appropriate educational strategies (Khodaei et al., 2022).

In this regard, to ensure a high quality of education, teachers and academics adjust their teaching pedagogies to fit this type of learning. Blended learning and flipped classrooms (FC) are two critical pedagogical approaches that rely on both online and face-to-face learning processes (Rahmani & Zitouni, 2022). The flipped classroom model is a well-established learning approach that has resulted in a paradigm shift by combining technology and traditional teaching methods. The "flipped classroom" model means that the traditional lecture method is

flipped so that learners receive the initial learning material at home and class time is used for cooperative learning (Saira et al., 2021; Bernard & Uk, 2015).

In the flipped classroom model, content is delivered outside the classroom via online, video-recorded lectures, and what is traditionally done outside the classroom is now done in class (Pavanelli, 2018). Thus, the classroom group learning space is transformed into a dynamic, interactive learning environment in which the instructor creatively and interactively guides his or her students to a deeper level of application of core concepts and subjects (Busebaia & John 2020).

Hard skills or technical abilities that nurses gain during their nursing education or while they are nursing students must be complemented by soft skills. Soft skills are generic skills that are "transferable to a wide range of tasks," according to Thompson & Rayner (2020). While "soft skills" are often used to refer to people's skills, life skills, interpersonal skills, and transferrable skills, according to

Vasanthakumari (2019), they can also refer to personal qualities that enhance nurse interactions, job performance, and career possibilities. According to Mary et al. (2019), soft skills are a comprehensive range of abilities, knowledge, attitudes, and character traits that help nurses successfully navigate life, comprehend their surroundings, get along with others, perform well, and reach their objectives. Adaptability, communication, teamwork, problem-solving, discipline, and meticulousness were among the soft skills possessed by nurses (Hussein & Elsaïad, 2021). For a nursing student to interact successfully and efficiently and to succeed in school and the profession, soft skills are essential (Gopalan, 2019; Hariti & Rejeki, 2020). Consequently, it is expected that nursing programs will turn out qualified graduates.

The flipped classroom paradigm is created pedagogically by utilizing educational tools to extend class activity time. Students can use technology to enhance their learning, create engaging conversation topics, and learn about diverse teaching strategies through a variety of learning activities. One of the main advantages of the flipped classroom approach is increased student participation (McCallum et al., 2015). Students gain from the model since it makes sure they are prepared for the lesson, makes the class enjoyable and fruitful, offers teacher direction and teamwork, and motivates students by fostering competition in the classroom. In addition, the technology used in flipped classrooms encourages individual learning, which helps students succeed. Due to these benefits, it is anticipated that applying this model will boost students' involvement in the classroom (Ayçiçek & Yanpar Yelken, 2018).

The active involvement of students in learning activities is referred to as "classroom engagement" (Avidi & Paynter, 2019). Affective, cognitive, agentic, and behavioral engagements are used to gauge students' levels of participation in the classroom (Subramanian & Muniandy, 2019). Affective involvement in the classroom includes sensations like curiosity, excitement, and amusement. The use of strategies, attention, meaningful processing, and metacognition are all examples of cognitive engagement processes. Observable behaviors, including inquiry, collaboration, and finishing tasks on time, are examples of behavioral engagement (Subramanian & Muniandy, 2019).

Students' participation is required for the FC to be implemented successfully and for students to have an enriching learning experience (Fang et al., 2022). Classroom engagement is viewed as a sign of student achievement because it is one of the key components in creating a positive learning environment (Merlin-Knoblich et al., 2019). According to Aljaraideh

(2019), another advantage of the flipped classroom is improved student achievement. Several studies have found that students who attend flipped classrooms perform better on tests (Chun and Heo, 2018; El-Banna et al., 2017; Pellas, 2018).

Academic achievement is a graphical representation of performance outcomes that demonstrates how far a student has progressed towards specific learning objectives and demonstrated competence in extracurricular activities (Ali et al., 2013). Bloom's (1956) taxonomy is one of the most well-known and widely used taxonomies for determining the quality of learning outcomes (Munzenmaier & Rubin, 2013). This taxonomy defines the major domains of lower-order (knowledge, comprehension, and application) and higher-order (analysis, synthesis, and evaluation) thinking skills (Alamri, 2019). Bloom's taxonomy-based questions were used in the current study to assess students' academic achievement levels. Students' academic performance was evaluated through written and practical exams.

