

# **A Bloom's Taxonomy-based Flipped Classroom Model for Basketball Practice Class**

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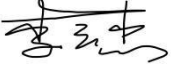
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## DECLARATION

I hereby declare that the work presented in this thesis was conducted in full compliance with the regulations of Universiti Malaysia Sarawak (UNIMAS). Except where proper acknowledgment is given, this work is solely the effort of the author. This thesis has not been accepted for the award of any other degree and is not being **concurrently** submitted for any other academic qualification.

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Thank you all.

# ***A Bloom's Taxonomy-based Flipped Classroom Model for Basketball Practice Class***

## **ABSTRACT**

This study investigated the implementation of a Bloom's Taxonomy-based flipped classroom model in college basketball practice classes to enhance students' learning outcomes. A mixed-method research design with a qualitative emphasis was employed, involving 40 undergraduate students enrolled in a basketball course. The intervention took place from September 2023 to January 2024, during which students engaged with instructional materials (videos, handouts) outside of class, while in-class time focused on practical drills, problem-solving, and tactical discussions, shifting the teacher's role from information provider to learning facilitator. Data were collected using observation checklists, semi-structured interviews, and performance assessments. Results indicated substantial improvements in students' dribbling and shooting accuracy, tactical understanding, and engagement during practice sessions. Interview data revealed that students experienced higher motivation, autonomy, and satisfaction compared to traditional teaching methods. The integration of Constructivist principles and Autonomous Learning Theory provided a theoretical framework explaining how self-directed learning and in-class interactions contributed to enhanced outcomes. These findings suggest that the Bloom's Taxonomy-based flipped classroom model effectively promotes active learning, skill acquisition, and cognitive development in college basketball courses. This study provides a systematic framework for applying Bloom's Taxonomy within physical education, offering evidence-based strategies to enhance student-centered instruction and learning effectiveness in collegiate sports education.

**Keywords:** Flipped Classroom, Basketball Teaching, Bloom's Taxonomy, Constructivism, Autonomous Learning

## ***Model Kelas Terbalik Berasaskan Taksonomi Bloom bagi Kelas Latihan Bola Keranjang***

### ***ABSTRAK***

Kajian ini meneliti pelaksanaan model kelas terbalik (flipped classroom) berasaskan Taksonomi Bloom dalam kelas latihan bola keranjang di peringkat kolej bagi meningkatkan hasil pembelajaran pelajar. Reka bentuk kajian kaedah campuran (mixed-method) dengan penekanan kualitatif telah digunakan, melibatkan 40 pelajar ijazah sarjana muda yang mengikuti kursus bola keranjang. Intervensi dijalankan dari September 2023 hingga Januari 2024, di mana pelajar terlibat dengan bahan pengajaran (video, risalah) di luar kelas, manakala waktu kelas difokuskan kepada latihan praktikal, penyelesaian masalah, dan perbincangan taktikal, sekali gus menukar peranan pensyarah daripada penyampai maklumat kepada fasilitator pembelajaran. Data dikumpul menggunakan senarai semak pemerhatian, temubual separa berstruktur, dan penilaian prestasi. Keputusan menunjukkan peningkatan ketara dalam ketepatan dribel dan tembakan, pemahaman taktikal, serta penglibatan pelajar semasa sesi latihan. Data temubual mendedahkan bahawa pelajar mengalami motivasi, autonomi, dan kepuasan yang lebih tinggi berbanding kaedah pengajaran tradisional. Integrasi prinsip Konstruktivisme dan Teori Pembelajaran Autonomi menyediakan rangka teori yang menerangkan bagaimana pembelajaran sendiri dan interaksi di kelas menyumbang kepada peningkatan hasil pembelajaran. Dapatan ini mencadangkan bahawa model kelas terbalik berasaskan Taksonomi Bloom secara berkesan mempromosikan pembelajaran aktif, pemerolehan kemahiran, dan perkembangan kognitif dalam kursus bola keranjang di peringkat kolej. Kajian ini menyediakan rangka kerja sistematik bagi penerapan Taksonomi Bloom dalam pendidikan jasmani, menawarkan strategi berasaskan bukti untuk meningkatkan pengajaran berpusatkan pelajar dan keberkesanan pembelajaran dalam pendidikan sukan di institusi tinggi.

**Kata Kunci:** Model Kelas Terbalik, Pengajaran Bola Keranjang, Taksonomi Bloom, Konstruktivisme, Pembelajaran Autonomi

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## LIST OF ABBREVIATIONS

FC	Flipped Classroom
PE	Physical Education
HEI	Higher Education Institution
CBL	Case-Based Learning
PBL	Problem-Based Learning
ICT	Information and Communication Technology
LMS	Learning Management System
MOOC	Massive Open Online Course
VLE	Virtual Learning Environment
SRL	Self-Regulated Learning
IL	Independent Learning
CT	Constructivist Theory
QoL	Quality of Learning
ALT	Autonomous Learning Theory
BT	Bloom's Taxonomy
SEM	Structural Equation Modelling
MRA	Mixed Research Approach
FGD	Focus Group Discussion
TPACK	Technological Pedagogical Content Knowledge

CHAPTER 1:  
**INTRODUCTION**

## **1.1 Background of Study**

---

Chapter one introduces the topic of the study, describes the background of the study, and emphasizes the importance and necessity of implementing the flipped classroom in teaching college basketball courses at this stage (Hu, 2022). Secondly, the problem statement, research objectives, research questions, and significance of the study are presented to provide clear direction for the research. Finally, the key terms of the study are defined and clarified. With the advancement of educational technology, traditional teaching modes are being challenged by emerging instructional approaches (Black, 2022). The flipped classroom, as an innovative teaching method, has attracted widespread attention and extensive research in the field of education due to its distinctive teaching philosophy and instructional approach. However, compared with other subject areas, research and application of the flipped classroom in the field of physical education remain relatively limited (Zhang et al., 2020).

This study addresses this phenomenon by taking college basketball teaching as the research focus to explore the application and impact of the flipped classroom approach in this context. The goal of higher education is to cultivate talents with independent learning and innovation ability (Chen & Wang, 2019). However, the traditional physical education teaching mode often fails to fully mobilize students' learning interest and improve their learning effect (Bronikowski, 2011). In contrast, the flipped classroom, with its distinctive instructional approach namely pre-study before class, in-class exploration, and post-class consolidation can effectively cultivate students' independent learning and innovation abilities, stimulate their interest in learning, and enhance their learning outcomes.

The goal of this study is to design and develop a flipped classroom model suitable for general college basketball courses and to demonstrate the effectiveness of the flipped classroom in college basketball instruction by observing students' performance under the

flipped classroom method and analyzing the outcomes derived from interview transcripts with students. At the same time, this study also explores whether the flipped classroom improves learning in higher education. In realizing the research objectives, this study adopts Bloom's Taxonomy to systematically design and implement the flipped classroom for better teaching and learning (Vitta & Hoorie, 2023). With the six levels of remembering, understanding, applying, analyzing, evaluating, and creating, teachers can design appropriate content and teaching activities according to the students' actual situation (Chandio, 2016).

Overall, this study aims to provide a new theoretical basis and practical guidance for university physical education, to promote theoretical development and improve teaching quality in the field of physical education in China, thereby enhancing the level of sports competition in the country (Jin, 2013). However, although the flipped classroom has been widely applied and extensively studied in many subject areas, relatively little research has been conducted in the field of university physical education, particularly in basketball courses (Qiu, 2019). The traditional teaching mode of university basketball classes often emphasizes the instruction of technical skills, neglects students' subjective initiative, and lacks sufficient interaction and practical training opportunities. This teaching mode limits students' learning outcomes and learning interest to a certain extent and fails to fully realize the important role of physical education courses in cultivating students' overall quality. In view of this, exploring empirical research on the flipped classroom in college basketball teaching has become an important topic. This study aims to explore the application and impact of the flipped classroom in college basketball teaching by designing and developing a flipped classroom model suitable for general college basketball courses, and by comparing the effects of the flipped classroom and traditional physical education teaching modes in basketball instruction through empirical research, with a view to providing new theoretical foundations and practical guidance for college physical education.

In addition, the implementation of the flipped classroom in college basketball courses will also help to explore and practice teaching reforms in physical education. In physical education, the role of teachers shifts from "instructing" to "guiding," while students shift from passively receiving knowledge to actively constructing their own understanding. The flipped classroom model emphasizes teacher-facilitated independent learning, allowing students to acquire the basic skills and rules of basketball by watching instructional videos before class, while classroom time is dedicated to hands-on practice and interaction, making teacher-student engagement more frequent. This teaching approach helps to stimulate

students' interest in learning, enhance learning outcomes, and also develop students' teamwork and independent learning skills (An, 2021). The implementation of the flipped classroom model also requires support from educational technology. How to utilize educational technology to enhance the effectiveness of the flipped classroom, how to design and develop teaching resources suitable for basketball courses, and how to evaluate the instructional effectiveness of the flipped classroom are all issues that require further research and discussion. Through this empirical study, we hope to provide robust support for the adoption and application of the flipped classroom in university physical education.

## **1.2 Problem Statements**

---

At present, the traditional university physical education teaching model can no longer meet the needs of students for independent learning and active participation (Zhang, 2021), and there is a need to explore new teaching methods to enhance both teaching effectiveness and students' learning experiences. Flipped classroom, as an innovative teaching approach, has achieved significant results in the teaching of other disciplines. For example, Chen (2019) and other researchers validated this approach in the field of medical education, showing that participants' engagement and learning motivation can be improved through the flipped classroom model. However, empirical studies in the field of physical education remain limited, especially with regard to basketball instruction (Ren, 2019). Therefore, this study aims to explore the application and impact of the flipped classroom in college basketball teaching through empirical research, with the goal of providing new teaching models and methods for university physical education.

Participation of students is among the top-priority issues facing modern higher education institutions, which continue to struggle with this challenge (Balas, 2000). Technological innovation should not be viewed as the sole solution; rather, the concept of "blended learning" will also be introduced. The program will be designed, implemented, and evaluated to assess its effectiveness in delivering educational objectives. This approach aims to cultivate self-sufficient students who can further develop inventive mindsets (Balas, 2000). However, this represents only one perspective on the potential functions of the central message, which emphasizes that corrective measures serve as actionable tools for addressing individual accountability. In the course of our research, we identified several areas that have received significant attention, particularly where dominant discovery techniques are employed; nevertheless, we conclude that physical exercise (especially basketball) plays a

crucial role in learning (Zhang, Ma, & Watson, 2020). The discussion suggests that integrating college-level basketball through a flipped classroom model, along with the development of supplementary teaching modules aligned with the basketball curriculum, represents a promising area for open-ended research. Furthermore, the practical assessment will not only evaluate the effectiveness of this method but also determine whether students are willing and prepared to adopt and embrace this teaching approach, ultimately leading to measurable improvements in the quality of the learning process (Balas, 2000).

Not only is effective learning the most widely implemented approach in flipped learning, according to research (Lucena & Hinojo, 2020), but the evolution of this instructional method is also impressive. Among the greatest achievements of a student-centered class is certainly the fact that students gain extensive hands-on experience through doing, rather than merely writing about it. The first key is to support students in exercising their critical and creative thinking skills in order to put student-centered learning into practice. After all, when we state that gaming has not only an entertainment advantage, it also suggests that video games offer many additional benefits in learning. Although the first problem remains unresolved the challenge of integrating traditional teaching approaches into the usual classroom environment questions regarding whether the newly adopted strategy is effective and efficient still require further research. Additionally, the teaching style, particularly 'the one who instructs,' serves as a model for students; thus, through different types of presentations, students can learn to differentiate documentaries, data presentations, and incorporate photography into their presentations, thereby fostering behavior change and team spirit. Now, teachers consider alternative approaches to guide students through the steps involved in mastering basketball techniques. Therefore, teaching methods include not only the specified sports techniques but also other complementary strategies.

The adoption of the flipped classroom model is based on the evolving needs of contemporary students for more engaging, interactive, and student-centered learning environments (Chapman, 2003). Conventional lecture-based teaching methods are increasingly proving insufficient for fostering deep understanding and critical thinking skills among students. The flipped classroom model, in which students first engage with new material outside of class and then apply this knowledge through practical, instructor-guided activities during class time, offers a promising alternative (Chapman, 2003). This approach not only promotes active participation and independent learning but also enables personalized feedback and support from the instructor, effectively addressing the key limitations of traditional teaching methods in physical education.

Basketball, as a popular and widely played sport, provides unique opportunities for physical, cognitive, and social development. Its dynamic nature requires players to continuously make quick decisions, collaborate as a team, and refine their physical skills, which are invaluable for promoting students' overall growth. Additionally, basketball classes offer an ideal context for implementing flipped classroom methodologies due to their practical, skills-based nature (Chapman, 2003). This combination provides a solid foundation for empirical investigations aimed at developing new teaching methods in physical education. Educational institutions drive innovation and research in pedagogy (Kim, 2020). They play a crucial role in guiding students not only toward their future professional careers but also in fostering lifelong self-education and holistic personality development. The implementation and study of the flipped classroom model in college basketball classes aligns with the broader objectives of higher education by promoting teaching practices that meet the needs and expectations of contemporary students (Kim, 2020). In addition, it contributes to the knowledge base on effective teaching methods in physical education, offering insights that may be applicable to other educational contexts.

In this respect, Bloom's taxonomy is significant, as it provides a framework for the classification of educational goals and objectives, which is crucial in designing effective learning experiences (Momen, 2022). An integrated approach combining Bloom's taxonomy with the flipped classroom model ensures systematic attention to the cognitive, affective, and psychomotor domains of learning, thereby promoting holistic student development. Ultimately, this study aims to develop a range of effective teaching strategies through a case study of the flipped classroom in college basketball instruction, in order to address the challenges of higher education physical education teaching, enhance students' learning outcomes and independent learning abilities, and provide both a theoretical framework and practical reference for college physical education reform (Momen, 2022).

### **1.3 Significance of Study**

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This research examines the implementation of the flipped classroom model in university-level basketball teaching, emphasizing its theoretical base and practical implications. By using Bloom's Taxonomy to guide the learning process, from remembering to creating, it demonstrates how theory and practice can complement each other (Chandio, 2016). The study presented would be valuable for future physical education research and applications of the flipped classroom, thus providing enrichment to educational practices and

research cases. The flipped classroom model promotes an independent learning style, increases students' participation, and develops the ability to solve problems by facilitating conditions for active engagement before, during, and after classes. Aside from benefiting students, this method assists teachers by enhancing the quality of both teaching and learning processes. The application of this model in college basketball courses greatly enhances student enjoyment and learning outcomes, promoting the quality development of public physical education in China and the broader field (An, 2021). It enables the development of teaching theories and practical approaches in physical education, consequently raising the standard of sports competition in the country.

In summary, the flipped classroom model is a dynamic, ongoing process for improving educational approaches. This study offers alternative ideas and approaches for the empirical study of the model's application in college basketball teaching, which will provide substantial guidance for future educational practices and research (Kim, 2020). The flipped classroom model should be adapted and refined to meet the current needs of students and instructors, striving for holistic development of the educational system. The flipped classroom model applied in college basketball classes has implications beyond educational outcomes; such informal educational settings impact the practices of teachers and policymakers. Thus, this model may assist educators in deepening their understanding of how to enhance learner engagement and activity, thereby improving teaching practices and, consequently, learning outcomes. In this regard, Technology-Enhanced Learning promotes the use of innovative teaching and learning approaches that can be implemented across all fields, supporting both pedagogical professionalism and reflective practice. Therefore, when formulating policies regarding the implementation of new teaching methods and educational technologies, such as the flipped classroom in physical education, policymakers should consider the positive outcomes observed here and ensure that existing policies do not hinder the approach's effectiveness. This highlights the need to allocate more resources to teacher education, equipment, and other requirements necessary for the successful adoption of such models. Furthermore, the positive effects of the flipped classroom on students inform policy decisions aimed at enhancing the quality of education and aligning practices with learners' needs in the twenty-first-century society, thereby ensuring the competitiveness and relevance of educational institutions.

## **1.4 Purpose of Study**

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This study focuses on the implementation and effects of the flipped classroom model in college basketball courses. It presents an experimental investigation into the teaching of flipped college basketball classes and the development of a corresponding instructional model. This model aims to enhance learning outcomes, independent learning abilities, as well as creativity and learning interest. Furthermore, the study contributes to the reform of college physical education instruction, aligning with the national objective of developing students' comprehensive competencies.

The specific objectives include the following aspects:

1. Develop a flipped classroom teaching model for college basketball courses based on Bloom's Taxonomy, thereby enhancing students' self-learning abilities and their interest in learning.
2. Evaluate the effectiveness of the flipped classroom teaching model compared to traditional physical education teaching methods, focusing on the development of innovative capabilities and other learning outcomes in basketball classes at Chinese universities.

## **1.5 Research Questions**

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This study conducts empirical research on the application and impact of the flipped classroom in teaching college basketball courses. Specifically, the following research questions are explored:

1. Question 1: How can Bloom's Taxonomy be effectively integrated into the design and development of a flipped classroom teaching model that is not only suitable for college basketball courses but also effective in enhancing students' independent learning, fostering innovative abilities, and stimulating interest in learning?
2. Question 2: How does the flipped classroom outperform traditional teaching methods in basketball courses regarding the improvement of students' learning outcomes, independent learning capabilities, and innovative abilities in Chinese colleges?

## **1.6 Research Definition**

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### **1.6.1 Flipped Classroom**

Flipped Classroom is an educational strategy that reverses the traditional teaching method and has attracted widespread attention in the teaching of college basketball courses in recent years. The traditional classroom teaching model usually consists of the teacher imparting knowledge in the classroom, while students complete homework and review after class. The core concept of the flipped classroom, however, is to invert this traditional model, allowing students to acquire basic knowledge through independent study before class and then engage in more in-depth discussion, interaction, practice, and problem-solving during class. The flipped classroom is an educational methodology whose primary goal is to optimize students' learning experience and knowledge acquisition. Nacaroğlu and Bektaş (2023) state that in this model, students learn the course content independently before class through various teaching and learning resources, such as videos, documents, and web-based courseware. In the classroom, the teacher is no longer the traditional source of knowledge, but instead serves as a guide and facilitator. Classroom time is dedicated to interacting with students, answering questions, conducting discussions, and engaging in activities that deepen understanding and enhance the ability to apply knowledge.

Flipped classroom instruction in college basketball courses can more effectively stimulate students' interest in active learning and increase their engagement in the class. Through pre-class preparation, students can discuss tactics, skills, and other content more deeply during class, participate in hands-on activities and practical exercises, and gain a better mastery of basketball knowledge and skills. This teaching approach can also foster students' independent learning and problem-solving abilities, enabling them to continue deepening their understanding after class. In conclusion, the flipped classroom represents an innovative and dynamic educational method with significant applicability in college basketball teaching. By placing students in a more active learning role, the flipped classroom is expected to enhance student learning outcomes and promote educational transformation.

### **1.6.2 Basketball Classroom**

The study of flipped classroom in college basketball classroom teaching aims to investigate the application of this innovative educational model in basketball courses, so as to optimize students' learning outcomes and experiences. Basketball classroom refers to the

curriculum specifically designed for basketball in university physical education. According to Nilubol (2023), basketball teaching cultivates students' interest, skill levels, and teamwork abilities by instructing basic skills, tactical theories, and game rules. Ji (2023) describes the basketball classroom as a setting where students have opportunities to participate in actual basketball training and competitions, which not only enhance their physical fitness but also foster sportsmanship and teamwork. When introducing the flipped classroom model into basketball instruction, the definition of the basketball classroom must be further clarified. Flipped classroom requires students to acquire knowledge through independent learning before class, while interacting and practicing during class. Therefore, in this study, the basketball classroom can be defined as a learning environment where students independently acquire basic basketball knowledge and skills before class through previewing videos, textbooks, and online resources.

In the classroom, the teacher guides students to engage in more interactive activities, in which basketball tactics are analyzed, practical operations are conducted, and teamwork is fostered. This definition highlights the implementation of the flipped classroom model in basketball instruction, emphasizing both pre-study and in-class interactions. It is particularly conducive to the accurate analysis and evaluation of the effects of applying the flipped classroom in college basketball settings. In the basketball classroom, the design of effective pre-study resources, facilitation of classroom interactions, and development of basketball skills and cognitive abilities are the primary concerns for research. Simultaneously, this definition can assist educators and educational policymakers in understanding the potential and effectiveness of the flipped classroom in basketball instruction, while promoting educational innovation and the advancement of basketball.

### **1.6.3 Bloom's Taxonomy**

Taxonomy, developed by Benjamin Bloom and educational historians, categorizes educational objectives into a hierarchy of cognitive skills. Conceptually, it serves as a guide for teachers to design learning objectives, assessments, and activities that foster higher-order thinking. The taxonomy is divided into six levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating, with each level representing a progressively more complex and abstract cognitive skill than the preceding one. Operationally, in the context of the flipped classroom and college basketball instruction, Bloom's Taxonomy guides the development of pre-class materials and in-class activities. In this framework, pre-class

materials primarily target the Remembering and Understanding levels, enabling students to acquire basic basketball skills and theoretical knowledge. In-class activities, therefore, advance to the Applying, Analyzing, Evaluating, and Creating levels, where students engage in strategic game simulations, analyze gameplay, evaluate strategies, and develop innovative playing approaches.

#### **1.6.4 Conceptual and Operational Definitions Improvement**

**Flipped Classroom (Conceptual):** A pedagogy that inverts traditional teaching methods to enhance student engagement and achievement by allowing students to study content independently and then apply their knowledge in class discussions.

**Flipped Classroom (Operational):** This entails that students watch video tutorials, read books and other materials, and complete other online activities related to basketball theory and skills before class, then use classroom time for hands-on practice, strategy discussions, and teamwork activities, with the teacher acting as a facilitator.

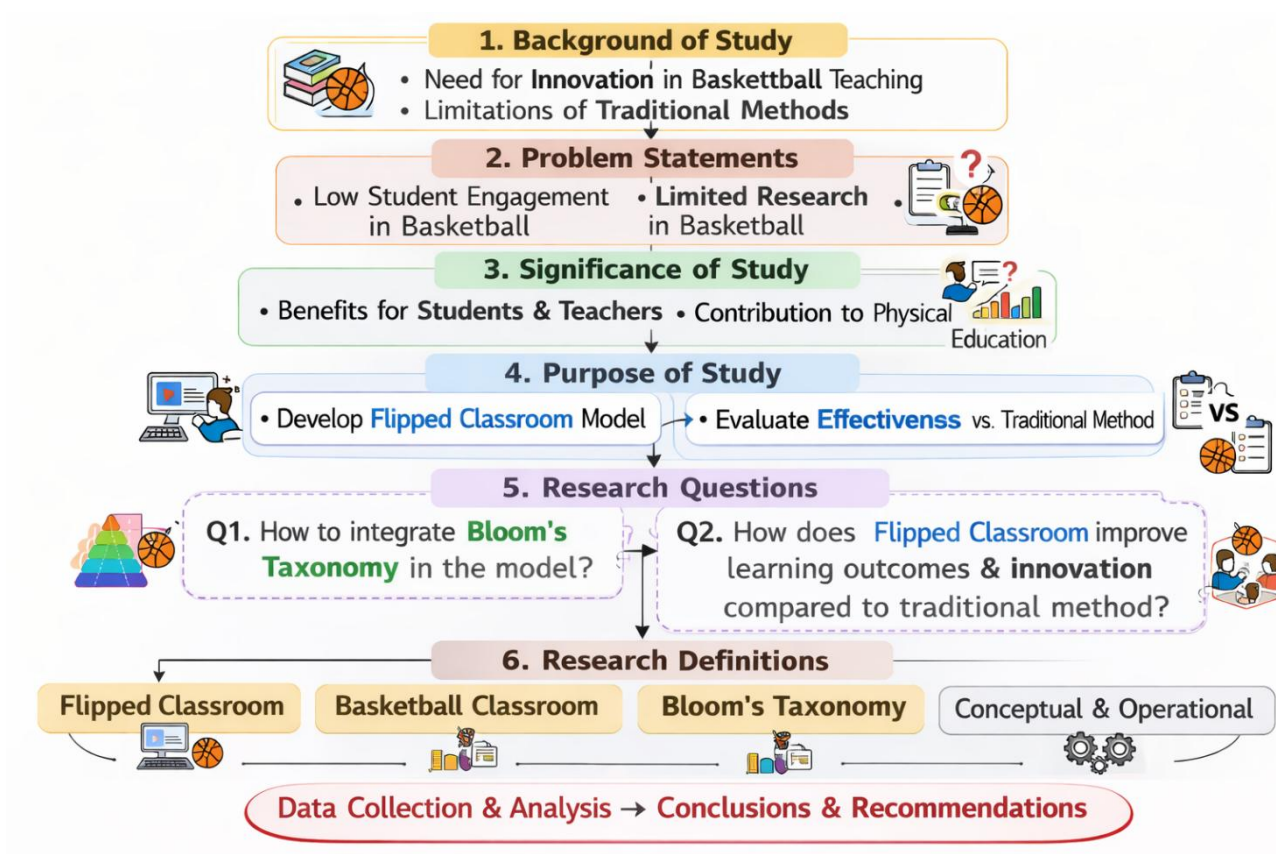
**Basketball Classroom (Conceptual):** A pedagogical environment designed for teaching basketball in colleges, emphasizing skill acquisition, tactical understanding, and the development of teamwork.