Nursing science is directly related to the response of clients who require nursing services to improve the quality of their health. Nursing students who will work in the community should be able to integrate both hard and soft skills (Sabale & Chowdary 2019). Online classes set the stage for students to succeed as professionals in the future. They can learn to efficiently surf the internet, collaborate with their classmates, and distribute work in a team to achieve a common goal. They can learn assertive oral and written communication skills, solve problems creatively, present their projects and research for class, manage their time effectively, and many other things through online interactions. Virtual education primarily employs a variety of materials to assist students in completing challenges, forming their own opinions, and making decisions based on real-life scenarios (Rogers, 2020).

### Significance of the study

Undergraduate nursing content such as pharmacology, medical-surgical nursing, anatomy and physiology, patient safety, and community health have all benefited from the flipped classroom model (Barbour and Schuessler, 2019; Kim et al., 2019). According to Aljaraideh (2019), students in Jordanian universities had positive views of flipped classrooms and advocated for the use of flipped learning techniques. Its effectiveness in developing students' curriculum understanding and motivating them to become active rather than passive participants in the classroom was attributed to them.

Thus, according to Hannaoui et al. (2021), improving health professional training through innovative teaching strategies would aid in the

professionalization of future nurses, with the flipped classroom being one of the active educational approaches that are effective in improving nursing students' outcomes through transforming higher education and enhancing high-order thinking skills among students in institutions of higher learning. As a result, the current study attempted to compare the efficacy of flipped classes versus traditional classes in terms of engagement and academic achievement in community health nursing students.

#### **The study's aim**

Evaluate the effects of the flipped classroom as a blended learning paradigm on students' soft skills, engagement level, and academic achievement.

#### **Research hypothesis**

**H1:** Using the flipped learning paradigm has a significant impact on the experimental group's soft skills.

**H2:** Using the flipped learning paradigm has a significant impact on the experimental group's engagement level.

**H3:** Using the flipped learning paradigm has a significant impact on the experimental group's academic achievement levels.

## **Subjects and Methods**

### **Study design**

In this study, a true experimental research design (the posttest-only) was used. Subjects were chosen at random and assigned to one of two groups (control or experimental), with only the experimental group receiving treatment. Both groups are post-tested after close observation, and a conclusion is drawn based on the differences between these groups. The two groups consisted of the control group, which was composed of nursing students enrolled in community health nursing courses taught using traditional educational strategies. While the experimental group was taught via a flipped classroom model, the dependent variables in both groups were the students' soft skills, engagement levels, and academic achievement levels, while the independent variables were the flipped classroom strategy and traditional teaching approaches.

### **Study setting**

The research was carried out at the Mansoura University Faculty of Nursing, which was originally established in 1992 and is affiliated with the Ministry of Higher Education. It followed traditional educational methods.

### **Sample**

This study included 844 fourth-year nursing students enrolled in a community health nursing course during the first semester of the academic year 2021–2022. There were two groups formed from the participants. To create the experimental group, which received

instruction utilizing the flipped classroom model, 422 students were chosen at random. The control group, which received instruction via conventional teaching strategies such as lectures, included 422 students. Students were chosen for both groups using a simple random sampling method.

### **A data collection tool**

Data was gathered using a self-administered, structured questionnaire after the treatment that consisted of three main sections:

#### **First section: Students' Soft Skills Questionnaire**

This questionnaire was developed by the researchers in the English language after reviewing pertinent literature by **Mohamed et al. (2019)**, **Ginting (2016)**, **Ramadan (2016)**, **Seetha, (2013)**, **Vincent, (2013)**, and **Shakir, (2009)**. The questionnaire was divided into two parts: personal characteristics, including age and gender; and 53 items divided into eight domains: 1) communication skills (6 items); time management skills (6 items); leadership skills (6 items); teamwork skills (6 items); planning skills (6 items); self-competence in education skills (9 items); decision-making and problem-solving skills (6 items); and creativity skills (8 items). It aimed to measure the soft skills of university students.

#### **Scoring system**

Each item was graded on a five-point scale ranging from strongly disagreeing (1 point) to strongly agreeing (5 points). The item scores were added up, and the total was divided by the number of items, yielding a mean score. These scores were converted into a percent score, and the means and standard deviations were computed (Mohamed et al., 2019).

#### **Second section: Learning Engagement Scale**

This research scale was developed by **Subramanian and Muniandy (2019)** based on **Skinner et al. (2008)** and **Reeve & Tseng (2011)**. This scale aimed to measure students' engagement levels in both the flipped classroom and the traditional classroom. It encompasses 35 items divided into four domains: 1) behavioral engagement (9 items); 2) agentic engagement (7 items); 3) cognitive engagement (9 items); and 4) emotional engagement (10 items).