**Basketball Classroom (Operational):** A setting in which students pre-learn the fundamentals of basketball through digital content and apply this knowledge in class through practical drills, game simulations, and team-building activities, all within the framework of the flipped classroom model.

## 1.7 Chapter Summary

This chapter introduced the background of the study, the research objectives and addressed the research questions, described the significance of this study, and clarified the research definition.

**Figure 1-1:**  
**Research Flow of Flipped Classroom Implementation in College Basketball Courses.**



This flowchart illustrates the structured research process of the study, beginning with the Background of Study, identifying Problem Statements, and highlighting the Significance of Study. The Purpose of Study outlines the development of a flipped classroom model and its evaluation against traditional teaching methods. Research Questions focus on integrating Bloom's Taxonomy into the model and assessing learning outcomes and innovation. Finally, Research Definitions clarify the conceptual and operational meaning of Flipped Classroom, Basketball Classroom, and Bloom's Taxonomy, leading to subsequent Data Collection, Analysis, and Conclusions. The visual uses a stepwise format with arrows indicating the progression from theoretical grounding to practical application and evaluation. The next chapter, Chapter 2, will review the literature review of this study.

# LITERATURE REVIEWS

## 2.1 Introduction

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This chapter begins with an overview of the literature, comprehensively reviewing the application of the flipped classroom in university basketball teaching, the cultivation of basketball awareness, and the informatization pathways and teaching reforms (Yuan & Wang, 2022). It then continues to discuss the theoretical framework, thereby clarifying the conceptual framework. Lastly, it introduces other literature related to physical education teaching, thereby providing more comprehensive support for the theoretical framework and empirical research of this study.

### 2.1.1 Study of Flipped Classroom in Basketball Teaching in University

The idea of the flipped classroom comes from problems and ideas related to improving the traditional teaching model. It transcends the teaching limits of the conventional classroom, is student-centered, and aims to nurture students' active learning and cooperative skills. The study conducted by Chen and Wang (2019) demonstrates that the flipped classroom model has been effectively implemented in youth basketball teaching, effectively enhancing students' learning efficiency and outcomes. In the context of university basketball teaching, Qiu (2019) investigated the use of the flipped classroom and found that this approach helps to improve students' basketball skills and knowledge base, teamwork abilities, and competitive performance. The empirical research conducted by Wang and Xiao M (2019) focused on the application of the flipped classroom model in physical education instruction. They concluded that the flipped classroom approach can enhance learning motivation, student participation, as well as students' sports abilities.

The O-PIRPAS (Objectives, Preparation, Instructional Video, Review, Test, Activity, Summary) flipped teaching model was used in a college basketball elective; students' learning efficiency was improved, their basketball skills were enhanced, and their competitive levels were

elevated, as claimed by Zhang (2021). Zhang (2020) also provided a detailed analysis of the application of the flipped classroom in university basketball teaching. He considered that the flipped classroom can enhance students' motivation to learn and improve learning outcomes, which is largely consistent with modern educational trends.

While existing studies, such as those by Chen and Wang (2019), Qiu (2019), and Zhang (2020, 2021), demonstrate the flipped classroom's effectiveness in enhancing learning outcomes and engagement in university basketball courses, there remains a significant gap in standardized research methodologies. This gap includes a lack of comparative studies that systematically evaluate the flipped classroom against traditional teaching methods across diverse educational settings and student populations. Moreover, the impact of the flipped classroom on students' long-term performance and retention of basketball skills has not been sufficiently examined.

### **2.1.2 The Role of Basketball Awareness in Flipped Classroom Settings**

An (2021) discussed the issue of cultivating basketball awareness among university basketball students in her research. She argued that in the flipped classroom, students can effectively improve their basketball skills and awareness through self-directed learning and in-class practical training. Ren (2019) examined the adoption of the flipped classroom in college basketball teaching and stated that this teaching model can effectively enhance students' basketball cognition and practical skills. Through pre-learning and self-study outside the classroom, students are able to develop a comprehensive understanding and mastery of basketball techniques and strategies during class, which also contributes to improving basketball awareness. Huang (2018), in his paper *"A Visual Analysis of the Current Status and Trends of Flipped Classroom Research in China,"* conducted an in-depth study on the current status and trends of flipped classroom research domestically. He argued that, as a new teaching model, the flipped classroom is conducive to cultivating students' self-directed learning abilities and cooperative spirit, thereby further enhancing students' basketball awareness.

Yuan (2017), in *"An Analysis of the Advantages of Applying the Flipped Classroom Teaching Model in Public Basketball Classes,"* explored the advantages of applying the flipped classroom in public basketball classes. He argued that the flipped classroom model can enhance students' self-directed learning abilities and team cooperation spirit, enabling them to better apply basketball techniques and tactics in actual game situations, thereby improving basketball awareness. Zhang (2020) explored the application of the flipped classroom in university basketball teaching. He suggested that the flipped classroom model helps enhance students' active

learning abilities, enabling more effective application of basketball techniques and tactics in practice and further strengthening students' basketball awareness. While flipped classrooms seem to be very effective for basketball teaching, there are still not many studies that fully substantiate this claim (Rothman, 2022). Additionally, experimental outcomes may be influenced by testing conditions and variations in students' athletic performance. There remains a research gap regarding whether this method can be tested in a standardized manner and whether the effectiveness of the flipped classroom approach can be empirically validated. In a nutshell, this study aims to address this research gap and examine whether the flipped classroom method is suitable for students. The research highlighted by An (2021), Ren (2019), and Huang (2018) suggests that the flipped classroom can significantly improve basketball awareness through enhanced self-directed learning and practical training. However, there is a notable gap in the literature concerning the quantifiable impact of flipped classroom strategies on the development of specific cognitive and perceptual abilities related to basketball awareness. Furthermore, the role of instructor feedback and peer interaction in fostering basketball awareness within flipped classroom settings remains underexamined.

### **2.1.3 Advancing University Sports Education with Informatization**

Xiao (2020) conducted a study on the informatization of university basketball teaching and training methods and concluded that informatized teaching is capable of improving students' performance and strengthening teaching effectiveness. A study focusing on the current situation of university basketball teaching reform and the development of teaching innovation was carried out by Liang (2020). He argues that university basketball teaching reform should pay more attention to innovation in teaching models, the employment of modern teaching technologies, as well as updated teaching concepts to enhance teaching quality and outcomes.

The paper entitled "*An Analysis of the Optimization Pathways of University Basketball Teaching under the Flipped Classroom*" by Qin (2020) elaborates on the pathways for optimizing university basketball teaching through the flipped classroom approach. Qin proposes that teachers can use digital media resources, such as videos and animations, to present the essential points of basketball techniques and tactics to students before class so that they can engage in self-study and prepare in advance. Afterwards, during class, teachers mainly guide students in practicing basketball techniques and tactics, for example by answering their questions during the learning process. This method effectively enhances students' initiative and enthusiasm, thereby increasing the overall effectiveness of basketball teaching.

The application of the flipped classroom teaching model in university basketball teaching was analyzed in detail by Feng (2020). Feng argues that the flipped classroom teaching model is beneficial for improving the quality and effectiveness of basketball instruction. Information technology teaching resources, such as the internet and electronic devices, can be utilized to strengthen students' self-motivation, initiative, and willingness to learn, while also improving teaching efficiency. Zhang (2021) studied the feasibility of implementing the O-PIRPAS flipped teaching model in university basketball elective courses. Zhang states that the O-PIRPAS flipped teaching model can enhance students' self-directed learning ability, enabling them to conduct independent pre-study and review outside of class, while teachers primarily provide guidance and feedback during class. It is an effective teaching model that integrates information-based teaching resources with instructional practice, thereby significantly improving teaching outcomes.

Studies by Xiao (2020), Liang (2020), Qin (2020), and Feng (2020) have investigated the potential of informatization to enhance university basketball teaching. Despite these insights, there is a clear research gap in understanding the direct correlation between informatization strategies and student engagement, learning outcomes, and the development of technical skills in basketball. Additionally, there is a lack of research on the challenges and limitations of integrating digital technologies in sports education, such as issues related to digital equity, student motivation, and the effectiveness of various multimedia resources in supporting diverse learning styles. In conclusion, these studies reveal that the flipped classroom has broad and significant applications in college basketball teaching, which not only improves students' learning outcomes but also enhances their level of basketball skills and competitive performance.

## **2.2 Theoretical Framework**

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The flipped classroom is a teaching model, also referred to as “flipped learning” or “inverted learning.” Its main concept is to reverse traditional classroom teaching and learning. In traditional classroom settings, students tend to be passive, with the teacher serving as the primary leader of the class. In contrast, in the flipped classroom model, teachers no longer function as conventional instructors but instead act as facilitators and guides. Students acquire theoretical knowledge outside the classroom by watching videos, reading materials, and engaging with other resources, while practice primarily takes place in the classroom through practical training, discussions, and problem-solving activities (Li, 2022). The implementation of the flipped classroom in university basketball instruction is gaining increasing popularity. Empirical

research has confirmed that this teaching model promotes greater student interaction, stimulates their curiosity to learn, enhances both their theoretical understanding and practical skills in basketball, and improves their overall competencies.

### **2.2.1 Constructivism Theory**

The flipped classroom is an impactful teaching model in higher education (Kim & Maloney, 2020). It is based on student self-regulation and interaction, in which students deepen their comprehension and application of knowledge through pre-class preparation, discussions, and exercises. Therefore, the flipped classroom is a highly promising approach in college basketball education. Ren (2019), in his research, reveals that the use of the flipped classroom in college basketball teaching can significantly improve the quality and efficiency of student learning. Students not only learn basketball skills but also enhance their abilities in autonomous learning, teamwork, and critical thinking through pre-class preparation, online discussions, and peer evaluation. Furthermore, teachers can adjust their teaching methods according to students' learning progress, thereby improving teaching quality. The research by Huang (2018) provides a visual analysis of the status and trends of flipped classroom studies in China, illustrating the transition from theoretical exploration to empirical research. The primary fields of flipped classroom research include educational technology and physical education. In physical education in particular, the flipped classroom can help achieve course objectives while also enhancing students' skills and overall attributes. From general basketball courses, Yuan (2017) analyzed the benefits of the flipped classroom teaching model, pointing out that it can sustain students' attention throughout the learning process. It also facilitates a shift from the traditional teacher-centered model, transforming students into active learners.