#### **Scoring system**

The Learning Engagement Scale is a five-level Likert scale (from strongly disagreeing to strongly agreeing) with a range of 1 to 5. The item scores were added up, and the total was divided by the number of items, yielding a mean score. These scores were converted to percentiles, and the means and standard deviations were calculated.

#### **Third section: Community Health Nursing Course Academic Achievement Exam**

To assess the impact of the flipped classroom paradigm on students' academic performance, students were given two equal sets of examinations

(written and practical) after the model implementation. The achievement exams were developed by the researchers in line with the time allocated to each topic, and include a practical exam and a written exam with 50 questions, 30 of which are multiple-choice questions and 20 of which are true-false questions. These questions cover five topics from a total of 13 in the community health nursing course, including primary healthcare, school health, emergency preparedness, environmental health, and a community health profile. A one is given for the right answer, while a zero is given for the wrong one. The exam results of the experimental group members were then compared to those of the control group members.

#### **Tools' validity and reliability**

The language expert member translated and retranslated the students' soft skills questionnaire and Learning Engagement Scale to create Arabic versions of the two instruments. Seven experts in nursing administration and community health nursing evaluated the three tool's validity. Based on the panel's recommendations, necessary changes were made to ensure sentence clarity and content appropriateness. Pearson correlation and SPSS were also used to assess the internal consistency of the academic achievement exam's validity. Cronbach's alpha (coefficient alpha) for internal consistency was used to assess tool reliability, yielding 0.89 for the students' soft skills questionnaire, 0.91 for the learning engagement scale, and 0.84 for academic achievement.

#### **Pilot research**

A pilot trial was carried out on 84 nursing students, representing 10% of the study sample, to assess the tools' clarity and usefulness as well as their time requirements. The main study sample was made up of participants in the pilot study. The pilot study's data were examined. The questionnaire stayed unmodified as a result of the extremely excellent feedback.

#### **Administrative and ethical considerations**

The Mansoura University Faculty of Nursing's Research Ethics Committee officially approved the study's implementation (Ref No. P.0322). All nursing students provided written informed permission after being told of the study's purpose and importance. The participants' privacy was guaranteed and upheld. The volunteers were not forced to take part in the study, and there was no danger or burden placed on them. It was made clear to participants that they could decline to take part in the study or withdraw at any time. The data was deemed secret and will only be used for legitimate scientific study.

#### **Fieldwork**

Before initiating the study, approval for data collection was obtained from the Dean of the Faculty

of Nursing at Mansoura University to collect the necessary data for the academic year 2021–2022, the first semester. The study lasted two months, from the beginning of October to the end of November. At the beginning of the study, the researchers gave the students in both the experimental and control groups a general overview of the study.

There was information about who was conducting the study, why the study was being completed, how the study would be completed, what would be done with the data, any risks or benefits associated with the study, and who to contact for more information, comments, or concerns. Students were explicitly informed that they could refuse to have their data used at any time during the study, despite the fact that they were all required to participate.

The study has been implemented in the community health nursing course, which aims to provide nursing students with the knowledge and skills they need to provide comprehensive health care to individuals, families, and communities in community health settings while working with other professionals and groups. The course consists of seven weekly contact hours (3 hours for theoretical lecturing and 2 hours for a laboratory session). The researchers chose five lectures from a total of 13 in the community health nursing course, including primary health care, school health, emergency preparedness, environmental health, and a community health profile. The researchers begin to validate the lecture learning outcomes. Both the control and experimental groups received the same course lectures, writing assignments, and quizzes at the end of each lesson.

The researchers divided the 422 students in the experimental group into 14 groups of 30 students each. The clinical groups were used to divide the students. Participants in the experimental group were exposed to the flipped classroom method, which required them to watch video recordings at home before coming to class and used class time for small work-group activities. After being uploaded to the learning management system (Moodle), these videos were made available to students (Moodle). The URLs of the videos containing the learning content were sent to the students. Students were expected to arrive prepared and to have watched the assigned videos. Multiple-choice tests with seven questions about the content learned outside of the classroom were used in class as in-class activities. The students were expected to answer the questions in the allotted time. The instructor shared the correct answers with the students after all of the questions were answered.

Students in the control group received traditional lecturing, with lessons taught inside the classroom using a power point presentation, as well as activities such as multiple-choice questions (MCQs) and

exercises to complete outside of class at home. The researchers lectured the students in the control group on the contents of the videos shown to the experimental group. The activities that the experimental group did in class were assigned to the control group as out-of-class assignments. Students in both groups must complete lesson-related assignments at the end of each lesson. The researchers evaluate these activities to ensure that learning objectives are met.

After the treatment was completed, the researchers evaluated the students using the self-administered, structured questionnaire (the students' soft skills questionnaire, learning engagement scale, and academic achievement).

**Statistical analysis**

The IBM SPSS software package, version 20.0 (Armonk, NY: IBM Corp.), was used to analyze the data fed into the computer. The one-sample Kolmogorov–Smirnov test was used to verify the data's normality. Qualitative data were described using numbers and percentages. Range (minimum and maximum), mean, standard deviation, and median were used to describe quantitative data. The Chi-square test was used for categorical variables to compare different groups. Also, the Mann-Whitney test was used for abnormally distributed quantitative variables to compare two unmatched groups. Pearson's correlation was also used. The significance of the obtained results was judged to be at the 5% level.

**Results**

**Table (1): Comparison between the control group and experimental group based on demographic data (n = 844)**

Demographic Data	Control group with the traditional strategy (n = 422)		Experimental group with the flipped model (n = 422)		Test of Sig.	p- value
	No.	%	No.	%		
<b>Age</b>						
<20	308	73.0	325	77.0	$\chi^2=1.826$	0.177
≥ 20	114	27.0	97	23.0		
Min. – Max.	18.0 – 21.0		18.0 – 21.0		U=861.50	0.292
Mean ± SD.	19.23 ± 0.52		19.21 ± 0.51			
Median	19.0		19.0			
<b>Gender</b>						
Male	145	34.4	133	31.5	$\chi^2=0.772$	0.379
Female	277	65.6	289	68.5		

$\chi^2$ : Chi-square test

P: p-value for comparing between the studied groups

U: Mann Whitney test

\*: Statistically significant at  $p \leq 0.05$

**Table (2): Comparison between the control group and the experimental group regarding soft skills' mean score differences (n =844)**

Soft Skills	Control group with the traditional strategy (n = 422)	Experimental group with the flipped model (n = 422)	U	p- value	$\eta^2$	Effect size
	Mean ±SD	Mean ±SD				
<b>Communication</b>						
Total score	23.81 ± 3.61	24.30 ± 3.54	813.5*	0.027*	0.14	Medium
% score	74.20 ± 15.03	76.25 ± 14.76				
<b>Time</b>						
Total score	23.03 ± 4.72	24.38 ± 4.22	855.0	0.321	0.07	Small
% score	70.95 ± 19.67	72.43 ± 17.58				
<b>Leadership</b>						
Total score	25.84 ± 3.48	26.96 ± 3.45	869.5	0.542	0.03	Small
% score	82.66 ± 14.49	83.16 ± 14.36				
<b>Team</b>						
Total score	25.07 ± 4.10	26.26 ± 4.08	861.0	0.395	0.05	Small
% score	79.45 ± 17.10	80.24 ± 16.99				
<b>Planning</b>						
Total score	24.14 ± 4.23	25.52 ± 4.04	853.0	0.279	0.09	Small
% score	75.56 ± 17.64	77.17 ± 16.82				

Soft Skills	Control group with the traditional strategy (n = 422)	Experimental group with the flipped model (n = 422)	U	p- value	η <sup>2</sup>	Effect size
	Mean ±SD	Mean ±SD				
<b>Efficacy</b>						
Total score	36.91 ± 6.12	37.29 ± 5.73	859.5	0.381	0.06	Small
% score	77.54 ± 16.99	78.59 ± 15.91				
<b>Decision</b>						
Total score	24.59 ± 4.07	25.87 ± 3.90	857.5	0.344	0.07	Small
% score	77.46 ± 16.96	78.62 ± 16.25				
<b>Creativity</b>						
Total score	32.82 ± 4.99	33.23 ± 4.62	856.5	0.338	0.08	Small
% score	77.55 ± 15.61	78.84 ± 14.43				

U: Mann Whitney test

η<sup>2</sup> = Eta Square

P: p-value for comparing the studied groups

\*: Statistically significant at p ≤ 0.05

**Table (3): Comparison between the control group and the experimental group regarding engagement mean score differences (n = 844)**