Such studies demonstrate the positive influence that flipped classrooms may have on college basketball instruction. From the perspective of constructivist theory, flipped classrooms enable students to construct knowledge through interaction with the real world. Students learn independently and then interact with teachers and peers in class. They consolidate and apply the acquired knowledge through practice and discussion (Jia, 2023). Overall, according to the literature, constructivist learning theory emphasizes that knowledge is constructed by students through their interaction with the real world. Students in flipped classrooms learn independently and reinforce their understanding through practical training and discussions with teachers and peers. The flipped classroom has clear advantages in college basketball teaching, including increasing student participation, enhancing learning outcomes, and achieving educational

objectives. However, to implement the flipped classroom effectively, teachers must be proficient in appropriate teaching methods and technologies, and institutions should provide adequate support and resources. This area requires further research and professional development.

While studies such as those by Ren (2019) and Huang (2018) illustrate the flipped classroom's potential benefits under constructivist theory in college basketball teaching, there remains a significant gap in comprehensive, longitudinal research assessing the long-term impact of such pedagogical approaches on students' learning outcomes and personal development. Moreover, the existing literature lacks detailed case studies or comparative analyses that rigorously evaluate the effectiveness of the flipped classroom in fostering deep conceptual understanding of basketball theory and skills compared with traditional teaching methods. This gap underscores the need for further empirical research that specifically addresses these aspects within the framework of constructivist theory, potentially employing diverse and innovative methodologies.

### **2.2.2 Autonomous Learning Theory**

The flipped classroom, as an innovative teaching pattern, redefines the role of the classroom and enhances students' self-directed learning competencies. Many studies have demonstrated its considerable benefits in university basketball education. Through a review of the literature below, we will go further into empirical studies on flipped classrooms in college basketball teaching. Zhang (2020) investigated the use of flipped classrooms in college basketball classes and found that the model increases students' motivation to learn and enhances their technical and theoretical knowledge. Before class, students independently acquire basketball knowledge from videos and reading materials. In class, teachers facilitate practical drills, pose questions, and guide discussions among students, which supports a deeper understanding of basketball concepts. Qin (2020) examined optimization strategies for college basketball teaching constrained by the flipped classroom model and proposed that teachers should develop teaching content and activities according to students' needs and learning conditions. Schools should also provide support by developing online platforms and offering learning resources. As discovered by Feng (2020), flipped classroom patterns enable students to study basketball knowledge independently before class and then engage in practice and discussion during class. This improves not only basketball skills but also autonomous learning, teamwork, and problem-solving abilities. In a nutshell, the autonomous learning theory suggests that students, with the guidance of teachers, establish learning goals and monitor and evaluate their learning process. In

flipped classrooms, students study theory independently outside class and then engage in practical exercises and discussions during class to achieve autonomous learning.

These studies further highlight the clear practical advantages of flipped classrooms in college basketball teaching, as they stimulate students' interest, enhance basketball skills and theoretical knowledge, and foster autonomous learning and problem-solving abilities. This is congruent with the main characteristics of autonomous learning theory, where students determine which objectives they aim to achieve and how to accomplish them, under the guidance of a teacher. Therefore, flipped classrooms are poised to play an increasingly prominent role in college basketball education. The literature, including findings from Zhang (2020) and Qin (2020), supports the efficacy of the flipped classroom in promoting autonomous learning in college basketball education. However, a significant gap exists in exploring how autonomous learning theory can be operationalized to address diverse learner needs, including students with varying learning styles and abilities. Additionally, there is limited evidence on strategies for effectively integrating autonomous learning theory into the planning, implementation, and assessment stages of the flipped classroom, particularly in sports education contexts. This gap points to a critical need for research focusing on the development and evaluation of differentiated instructional strategies that support all learners in achieving their full potential within an autonomous learning environment.

### **2.2.3 Cooperative Learning Theory**

Zhang (2021) looked into the possibility of using the O-PIRPAS flipped teaching model in college basketball elective courses at China University of Mining and Technology. This model integrates online pre-study, onsite operations, problem-based research, Q&A sessions, practical application, and self-assessment. Empirical studies revealed that the model increases learning efficiency and outcomes in college basketball elective courses, while promoting self-directed learning and teamwork among students. An (2021) looked at the development of basketball consciousness among college basketball students through flipped classrooms. She pointed out that the students could efficiently enhance basketball skills and awareness during autonomous learning and practical training in class. Teachers can tailor curricula and instructional methods according to students' learning needs to improve teaching effectiveness. In his works, Lu (2018) pointed out the benefits of flipped classroom teaching models and their impact on the reform of classroom teaching in China. He argued that a flipped classroom, by shifting standard teaching methods and having students complete background learning outside of class, allows class time

to be used for in-depth discussions and hands-on practice. Such a model increases student engagement and learning effectiveness, aligning with modern educational trends.

Combining these studies, cooperative learning theory stresses that students cooperate and communicate. Students in flipped classrooms engage in group discussions and collaborate on assignments, which enhances their teamwork skills, and learning from peers further improves their knowledge and competencies. The positive influence of flipped classrooms on college basketball instruction is evident. Cooperative learning theory asserts that group discussions and collaborative tasks in flipped classrooms facilitate the development of teamwork skills and promote learning from others, thus increasing levels of knowledge and skill mastery among students. Consequently, flipped classrooms should play an even more significant role in college basketball teaching. Research by Zhang (2021) and An (2021) supports the flipped classroom's role in facilitating cooperative learning in college basketball courses. Despite this, the literature review reveals a gap in understanding the specific mechanisms through which cooperative learning in flipped classrooms can enhance both individual and team performance in basketball. Furthermore, there is a lack of comprehensive studies examining the challenges and best practices associated with implementing cooperative learning strategies in flipped classrooms, such as managing group dynamics, ensuring equitable participation, and aligning cooperative tasks with learning objectives. Addressing this gap would provide valuable insights into optimizing the flipped classroom model for maximum educational impact in the context of college basketball instruction.

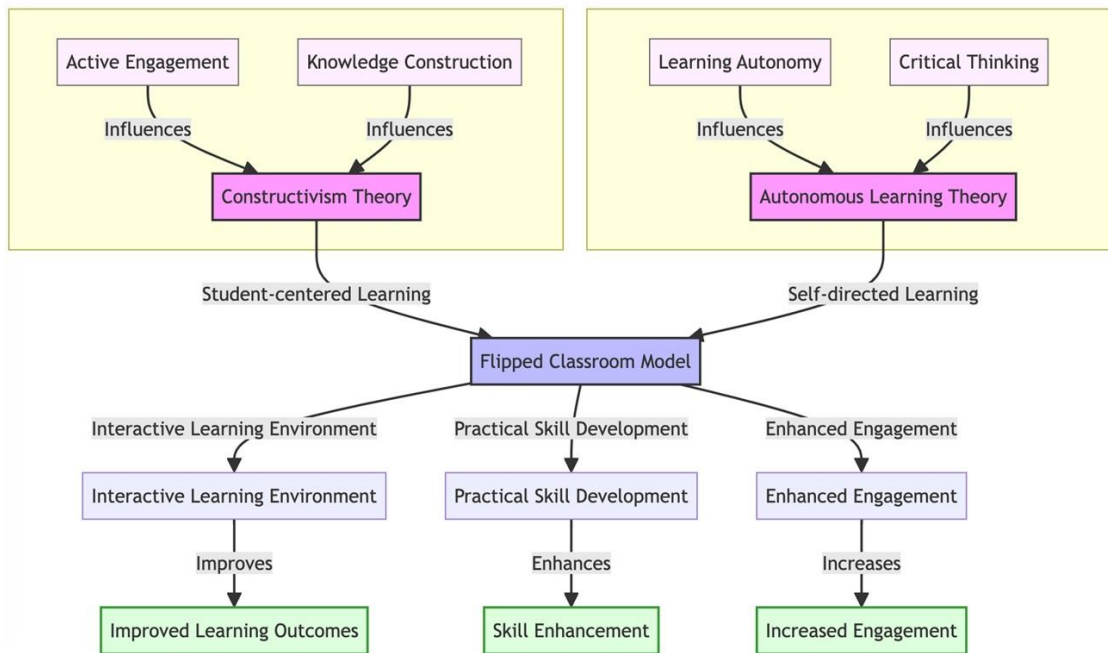
#### **2.2.4 Integration of Theoretical Frameworks and the Flipped Classroom Model**

The implementation of the flipped classroom model in university basketball teaching is underpinned by two main theoretical foundations: the Constructivist Theory and the Theory of Autonomous Learning. These theories provide the pedagogical basis that supports and clarifies the operation of flipped classrooms. Nevertheless, the connection between these theories and their practical application in the flipped classroom model within the context of university basketball needs to be more explicit and detailed (Jia, 2023). After the diagram presentation, there is a discussion that explores the application of these theories in the practice of the flipped classroom model. This encompasses pre-class exercises such as video analysis of basketball games, reading materials on basketball strategies, and online forums (Jia, 2023). These activities are designed to foster independent learning, giving students control over the pace and focus areas, which are key components of the Theory of Autonomous Learning.

Thus, in-class activities are grounded in Constructivist Theory, as they require students to practice what they have learned through group activities, practical drills, and problem-solving tasks. Such active participation and engagement help students practice basketball knowledge and skills and, more importantly, understand and retain this knowledge. In addition, this part addresses the function of the teacher in enabling such learning experiences, shifting from a traditional instructor to a facilitator who guides students through the learning process. This new teacher role is pivotal for integrating Constructivist and Autonomous Learning Theories in the flipped classroom model by ensuring that teaching strategies and technologies are effectively implemented for educational purposes and student support (Pozo, 2020).

Lastly, considering critiques regarding insufficient discussion and detail, this chapter concludes by outlining directions for future research. These areas include research on approaches to effectively integrate technology in flipped classrooms, evaluation of the long-term impacts on students' learning outcomes and personal growth, and the development of strategies to adapt the flipped classroom model to meet diverse learner needs and learning styles. By highlighting these aspects, the chapter emphasizes the dynamic nature of pedagogical innovation and the necessity of continuous assessment and refinement of teaching practices to maximize student learning and development in university basketball courses (Chen, 2019).

**Figure 2-1:**  
**The integration of the Constructivism and Autonomous Learning Theories within the flipped classroom model**



The figure provides a graphical representation of the sequence from autonomous learning theory through engagement with pre-class materials to constructivism theory, involving activities during the class that are associated with application and interaction. This unified approach offers a comprehensive insight into the ways the theories interconnect to improve learning outcomes in university basketball teaching, encouraging a shift from traditional teacher-centered approaches to a more student-centered, interactive, and enjoyable learning experience. With such an extensive discussion and graphical representation, this chapter aims to address the feedback comprehensively by providing a detailed illustration of the integration of Constructivism and Autonomous Learning guiding theories within the flipped classroom model, thereby offering a stronger framework for understanding and implementing this innovative teaching approach in university basketball instruction (Kim, 2020).

## **2.3 Flipped Classroom**

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Study by Chen (2019) showed that the flipped classroom model, when applied to a university basketball course, can significantly enhance students' learning of the basic skills and strategies of basketball. Using this approach, students acquire these concepts through in-class activities and discussions, which allow them to master their technical and teamwork skills.

### **2.3.1 Flipped Classroom**

The flipped classroom is one of the modern innovative trends in recent years in educational practice, which involves reversing the phases of learning and practicing typical of the traditional classroom. In this model, students acquire new knowledge and understanding outside the classroom through multimedia resources, such as online courses and instructional videos (Zhu, 2022). Class time is reserved for more detailed discussions, practical activities, and problem-solving, thereby strengthening students' comprehension and application of new information. This model is particularly suitable for courses that require extensive practice, such as basketball.

### **2.3.2 University Basketball Course**

One of the courses in the university physical education system, the basketball course, serves the purpose of teaching students basketball techniques and tactics, while also fostering the development of their physical fitness, collective cooperation, sportsmanship, and habitual engagement in sports, contributing to their comprehensive development (Yu, 2020). The inherent nature of university basketball courses makes the flipped classroom model particularly advantageous; class time can be devoted to practice—playing basketball and improving skills—rather than theoretical instruction.