Engagement	Control group with the traditional strategy (n = 422)	Experimental group with the flipped model (n = 422)	U	p- value	η <sup>2</sup>	Effect size
	Mean ±SD	Mean ±SD				
<b>Integration</b>						
Total score	36.71 ± 4.14	37.77 ± 4.01	879.5	0.752	0.01	Small
% score	78.76 ± 11.51	79.92 ± 11.14				
<b>Teacher</b>						
Total score	28.98 ± 3.39	29.13 ± 3.32	848.0	0.232	0.04	Small
% score	78.11 ± 12.10	79.05 ± 11.84				
<b>Cognitive</b>						
Total score	35.02 ± 3.61	36.19 ± 3.76	866.0	0.494	0.05	Small
% score	74.05 ± 10.02	75.93 ± 10.45				
<b>Emotional</b>						
Total score	40.49 ± 4.95	41.72 ± 5.03	853.0	0.286	0.05	Small
% score	78.73 ± 12.39	79.80 ± 12.57				

U: Mann Whitney test

η<sup>2</sup> = Eta Square

P: p-value for comparing between the studied groups

\*: Statistically significant at p ≤ 0.05

**Table (4): Comparison between the control group and the experimental group regarding academic achievement mean score differences (n = 844)**

Academic Achievement Level	Control group with the traditional strategy(n = 422)	Experimental group with the flipped model(n = 422)	U	p- value	η <sup>2</sup>	Effect size
<b>Theoretical</b>						
Min. – Max.	64.0 – 95.0	63.0 – 95.0	891.00	0.995	0.03	Small
Mean ± SD.	86.92 ± 4.65	87.77 ± 5.05				
Median	88.0	88.0				
<b>Practical</b>						
Min. – Max.	60.0 – 100.0	11.0 – 99.0	839.00	0.154	0.08	Small
Mean ± SD.	78.36 ± 10.71	79.48 ± 11.64				
Median	78.50	80.0				

U: Mann Whitney test

η<sup>2</sup> = Eta Square

P: p-value for comparing between the studied groups

\*: Statistically significant at p ≤ 0.05

**Table (5): The effect of the flipped classroom learning paradigm on the students' soft skills, engagement, and academic achievement (n = 844)**

Dependent Variables	Control group with the traditional strategy (n = 422)	Experimental group with the flipped model (n = 422)	U	P- value	η <sup>2</sup>	Effect size
	Mean ±SD	Mean ±SD				
<b>Overall soft skills</b>						
Total score	164.29 ± 13.12	165.95 ± 14.59	851.5	0.266	0.05	Small
% score	82.64 ± 6.56	83.98 ± 7.29				
<b>Overall engagement</b>						
Total score	144.20 ± 14.19	144.81 ± 13.75	853.5	0.290	0.04	Small
% score	77.0 ± 10.14	78.44 ± 9.82				
<b>Academic achievement</b>						
Total score	216.20 ± 29.26	218.82 ± 27.59	839.5	0.154	0.09	Small
% score	76.98 ± 13.80	78.21 ± 13.01				

U: Mann Whitney test

P: p-value for comparing between the studied groups

η<sup>2</sup> = Eta Square

\*: Statistically significant at p ≤ 0.05

**Table (1):** Shows that the two studied groups' demographic data are similar. It was discovered that the majority of the control and experimental groups (73.0% and 77.0%, respectively) were under the age of 20 years old. And the majority of them were females (65.6% versus 68.5%). Furthermore, there is no statistically significant difference between the two groups regarding age and gender.

**Table (2):** Compares the mean soft skills scores of the experimental group to those of the control group. The mean scores of the seven soft skill characteristics differ slightly. And the experimental group with the flipped model had the highest mean scores in time, leadership, team, planning, efficacy, decision-making, and creativity compared to the control group with the traditional strategy (72.43 ± 17.58, 83.16 ± 14.36, 80.24 ± 16.99, 77.17 ± 16.82, 78.59 ± 15.91, 78.62 ± 16.25, 78.84 ± 14.43 respectively). These differences were not statistically significant, but they revealed a minor impact of the flipped model implementation, as reflected in the range of the eta square (η<sup>2</sup>) value (0.03 to 0.09). Meanwhile, the Mann-Whitney test reveals that the only statistically significant difference between the two groups' mean communication scores was discovered, with a medium effect for flipped model implementation at p-value (0.027\*) and η<sup>2</sup> (0.14).