### **2.3.3 Cognitive Construction**

The cognitive construction, the main principle of constructivism theory, posits that knowledge is not passively received by students from the teacher, but rather constructed by the students themselves through their own thinking and practical activities. It focuses on the individual's initiative and creativity, where each person should understand the world and construct knowledge in a way that suits him or her (Zhu, 2022). In flipped classrooms, data

is first learned outside the class, while class time is devoted to higher-level inquiry and application. In those interactions and during activities with others, students test, revise, and thereby build deeper and broader knowledge (Chen, 2019).

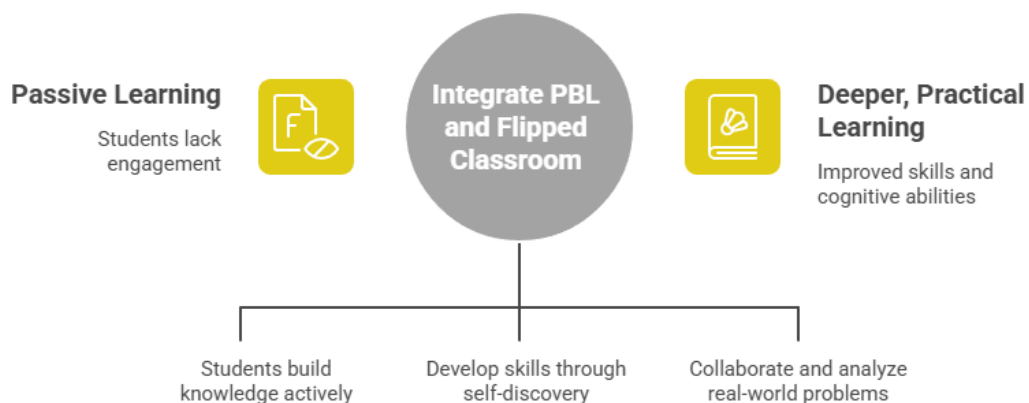
## 2.4 Learning Methods

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### 2.4.1 PBL (Project-Based Learning)

The integration of the flipped classroom and Project-Based Learning (PBL) in teaching university-level basketball courses provides students with a deeper and more practical learning experience. PBL, as an instructional approach, emphasizes students' active construction of knowledge and the development of problem-solving skills through self-discovery, teamwork, and research analysis, particularly when addressing real-world problems or challenges (Bronikowski, 2011). The combination of PBL and the flipped classroom in basketball courses enhances student engagement and participation, thereby improving both their basketball skills and cognitive abilities (Liang, 2020).

**Figure 2-2:**  
**Enhancing Basketball Learning with PBL**



## 2.4.2 Game-Based Learning

Research on the flipped classroom in university basketball course teaching is gaining more and more attention. Game-based learning, as an innovative teaching approach, enables students to experience challenging, interactive, and engaging educational activities. It integrates game elements and mechanics into teaching, promoting active student participation while enhancing teamwork, problem-solving, and decision-making skills. When combined with the flipped classroom, game-based learning creates a more attractive and promising learning environment (Qiu, 2019). Through techniques such as simulation games, role-playing, and the design of complex tasks, students not only perceive learning as enjoyable but also enhance their collaborative, analytical, and creative abilities within a gaming environment. In addition, the flipped classroom model serves as a preparatory mechanism that equips students with essential information, allowing classroom time to be dedicated to application and discussion (Nilubol, 2023). Implementing game-based learning within a flipped classroom transforms the entire process into an interactive and participatory experience, which facilitates comprehensive mastery of basketball knowledge and skills. Ultimately, this combination demonstrates that integrating game-based learning with the flipped classroom significantly enhances both the learning process and skill development (Qiu, 2019).

**Figure 2-3:**  
**Enhancing Basketball Learning with Game-Based Flipped Classroom**



### 2.4.3 Flipped Classroom Learning

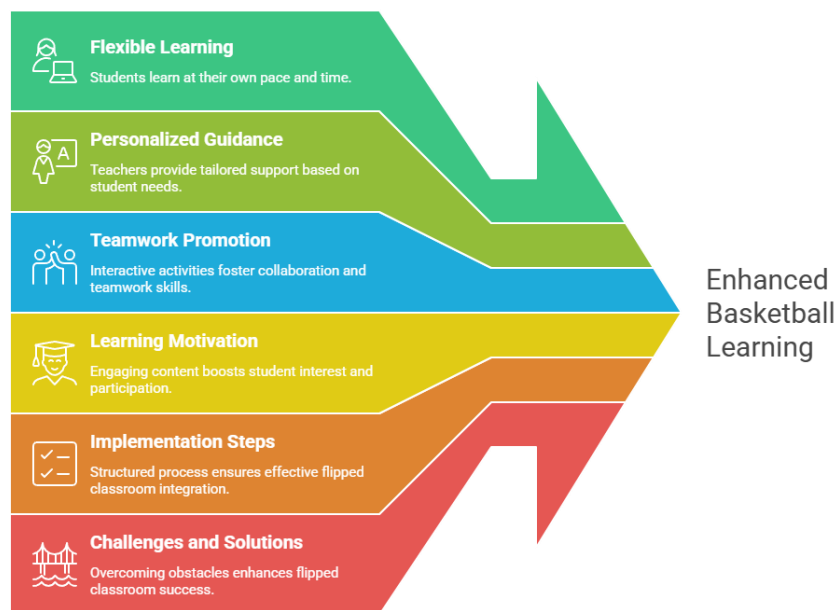
In the dawn of the 21st century, the information age started. The classroom is no longer the sole source of knowledge for students; the internet and technology have revolutionized the availability of learning resources (Shustack, 2022). In this context, classical teaching methods are somewhat outdated. Students are expected to engage in in-depth discussions, practical exercises, and exchanges in the classroom, rather than merely listening to lectures. This calls for a shift in learning styles, which has led to the development of the teaching model known as the "flipped classroom."

1. **Flipped Classroom in Basketball Lessons Flexible Learning:** With online resources, students can determine their own learning pace and schedule. This self-directed learning model offers significant advantages for their long-term development.  
**Personalized Guidance:** If students acquire basic knowledge before class, teachers can provide more targeted guidance tailored to each student's individual needs.  
**Promoting Teamwork:** Basketball inherently requires teamwork. The flipped classroom encourages students to engage in interactive activities and interdisciplinary collaboration.  
**Enhancing Learning Motivation:** The flipped classroom is more engaging for students and, as a result, fosters greater involvement in the learning process compared to conventional classrooms (Chen, 2019).
2. **Implementation Steps of Flipped Classroom:** First, content selection and integration: Not all content is suitable for the flipped classroom. Teachers must identify key content based on the course characteristics and present it in formats such as videos or images. Second, platform selection and assignment: After developing high-quality content, the next step is determining how to effectively distribute it. Today, many excellent online education platforms, such as Coursera, can be utilized for this purpose. Third, pre-class guidance and supervision: To ensure students complete the required learning before class, small quizzes or online discussions can be implemented to boost participation. Fourth, in-class design: Class time should focus on student interaction, including practice exercises, strategy discussions, or in-depth analysis of specific techniques. Fifth, post-class assessment and feedback: This represents a continuous process of optimization, where teaching methods are adjusted based on student feedback and learning outcomes (Luo, 2022).
3. **Challenges and Solutions of Flipped Classroom Self-discipline issues:** Autonomous learning requires strong self-discipline. Teachers can enhance students' motivation

through regular interaction and timely feedback. Technology and equipment challenges: Although most students have smart devices, some may still face obstacles in accessing online resources. For these students, paper-based materials can be provided, or computer labs can be made available.

The flipped classroom introduces innovative approaches for college basketball instruction (Rothman, 2022). It not only improves students' learning efficiency and motivation but also cultivates their autonomy and teamwork skills. Although the flipped classroom presents certain challenges, continuous optimization is likely to yield substantial improvements in basketball instruction. Research indicates that implementing the flipped classroom in college basketball courses is both feasible and effective. Through this method, students can master basic basketball skills and knowledge independently before class, enhancing their enthusiasm and initiative (An, 2001). Furthermore, studies have shown that the flipped classroom positively impacts students' basketball skills, knowledge retention, and learning attitudes. By watching instructional videos, engaging in discussions, and practicing, students gain a deeper understanding of basketball techniques and tactical applications, thereby improving their practical abilities and hands-on skills (Liu, 2022).

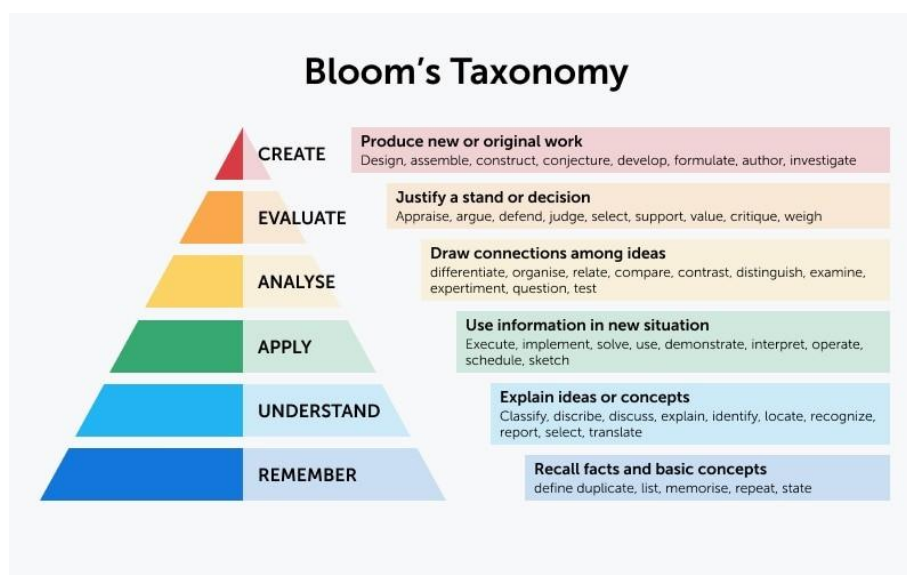
**Figure 2-4:**  
**The Flipped Classroom Advantage**



## 2.5 Bloom's Learning Theory

Learning Theory, proposed by American educator Benjamin Bloom, was presented by American educator Benjamin Bloom. In his research, he discovered that traditional group teaching approaches tended to ignore the individual differences among students, which often resulted in some students not receiving adequate attention and support. Through individual instruction, Bloom found that the vast majority of students were capable of achieving high levels of learning. Thus, he laid out the “Two Sigma Problem” theory, stating that education must be structured so that most students can reach high levels of learning (Momen, 2022). Integrating Bloom's Learning Theory with the flipped classroom model fosters individualized learning (Momen, 2022). In the flipped classroom teaching model, students can engage in self-directed learning prior to class, selecting learning resources and pacing their learning according to their progress and comprehension. Teachers can then provide personalized guidance and support in the classroom based on the students' actual needs.

**Figure 2-5:  
Bloom's Taxonomy**



In the classroom, teachers can integrate Bloom's Learning Theory with the flipped classroom model to offer explicit instructions and training (Chandio, 2016). For instance, regarding basketball shooting skills, teachers may provide a set of video tutorials prior to class, allowing students to select the most suitable tutorial based on their individual circumstances. During class, teachers can organize practical shooting sessions, providing individualized instructions and feedback tailored to each student's performance. At the end

of the session, assessment and feedback are essential components of integrating Bloom's Learning Theory with the flipped classroom model. Through assessments, teachers can evaluate students' learning progress, comprehension, and practical skills, thereby offering more personalized guidance and support to each student (Chandio, 2016). This process also helps learners recognize their strengths and areas for improvement, thereby enhancing learning motivation and overall effectiveness.