**Table (3):** Clarifies that the mean scores for all four dimensions of engagement differ slightly but not significantly between the control and experimental groups. In the integration, teacher,

cognitive, and emotional domains, the experimental group with the flipped model had the highest mean scores compared to the control group with the traditional strategy (79.92 ± 11.14, 79.05 ± 11.84, 75.93 ± 10.45, and 41.72 ± 5.03, respectively). Furthermore, the η<sup>2</sup> values for the four engagement domains are (0.01, 0.04, 0.05, and 0.05), indicating a minor effect of flipped model implementation.

**Table (4):** The academic achievement means score variations between the control and experimental groups are compared in. The mean theoretical and practical exam scores of the control and experimental groups do not differ statistically (p = 0.995, p = 0.154). In contrast to the control group using the traditional strategy, the experimental group using the flipped model had a higher mean score for the theoretical and practical exams (87.77 ± 5.05 and 79.48 ± 11.64). Furthermore, the small effect size of the flipped model implementation is confirmed by two values of η<sup>2</sup> (0.03, 0.08) for theoretical and practical exams.

**Table (5):** Articulates the effect of the flipped classroom learning paradigm on the students' soft skills, engagement, and academic achievement. In comparison to the control group, the experimental group employing the flipped paradigm had higher mean scores for engagement, soft skills, and academic achievement (165.95 ± 14.59, 144.81 ± 13.75, and 218.82 ± 27.59). Additionally, (η<sup>2</sup>) values for engagement, soft skills, and academic achievement are (0.04, 0.05, and 0.09), demonstrating a negligible impact of the

deployment of the flipped paradigm. Furthermore, the mean scores of the experimental group and the control group do not differ statistically significantly.

### Discussion

The current study was implemented based on a major guiding aim to evaluate the effects of the FC as a blended learning paradigm on students' soft skills, engagement level, and academic achievement. The present study revealed that majority of the control and experimental groups were females under the age of 20. Fortunately, student samples comprise larger sample sizes that may shed light on the success of flipped learning for students in higher education.

Regarding the soft skills of the studied students, the experiment's findings indicated that the mean scores of the seven soft skill characteristics differ slightly, as the experimental group with the flipped model had the highest mean scores in time, leadership, teamwork, planning, efficacy, decision-making, and creativity compared to the control group with the traditional strategy. These differences were not statistically significant, but they revealed a minor impact of the flipped model implementation, as reflected in the range of the eta squared ( $\eta^2$ ) value (0.03 to 0.09). Meanwhile, the Mann-Whitney test reveals that the only statistically significant difference between the two groups' mean communication scores was discovered, with a medium effect for flipped model implementation at p-value (0.027\*) and  $\eta^2$  (0.14).

Consistent with the findings, the research of **Betti et al. (2022)** goes beyond evaluating the effects of the FC on students' attendance in class and their acquisition of a variety of soft skills, including collaboration, critical thinking, self-efficacy, academic self-concept, and learning perspective. They contrast an FC with a standard lecture-based class that also uses other active learning strategies, like presentations, collaboration exercises, and problem-based debates. According to the study, the FC had little to no effect on students' grades, attendance, or soft skills. There was not a significant enough difference between the two groups to support a preference for either format. Students performed generally in a similar way. The flipped classroom can enhance disciplinary knowledge acquisition, produce better results, and enhance students' soft skills, according to (**Moundy et al., 2022**).

The flipped classroom model seems to encourage students' active participation and open up a variety of learning options. In particular, active and cooperative learning were found to be the most effective ways to enhance students' development of working life skills in flipped classroom settings (**Väisänen & Hristo,**

**2020**). **Ibrahim et al. (2018)** demonstrated that flipped learning has improved the communication and critical thinking abilities of the students. The video lectures used in this project's e-learning platform must, however, be given enough time for students to comprehend their content. Additionally, "catchy" content that would pique students' interest in watching the video must be developed. According to a study by **Baytiyeh (2017)**, using the flipped classroom paradigm greatly increased student learning, interest, self-efficacy, and enjoyment. The present study results demonstrate improved performance on tests and assignments compared to a traditional classroom and highlight a number of benefits of this model for the growth of soft skills.

Nurses must exhibit crucial abilities for self-directed learning, including the capacity for self-learning, self-management, and self-engagement (**Liu et al., 2018**). It would be beneficial to use flipped classroom strategies to identify the essential elements that encourage participation inside and outside of the classroom (**Hanson, 2016**). Our findings showed that the integration, teacher, cognitive, and emotional domains—the four aspects of engagement—differ somewhat but not significantly between the control and experimental groups. When compared to the control group using the traditional model, the experimental group using the flipped model had the highest mean scores.