Through real-time observation, teachers can offer feedback and guidance based on individual student performance in basketball, focusing on both technical skills and strategic application (Zitouni, 2018). When a student takes a shot incorrectly, the teacher can immediately correct their movement and provide one-on-one technical guidance. Teachers can conduct basketball skill assessments that evaluate students' shooting, passing, defending, and other abilities. These assessments may include written tests, practical exercises, and teamwork evaluations, providing a comprehensive measure of students' basketball skills and strategic understanding (Momen, 2022). Assessment and feedback are critical components of combining Bloom's Learning Theory with the flipped classroom, allowing teachers to gauge students' progress, comprehension, and skill application, which facilitates more personalized instruction. Assessments help students identify strengths and areas for improvement, boosting motivation and enhancing overall learning effectiveness.

By applying Bloom's Learning Theory in basketball instruction, educators can provide real-time observation, feedback, and guidance tailored to students' individual needs (Chandio, 2016). This approach ensures the immediate correction of technical errors and the delivery of personalized guidance, fostering the development of shooting, passing, defending, and other basketball skills. Comprehensive assessments, including written tests, practical exams, and teamwork evaluations, support a holistic understanding of students' abilities and strategic application in basketball. Bloom's Learning Theory is essential because it challenges a one-size-fits-all approach in education and promotes a more inclusive and effective learning environment (Chandio, 2016). By acknowledging and addressing individual differences, educators can foster deeper understanding and skill mastery among all students. In physical education and sports teaching, applying Bloom's principles ensures that each student's unique learning style and pace are considered, leading to more meaningful and impactful learning experiences (Zitouni, 2018). This personalized approach not only enhances skill acquisition but also fosters a more engaging and motivating learning environment, which is crucial for the development of lifelong learners and athletes (Bronikowski, 2011).

Despite the recognized benefits of Bloom's Learning Theory in education, there remains a significant gap in empirical research on its integration with the flipped classroom model in physical education, particularly in university-level basketball instruction (Momen, 2022). Limited studies have investigated the practical implementation of Bloom's taxonomy in designing pre-class materials and in-class activities that address diverse learning needs and skill levels (Bronikowski, 2011). Moreover, detailed research on the effectiveness of personalized feedback and assessment strategies in enhancing technical skills and strategic understanding in sports education is lacking. Addressing this gap would provide valuable insights into optimizing teaching methods and improving learning outcomes in university basketball programs.

## **2.6 Literature in Physical Education Teaching**

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Due to the rapid and continuous development of educational technology, the flipped classroom, as an innovative teaching approach, has attracted considerable attention from educators. The flipped teaching model also shows significant promise and value in university-level physical education instruction.

### **2.6.1 Application of Flipped Classroom in College Volleyball Teaching**

The research results of the application of the flipped classroom model in college volleyball teaching are a series of positive outcomes. Through self-regulated study, classroom interaction, and practice, students' volleyball skills and understanding of the game have improved significantly. Guo (2023) critically analyzed the utilization of the flipped classroom in college public physical education volleyball classes. This literature highlights pre-class self-study through online materials, thereby freeing up more classroom time for practical exercises, technical instruction, and team management. The survey indicated that students displayed greater interest and involvement in the learning process under the flipped classroom model, and their volleyball skills also improved considerably through individualized classroom guidance. Chen (2022) studied the implementation of a “flipped + peer teaching” classroom in volleyball technical teaching for physical education major students. This model combines the general characteristics of the flipped classroom with a 'peer teaching' component, promoting interaction, cooperation, and competition among students. This approach allows students not only to engage in individual learning but also to

participate in group thinking, teamwork, and strategic discussions within the classroom. The research verified the benefits of the conditional flipped '+ peer teaching' model for enhancing students' technical and strategic understanding. Wu (2021) applied the flipped classroom in general college volleyball teaching. The literature stated that through the use of digital technology and online materials, the flipped classroom model helps students gain a deeper understanding of volleyball techniques and strategies. Furthermore, class practical activities are designed to strengthen skills and performance during real matches. The research findings demonstrated that the flipped classroom model can effectively enhance students' learning outcomes and satisfaction.

### **2.6.2 Application of Flipped Classroom in College Volleyball Teaching**

The flipped classroom model has become increasingly popular in football teaching. It emphasizes the delivery of pre-class materials to students via online resources, which allows for more detailed and interactive instruction during classroom time. Ou (2022) studied the effect of the flipped classroom on "level three students" in football skill and interest. The research revealed that students' football skills were significantly enhanced through the flipped classroom model. At this very moment, students become much more engaged in football, demonstrating higher levels of involvement and greater initiative in the independent training conducted after classes. This may also stem from the fact that the flipped classroom model offers students more practical experiences and individual guidance. Mediating effects were also further elaborated by Chen (2022) on the application of the flipped classroom in campus football. The study revealed that, in addition to improving students' football skills and interest, the flipped classroom produced a mediating effect by motivating students within the sports setting. This implies that the flipped classroom, by making the sports teaching environment more engaging, increased students' interest in football and their level of involvement. Chen (2022), however, focused on the efficiency of the flipped classroom teaching model in college soccer instruction. Experience in practical teaching has shown that the flipped classroom approach is capable of enhancing students' technical and tactical understanding. Moreover, students' responses to the flipped classroom mode were highly positive, with most of them stating that it provided practical opportunities and personalized attention from teachers in the classroom. To put it briefly, research on the application of the flipped classroom in college football teaching has consistently demonstrated positive outcomes. Notable improvements have been observed in terms of

technique, approach, and student engagement. These studies provide strong theoretical foundations and empirical evidence to support the promotion of the flipped classroom and its practical implementation in college football teaching.

## 2.7 Chapter Summary

This chapter reviewed the literature related to basketball class teaching, discussing specific application methods, teaching plans, content formulation, and evaluation feedback, as well as their impact on student learning outcomes. Next, a new college basketball class teaching model was designed. Lastly, important literature on physical education teaching was reviewed.

**Figure 2-6:  
Literature Review Framework of Flipped Classroom in University Basketball Education**



## RESEARCH METHODOLOGY

### 3.1 Research Design

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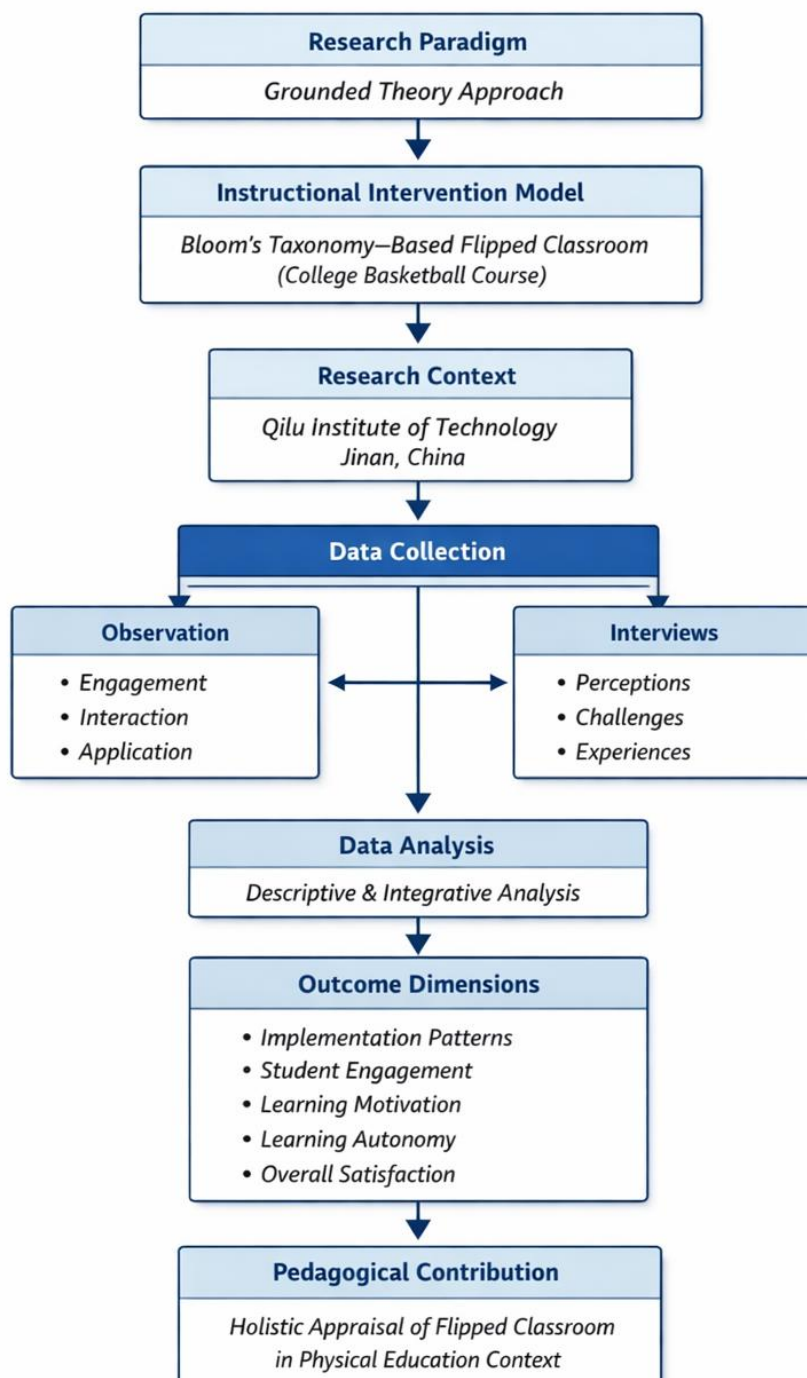
This chapter introduces the research methods employed in the study. This study focuses on the study design, research methods, research sample, data collection methods, and data analysis procedures. The study adopts a grounded theory research design. A Bloom's Taxonomy-based flipped classroom teaching approach was implemented in the basketball courses, and data were collected through interviews and experimental observations conducted from multiple perspectives by the researchers who designed the model (Zitouni, 2018). Descriptive and integrative analyses were conducted on the collected data, allowing the researchers to appraise the performance of the flipped classroom design for college basketball courses in a holistic and more precise manner.

This research constitutes a qualitative study of the flipped classroom model implemented at Qilu Institute of Technology within a college basketball course. The study is qualitative in nature and primarily relies on observations and interviews to gain insight into how students perceive this progressive educational approach. Observation and interviews serve as the principal data collection methods, as they provide efficient means of obtaining comprehensive information to establish the breadth and depth of the students' experiences. Observation enables researchers to directly assess student engagement and interaction in the flipped classroom environment, including their involvement in in-class activities and their application of knowledge acquired from pre-class materials. Interviews, on the other hand, allow students to express their personal opinions, challenges, and achievements with respect to the flipped classroom experience, thereby providing a comprehensive understanding of the model's impact on both the learning process and outcomes.

These focal considerations have refined our inquiry to examine "how the flipped classroom model is utilized in college basketball courses" and students' experiences and

perceptions within the flipped classroom. This refinement enables a more focused investigation of the implementation patterns of the flipped classroom in the physical education context and its impact on student engagement, motivation, learning autonomy, and overall satisfaction. The study emphasizes the experiential and perceptual dimensions of the flipped classroom, thereby enhancing its contribution to pedagogical practices.

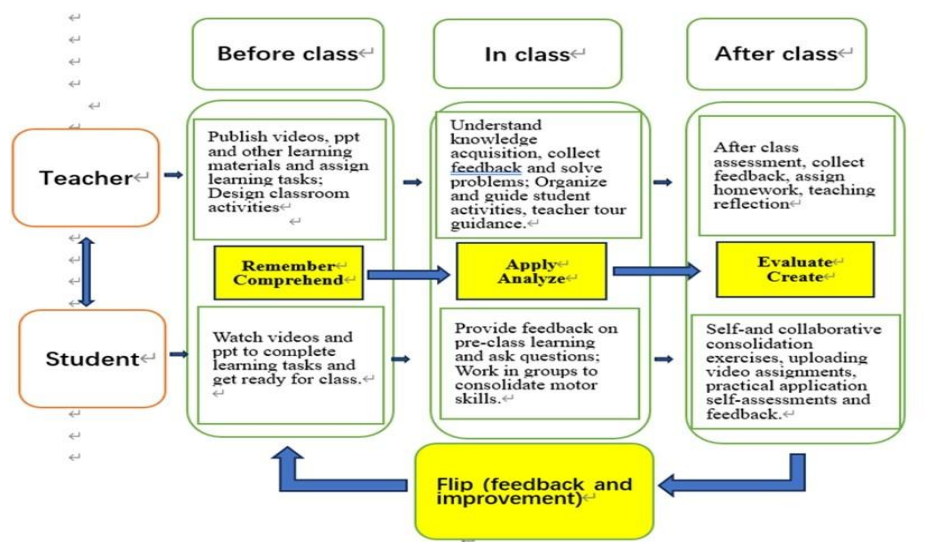
**Figure 3-1:**  
**Conceptual Model of The Study**



### 3.1.1 Flipped Classroom Design for College Basketball Course Based on Bloom's Taxonomy

Building on previous research, this study comprehensively integrates Bloom's taxonomy of cognitive domain objectives and the Massive Open Online Courses (MOOCs) + flipped classroom teaching model (Hu, 2023) to construct a flipped classroom teaching model (Figure 1). The teaching model is divided into pre-class, in-class, and post-class stages, fully embodying the "teacher-led, student-centered" philosophy (Ausubel, 1978; Guo and Liu, 2017). It aims to help students achieve the staged goals of knowledge construction, skill consolidation, and advanced application (Hu et al., 2022), thereby more closely aligning with students' needs (Ma, 2020).

**Figure 3-2:  
Flipped Classroom Model for Basketball Lessons (Hu, 2023)**



### 3.1.2 Flipped Classroom Design for College Basketball Course Based on Bloom's Taxonomy

Step 1: Determine the objectives and content of the flipped classroom

The first step in implementing the flipped classroom teaching method in college basketball courses is to determine the objectives and content of the flipped classroom. According to Xu (2020), this step is one of the keys to achieving the effects of flipped classroom teaching and is also an important part of course design. Teachers need to clarify the objectives and content of pre-class self-study and classroom activities based on the teaching syllabus of the basketball course to ensure that students master the basic knowledge

before class.

1. Having a comprehensive understanding of the basketball course syllabus, which includes the knowledge points, skills, physical fitness components, and attitudes to be developed, as well as the learning goals to be achieved by students, is crucial before setting the objectives and content of the flipped classroom (Lantu et al., 2023). Teachers also need to evaluate the teaching content to ensure that the flipped class model adequately improves students' outcomes.
2. Determine pre-class self-study assignments.  
Using the basketball course teaching syllabus as the basis, teachers should establish the goals and content of pre-class self-study assignments. The content of these tasks may include teaching videos, textbooks, teaching PowerPoint presentations, and other relevant study materials. The aim is for students to acquire foundational knowledge of basketball skills, physical fitness, and sports attitudes prior to class; thereby enabling them to be adequately prepared to participate in classroom activities.
3. Design classroom activities  
Based on the teaching syllabus of the basketball course, teachers should design the objectives and content of classroom activities. In designing these activities, teachers need to consider students' actual situations and the teaching objectives of the basketball course, by creating activities such as group discussions, case analyses, practical exercises, and simulated games that align with students' needs and contexts, aiming to cultivate students' basketball skills and tactical application abilities. Teachers also need to choose appropriate teaching methods and tools to enhance students' learning outcomes based on their actual situations and the objectives of the basketball course.
4. Ensure students master basic knowledge before class  
To ensure that students have mastered the basic knowledge before class, teachers can guide and assess students through pre-study quizzes and homework assignments, ensuring they have understood the content of the pre-class self-study tasks (Demir et al., 2023). Teachers can also conduct simple knowledge tests in class to ensure students have mastered the basic knowledge through pre-class self-study, thereby enhancing learning outcomes.

In summary, determining the objectives and content of the flipped classroom is the first step and an important part of course design in flipped classroom teaching. Teachers need to clarify the objectives and content of pre-class self-study and classroom activities based on the basketball course's teaching syllabus, ensuring students master the basic knowledge before class to enhance students' learning outcomes and teaching efficiency.

#### Step 2: Prepare pre-class learning materials

Teachers can provide learning materials in various forms, such as videos, textbooks, and teaching PPTs, to facilitate students' pre-class self-study.

1. Specify the aims and the contents of pre-class study activities.

Pre-class learning tasks should be specified before teachers prepare pre-reading materials. The aim of pre-class learning tasks is to enable students to achieve mastery of basic knowledge concerning basketball skills, physical fitness, and sports attitudes, so that they can participate in classroom activities more effectively, as noted by Yu (2020). Learning tasks before the class should mirror the teaching curriculum of the basketball course; i.e., the content should include knowledge points, skills, physical fitness, and attitudes. According to the goals and contents of pre-class learning tasks, teachers can select suitable learning materials, such as teaching videos, textbooks, and teaching PPTs. The materials must be simple to understand, clear, and rich in content, enabling students to quickly master the knowledge points.

2. Produce teaching videos

Teaching videos are considered a highly effective type of learning material that can help students better understand basketball skills and tactical applications (Liu et al., 2022). Teachers may develop teaching videos that cover the elementary knowledge of basketball skills and tactical applications to help students carry out pre-class self-study. Most videos can be designed using animations, demonstrations, and other formats to enable students to understand the knowledge points more deeply.

3. Choose appropriate textbooks

Textbooks serve as a very significant resource for students' pre-class self-study. Textbooks can be chosen by teachers in accordance with the teaching syllabus, thus enabling students to better comprehend the knowledge points. Textbooks need to be simple, lucid, and rich in information, helping students quickly grasp the knowledge points.

#### 4. Produce teaching PPTs

Teaching PPTs constitute a very practical type of learning material that can promote students' mastery of basketball skills and tactical applications. According to Huang (2022), teachers can create teaching PPTs to present the basic knowledge of basketball skills and tactical applications to students. The teaching PPTs should be easy to understand and abundant in content, thereby helping students grasp the knowledge points quickly. They can be in the form of text, graphics, tables, and other forms of visualization, which help students understand the knowledge points more deeply.

#### 5. Offer related study materials.

There are also learning videos, paper materials, teaching PPTs, and other related learning materials developed by teachers to help students understand the knowledge points. Study materials should be aligned with the course content, of high quality, useful, and easy to read.

#### 6. Assign related homework

Teachers can give students related homework, e.g., reading assignments and homework questions, and students can check whether they have already mastered the knowledge points, thereby motivating them to seriously engage with the pre-class materials. The questions asked in the homework should be course-related and moderately challenging in order to evaluate students' critical thinking and comprehension abilities.

In the design of pre-class learning materials, teachers should define the contents and objectives of pre-class learning tasks in accordance with the teaching syllabus, select appropriate learning materials, produce teaching videos and PPTs, provide related study materials, and assign necessary homework; these measures are conducive to enhancing students' pre-class self-learning and preparation for classroom activities.

### **3.1.3 In-class Flipped Classroom**

In teaching college basketball courses, Zhang (2017) suggests that teachers can design various forms of classroom activities, such as group discussions, case analyses, practical operations, and simulated games, to cultivate students' basketball skills and tactical application abilities. Additionally, teachers can allocate time for students to interact and engage in discussions with one another, thereby enhancing their cooperative and interactive

skills.

Step 3: Specific methods for designing classroom activities:

1. Design classroom activities in alignment with the teaching syllabus

Teachers need to design various forms of classroom activities in accordance with the teaching syllabus of the basketball course. The purpose of these activities is to help students better understand basketball skills and tactical applications, while enhancing their practical, hands-on abilities. Li (2022) suggests that teachers can design various forms of classroom activities, such as group discussions, case analyses, practical operations, and simulated games, to address students' learning needs and real-world contexts.

2. Design reasonable and achievable learning tasks

When designing classroom activities, teachers need to design appropriate learning tasks that consider students' actual abilities and the teaching objectives of the basketball course (Aguilera Manrique et al., 2022). Learning tasks should correspond to classroom activities, facilitating students' understanding of key concepts. For example, in group discussion activities, teachers can design targeted questions to guide students' thinking and discussion, thereby supporting their comprehension of the subject matter.

3. Utilize interactive classroom tools to promote engagement

To promote students' interaction and exchange, teachers can employ various interactive classroom tools. For example, teachers can use online discussion tools to facilitate students' online discussions and exchanges in group discussion activities. In practical operation activities, teachers can use video recording tools to capture students' actual performance processes for subsequent analysis and discussion.

4. Emphasize students' cooperation and interaction skills

To enhance students' cooperation and interaction skills, teachers can design a variety of cooperative activities within classroom sessions. For example, in simulated game activities, teachers can have students compete in teams to foster both a spirit of cooperation and competitive abilities.

5. Adjust activities based on student feedback

Teachers should adjust classroom activities according to student feedback, such as by collecting opinions and suggestions during group discussions to understand students' learning progress and to inform subsequent improvements.

#### Step 4: Classroom Implementation and Management

Classroom implementation and management are key components of the flipped classroom teaching method, designed to ensure that students actively engage in classroom activities to achieve learning objectives. Yang (2016) suggests that in college basketball course teaching, teachers need to organize and guide students in various activities, taking into account individual differences and providing targeted support to ensure that every student has an effective learning experience.

1. Organize and guide students in activities

Teachers should organize and guide students through various classroom activities, such as group discussions, case analyses, practical exercises, and simulated games. Teachers need to clearly communicate the objectives and requirements of the activities and guide students on how to appropriately allocate their time and tasks. During these activities, teachers should monitor student participation and performance, providing guidance and feedback in a timely manner.

2. Pay attention to individual differences among students

Teachers should be mindful of individual differences among students, including learning abilities, interests, and cognitive styles. Lisa (2022) suggests that teachers need to provide targeted guidance and assistance to address the diverse learning needs of students. For instance, students with lower learning abilities may benefit from additional tutoring and guidance, while students with varied interests can be engaged through activities tailored to their specific preferences.

3. Provide ample learning resources

Teachers should offer sufficient learning resources to actively engage students in classroom activities. For example, teachers can provide pre-class learning materials, such as instructional videos, textbooks, and teaching PPTs. Additionally, teachers can facilitate access to online learning resources, including discussion forums and online quizzes, to enhance learning and promote interaction among students.

4. Provide timely feedback and evaluation

Teachers should provide prompt feedback and evaluation to help students understand their learning progress and identify areas for improvement. Feedback and evaluation can take various forms, such as oral comments, written feedback, or grading. Teachers should select the most appropriate feedback methods based on students' needs and the nature of classroom activities, encouraging students to demonstrate their strengths while offering constructive suggestions for improvement.

## 5. Manage classroom order and time

Teachers must manage classroom order and time effectively to ensure the smooth execution of activities. At the beginning of class, teachers should inform students about classroom rules and expectations while encouraging active participation. Additionally, teachers should allocate class time thoughtfully, managing the duration of each segment to maintain the overall flow and efficiency of classroom activities.

### 3.1.4 After-class in Flipped Classroom

#### Step 5: Evaluation

Evaluation and feedback are important aspects of the flipped classroom teaching method, as they help teachers understand students' learning progress and adjust teaching content and strategies accordingly. Li (2016) suggests that in teaching college basketball courses, teachers can evaluate students' learning outcomes by observing their performance in classroom activities, collecting assignments and feedback, and providing timely guidance to facilitate improvement.

#### 1. Observe students' performance in classroom activities

Teachers can evaluate students' learning outcomes by observing their performance in classroom activities, such as participation, cooperation skills, and practical operations. Such observations allow teachers to identify areas for improvement and provide targeted guidance and support.

#### 2. Collect students' assignments and feedback

Teachers can collect students' assignments and feedback to assess their learning outcomes. For instance, teachers can ask students to submit learning notes, videos of practical exercises, or discussion reports to gain insight into their learning progress. Teachers can also gather students' opinions to adjust and enhance teaching content and methods.

#### 3. Conduct regular comprehensive evaluations

To more thoroughly evaluate students' learning outcomes, teachers should conduct regular comprehensive assessments, such as mid-term and final exams. These evaluations help teachers understand students' learning levels and progress while providing effective feedback to guide adjustments in learning strategies and enhance learning outcomes.