Additionally, the  $\eta^2$  values for each of the four engagement domains are (0.01, 0.04, 0.05, and 0.05), demonstrating a negligible impact from the use of the flipped model. The flipped classroom may be different because it helps students learn concepts and reflect on their self-learning experiences, but the results are still not statistically significant. This could be due to a number of important factors, such as students' lack of proficiency in information technology skills, the absence of immediate feedback, the course structure, and the amount of time needed for a learner to master the material. **Accordingly, Li & Li (2022)** reclaimed a number of variables that contributed to student engagement in the flipped classroom. The learning environment, teacher presence, learning materials, and learner presence were positive influencing elements. On the other hand, the enormous effort placed on students, their lack of learning readiness, the length of the videos, and technological difficulties were unfavorable characteristics.

According to **Mujtaba Asad et al. (2022)**, the post-pandemic data demonstrated that using a flipped classroom as a practical teaching strategy improved student performance, engagement, and learning in the classroom. It is also evident that many students preferred the flipped classroom strategy to the

traditional strategy following the pandemic. According to a study by **Barrio et al. (2022)** on university students' perspectives in Barranquilla, Colombia, the flipped classroom strategy is a helpful technique for the students because it enables them to become more self-taught. With the teachers acting as guides, it was feasible to determine their learning preferences and design environments that encouraged more engagement. The fact that flipped classes promote active learning rather than traditional memorization was also mentioned.

Also, **Barranquero-Herbosa et al. (2022)** found that using the flipped classroom to teach nursing students improved performance and received positive evaluations from both students and teachers. The study by **Meyliana et al. (2022)** strengthened the argument that flipped learning boosts student engagement. According to their interpretation, moving lecture material from the classroom to the home frees up class time for interactive learning activities, improves student engagement, and directs educators on how to potentially implement flipped learning at their universities. Flipped classrooms have the ability to enhance specific learning outcomes like engagement, attitude, metacognition, performance, self-efficacy, and knowledge. According to the findings of **Al-Samarraie et al. (2020)**, the flipped classroom model's main opportunity is to help students build a thorough knowledge of the subject matter by giving them greater flexibility over what and how they learn.

According to **Almodaires et al. (2018)** findings, the experimental group's students did better academically. They had favorable perspectives on flipped learning. Findings imply that FC might be a promising strategy to improve student-teacher learning. The comprehensive study by **Betihavas et al. (2016)** found that the usage of the flipped classroom in higher education nursing programs produced mixed results for satisfaction and neutral or positive academic outcomes. Academics communicated and justified to students the goal of the flipped classroom format, which resulted in student engagement.

In terms of student academic achievement, **Alamri (2019)** articulated that the implementation of a flipped-course format was successful and generally demonstrated improved student academic achievement compared with the traditional lecture-based approach. In relation to the academic achievement among the control and experimental groups in the current study, findings illustrated that the mean theoretical and practical exam scores of the control and experimental groups did not differ statistically ( $p = 0.995$ ,  $p = 0.154$ ). In contrast to the control group using the traditional strategy, the experimental group using the flipped model had a

higher mean score for the theoretical and practical exams ( $87.77 \pm 5.05$  and  $79.48 \pm 11.64$ ). Furthermore, the small effect size of the flipped model implementation is confirmed by two values of  $\eta^2$  (0.03, 0.08) for theoretical and practical exams. According to the findings of the study, **Smallhorn (2017) & Cabi (2018)** discovered that using the FC model has no significant impact on increasing students' academic achievement. Torres-Martn et al. (2022) discovered statistically significant differences in higher student grades, indicating that the use of the flipped classroom methodology is more successful in improving student performance over this extended period of time. Comparing the flipped classroom to traditional classroom models, students' academic achievement levels rose considerably (**Atwa et al., 2022; Polat & Karabatak, 2022**).

Additionally, the FC teaching methodology has demonstrated itself to be a powerful instrument for evaluating academic achievement when compared to the traditional methodology (**Saira et al., 2021**). The quantity of class material to be covered, the number of students, the faculty's skill in successful session planning, instructor preparation, and the length of prep time available could all have an impact on how FC is implemented (**Busebaia & John, 2020**). According to research by **Halasa et al. (2020)**, the experimental group's student grades increased statistically significantly. Calculations of predictability also showed enhanced learning outcomes, enabling nursing students to become self-directed, autonomous learners and significantly boosting nursing abilities. Results from Hessler (2016) show that using FC for improved learning is effective and produces better learning outcomes.

In articulating the effect of the flipped classroom learning paradigm on the students' soft skills, engagement, and academic achievement in comparison to the control group, our experiment indicated that the experimental group employing the flipped paradigm had higher mean scores for engagement, soft skills, and academic achievement. Additionally, ( $\eta^2$ ) values for engagement, soft skills, and academic achievement are (0.04, 0.05, and 0.09), demonstrating a negligible impact of the deployment of the flipped paradigm. Furthermore, the mean scores of the experimental group and the control group do not differ statistically significantly. The absence of a significant difference in our findings could be attributed to challenges for some students, including a lack of motivation to watch the video lectures or to study the contents outside of class time, our need for more preparation, the difficulty we face in controlling students' pre-class activities, the higher workload, and the technological challenges of internet access.

Beyond our findings, **Hosein et al. (2022)** highlighted that while flipped classrooms are excellent teaching and learning alternatives, there is currently insufficient evidence to draw firm conclusions about FC's advantages over the traditional strategy. Also in the study conducted by **Sevillano-Monje et al. (2022)**, there were noticeable differences in the students' knowledge acquisition after using the flipped classroom methodology, which had an impact on the students' competence levels. This is in relation to the influence of the flipped classroom methodology on the acquisition of knowledge and the development of competencies in university students. Given its contribution to the competencies that are connected to formal elements and that are connected to research and organization, they came to the conclusion that it is crucial that this methodology be kept up in subsequent courses.

Engagement was found to be the most important predictor of achievement in the online flipped classroom, according to a study by **(Polat et al. 2022)**. The effectiveness of students' learning is enhanced as a direct result of flipped learning **(Umar & Ko, 2022)**. 27 articles were taken into consideration in a systematic review by **Youhasan et al. (2021)** with the goal of evaluating the conception, implementation, and efficacy of flipped classrooms in relation to undergraduate nursing education. The majority of these studies were carried out in the USA and South Korea.

Using the flipped classroom as a teaching approach has been found to increase nursing students' involvement, contentment, and success **(Elsayed et al., 2019; Lee et al., 2022)**. In addition, **Talan & Gulsecen (2019)** discovered that the experimental groups' scores for academic success and engagement were greater than those of the control group's students and that these differences were statistically significant. It was found that the flipped classroom was also usually well-liked by the pupils. In a recent study by **Masood et al. (2022)**, they asserted the challenges of FC as the lack of a designated strategy for students to complete their learning activities while at home, students' disengagement, and the limited integration of learning theories to support in-class activities. Their study argues that the integration of the study-quiz-question (SQQ) strategy in the pre-class stage reduces students' disengagement in flipped learning. Cooperative learning theory, the Bloom taxonomy, and social constructivist learning theory can be integrated to support in-class activities. Flipped educators are advised to adopt at least two of the theories to strengthen their in-class learning activities.

## Conclusion

In articulating the effect of the flipped classroom learning paradigm on students' soft skills, engagement, and academic achievement, the study revealed that the experimental group using the flipped paradigm had higher mean scores for engagement, soft skills, and academic achievement than the control group. Furthermore, the ( $\eta^2$ ) values for engagement, soft skills, and academic achievement are (0.04, 0.05, and 0.09), demonstrating a negligible impact of the flipped paradigm deployment. Additionally, the experimental and control groups' mean scores do not differ statistically significantly.

## Recommendations

- The flipped classroom has a lot of potential, and besides valid method evaluation tools, additional educational platforms, technologies, learning strategies, and tried-and-true practices are needed to support teachers who want to switch from the traditional system to a flipped classroom and serve as a resource for future flipped classroom researchers. The flipped classroom might be used with a variety of teaching strategies, such as cooperative learning, problem-based learning, project-based learning, and mobile learning, and the efficacy of these strategies could be evaluated.
- In the first academic year, training programs could be used in flipped classrooms to demonstrate their extensive effects. When observing changes in variables, especially "intellectual attainment," long periods of time can be crucial.
- Interpersonal skills and other soft skills need to be investigated further in order to ascertain whether they are as crucial as the characteristics found in this study.
- Instructors should provide a brief reminder in class about the assigned tasks that students must complete outside of class.
- As part of the initial preparation of students, educational institutions should create and provide a seminar on training once a week, including issues like information search, time management, learning to learn, etc.
- Similar studies should be carried out with a larger sample size in different courses and at different levels of education in order to generalize the findings.

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