4. Pay attention to individual differences among students

When evaluating students' learning outcomes, teachers need to consider individual differences, such as learning abilities, interests, and cognitive styles. Providing targeted feedback and guidance ensures that the diverse learning needs of students are met.

5. Encourage students to engage in self-directed learning and reflection

Teachers can encourage students to engage in self-directed learning and reflection to deepen their understanding and mastery of knowledge. For example, in after-class assignments, teachers can ask students to reflect on their learning experiences, raise questions, and offer suggestions, thereby helping students adjust learning strategies and improve outcomes.

6. Provide timely feedback and guidance

Among all teacher roles, providing timely feedback is paramount, whether in assessing knowledge, assigning merits, or marking badges within a system. Feedback channels include face-to-face interactions, phone calls, and online chat platforms, which are preferred modes of student-tutor engagement. While some teachers adhere to traditional methods, such as written comments on student work, others experiment with innovative approaches to effectively convey lesson content. Even when adopting conventional methods, their widespread use and recognized value justify their continued application.

In addition to innovating and refining effective methods, teachers should aim to eliminate unreliable practices and strengthen best practices. Teachers conducting empirical studies must repeat these processes to understand the impact of their interventions and the variability in student responses. Both laboratory work and classroom application, by students or faculty, are essential for addressing learning and teaching needs.

Ultimately, teachers can identify gaps in their own practices and implement improvements. Creating an effective learning environment is not merely about data collection and assessment, but should be informed by empirical research to guide instructional strategies and presentation methods. A flexible approach, incorporating students' ideas and experiences, enables teachers to detect system flaws and develop solutions for educational improvement. Incorporating necessary modifications, such as innovative teaching approaches and delivery methods, before empirical research and involving students in measuring effectiveness, represents a foundational step in research methodology. Additional measures, including guidelines and supplementary courses,

support both professional and in-service teachers in navigating the complexities of classroom instruction.

Engaging activities, such as trivia games alongside regular courses, can foster student engagement and loyalty. For example, the movie *Ma* (2016) provides material for reflection, encouraging students to share experiences and integrate diverse ideas. Furthermore, analyzing results demonstrates that users of flipped approaches often form collaborative groups, reinforcing theoretical concepts. New teachers can also benefit from observing the practices of experienced teachers or learning new techniques, thereby accelerating the development of teaching skills.

Step 6: Instructors can achieve the mission of the flipped classroom style of teaching basketball by:

The coursework, in addition to general competencies, will specify the following: 1) learning outcomes accompanied by exercises and various activities; 2) students being given the opportunity to discuss the learning objectives for each objective provided; 3) assignments related to each learning objective. The training and modules will help learners achieve a comprehensive and deep understanding of the subject at both the physical and emotional levels, contributing to the recipients' positive teaching experience and further promoting optimal learning outcomes.

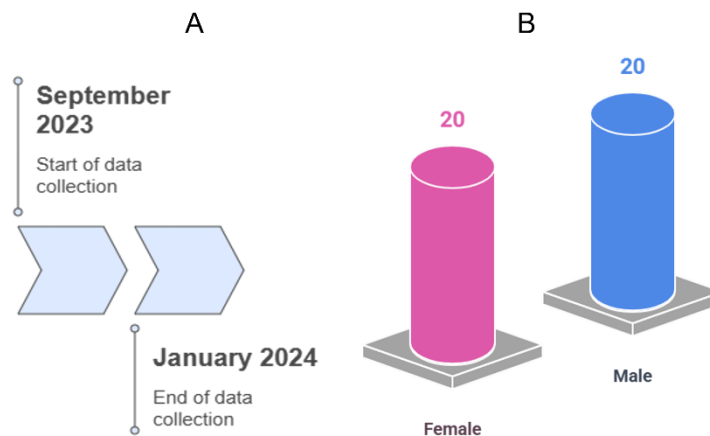
## 3.2 Sample and Sampling Method

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### 3.2.1 Description of Sample and Sampling Method

The sample for the in-depth qualitative research consists solely of students from the 2022 cohort at Qilu Institute of Technology. This study deliberately selected this particular university, as the combination of students from diverse majors was considered unique. This selection aimed to emphasize the diversity of academic backgrounds and learning styles within the university. Having similar athletic abilities, in addition to coming from different majors and encountering one another for the first time, creates a particularly subtle scenario for this research. Nevertheless, this study places greater emphasis on the learning outcomes and ensures a sense of control by focusing on participants who stand at the same initial level of knowledge and are not influenced by prior social interactions. The sample for this study consists of students from the 2022 basketball class at Qilu Institute of Technology. The study employs purposive sampling to select 40 individuals as experimental subjects. The students come from various majors, have had no prior contact with one another, and possess similar basketball foundations, ensuring that they begin at the same level.

**Figure 3-3:**  
**(A) Data collection time (B) Sample size**



**Table 3-1:  
Description of sample and sampling method**

Aspect	Details
Study Population	Students enrolled in the 2022 basketball class at Qilu University of Technology. This population comprises students from various majors, with similar basketball foundation levels and no prior interaction with each other.
Sampling Method	Purposive Sampling
Rationale for Sampling Method	Purposive sampling was chosen due to its suitability for qualitative research focused on obtaining in-depth insights from a specific subset of the population. This method allows for the deliberate selection of individuals who are most likely to provide relevant and rich data related to the research questions, particularly about the effects of a flipped classroom model on student learning and engagement in basketball courses.
Sample Size	40 individuals (20 female / 20 male) from 2023September to 2024 January
Sample Characteristics	The sample consists of students with varying majors but similar basketball skills levels, ensuring a uniform starting point for assessing the impact of the flipped classroom model. This approach minimizes confounding variables that could arise from differences in prior knowledge or skill, making it easier to attribute observed outcomes directly to the educational intervention under investigation.
Justification for Sample Size and Characteristics	The size and characteristics of the sample were determined based on the need for a manageable yet sufficiently diverse group to explore the nuanced impacts of the flipped classroom approach. Selecting students from different majors but with similar basketball foundations enhances the study's relevance across disciplines while maintaining a focus on the pedagogical intervention's effects.

### 3.2.2 Rationale Behind the Sampling Method

Non-probability sampling will also be used as the basis of the investigation. It will be based on the selected four groups that are also equal in number from the target population. This type of sampling indeed establishes an appropriate foundation for qualitative research, because the intention is not merely to provide a statistical summary but also to explore in depth the intricate dimensions of participants' opinions and thoughts. On the other hand, purposeful sampling is applied when a researcher intentionally selects subjects/participants who are most likely to provide relevant responses, and who are expected to respond in the manner the research question requires, for example, in the implementation of Flipped Classroom Teaching combined with Bloom's Taxonomy in college courses, particularly regarding student engagement, skill development, and the learning environment in a college-level course. Deciding to represent clusters according to key characteristics is essential in building an unobtrusive sampling frame. The first of the method advantages is its ability to

facilitate further screening of samples for the most suitable target audience from the perspective of sports flipped classrooms, ensuring coverage of all critical areas related to innovative education and sports. This article has narrowed the student selection to those who share similar fundamental basketball skills; this approach will, to some extent, eliminate unnecessary variables, thereby allowing the focus to remain on the pedagogical effects of the flipped classroom model.

Moreover, this research will also employ the purposive sampling method, which provides the opportunity to fully maximize the study findings and their subsequent application in developing effective training methods. By defining a specific target group for the research, innovative insights may emerge as breakthroughs, particularly because the proposed solution may be designed to align with the course standards established for that specific group of college basketball learners. This detailed essay serves a significant purpose for teachers implementing active learning strategies in their lessons, as it provides a conceptual explanation of pre-class activities, in-class exercises, and post-class assessment methods, thereby guaranteeing optimal student engagement and achievement. In light of the fact that this method was not chosen arbitrarily and is most likely a function of the overall research design, it is of paramount importance to conduct sampling that is fit for its intended purpose. As well as being a genuine attempt to revolutionize basketball teaching at the college level through the flipped classroom approach, its purpose is not merely radical transformation, but also the practical ability to enhance students' understanding of the depth and complexity of the basketball game. Aside from serving solely as a tool for information-seeking purposes, this particular case study, through targeted inquiry, seeks to provide practical recommendations to teachers, curriculum developers, and policymakers regarding methods they can employ to improve the quality of student learning as well as enhance their professional competence.

### **3.3 Data Collection Procedures**

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Data collection methods during the experiment, data including students' basketball skill progress, class participation, and learning satisfaction were collected through observation, interviews, and classroom performance, and data analysis was conducted to verify the effectiveness of flipped classroom teaching in college basketball courses and to explore factors affecting teaching effectiveness. The theoretical underpinning of this study is based on an extensive literature review of the flipped classroom methodology and Bloom's

Taxonomy. The literature analysis helps in developing a detailed understanding of the principles of the flipped classroom and its influence on student learning, which forms the basis for subsequent data collection and analysis. Semi-structured interviews with the students focused on their experiences with preparation, in-class activities, individual study, group work, technology, motivation, assessment, time management, and overall satisfaction. The interviews played a primary role in obtaining qualitative data regarding the efficiency of the flipped classroom model and areas for further development. Empirical evidence of the impact of the flipped classroom model was provided by observational data on student engagement, basketball skill development, and satisfaction. This approach examines the feasibility and outcomes of flipped classroom methods in improving student learning and active participation.

**Figure 3-4:**  
**Data collection Methods**



### 3.3.1 Literature Analysis

Literature analysis involves reviewing relevant literature, including academic papers, professional journals, books, and online resources, to collect information on flipped classroom teaching. This study will examine previous academic research findings to understand the principles and effects of flipped classroom teaching. Through literature

analysis, conclusions can be drawn from existing research findings, thereby providing theoretical support for this study.

### **3.3.2 Interviews**

This study conducted semi-structured interviews with students, including group leaders and regular students, involving a total of five participants. The interview content mainly involved issues such as the design of the flipped classroom teaching model, feedback and evaluation, teaching time planning, instructional methods, and the organization of practice activities. The interviews took place after the experiment to qualitatively analyze students' subjective perceptions of the flipped classroom teaching model, with the aim of determining the effectiveness of the learning outcomes generated by the flipped classroom approach. (See Appendix for interview outline).

### **3.3.3 Experimental Observation**

To comprehensively evaluate the impact of the flipped classroom on college basketball course teaching, the experimental observation method will be used, with an experimental class established using the flipped classroom teaching model (Antonis et al., 2022). By observing improvements in basketball skills, classroom participation, learning satisfaction, etc., the actual effects of the flipped classroom teaching approach can be thoroughly understood.

### **3.3.4 Teaching Content**

The teaching content for this experiment uses the basketball chapter content and teaching syllabus compiled by researchers from the "College Sports and Health" textbook at Qilu Institute of Technology. The teaching content and class schedule are as outlined in Table 2.

**Table 3-2:  
Basketball Course Teaching Content and Class Schedule**

Category	Teaching Content	Class Schedule
Theory Part	<ol style="list-style-type: none"> <li>1. Introduction to basketball</li> <li>2. Basic basketball rules and referee knowledge</li> <li>3. Techniques and related knowledge of basketball skills</li> </ol>	4 class hours
Practical Part	<ol style="list-style-type: none"> <li>1. Footwork</li> <li>2. Dribbling</li> <li>3. Passing</li> <li>4. Shooting</li> <li>5. Positions and roles of players on offense</li> <li>6. Defensive techniques and methods</li> <li>7. Rebounding</li> <li>8. Introduction to 3x3 basketball games</li> <li>9. Teaching games</li> </ol>	20 class hours

In designing a basketball course curriculum, the inclusion of fundamental and strategic components such as footwork, dribbling, passing, shooting, positions and roles on offence, defensive techniques, rebounding, introduction to 3x3 basketball games, and teaching games is crucial. Footwork lays the foundation for balance and movement; dribbling and passing are essential for ball control and team dynamics; shooting is vital for scoring; understanding offensive roles enhances team effectiveness.

**Figure 3-5:  
Basketball Skills Hierarchy**



### **3.3.5 Experimental Procedure**

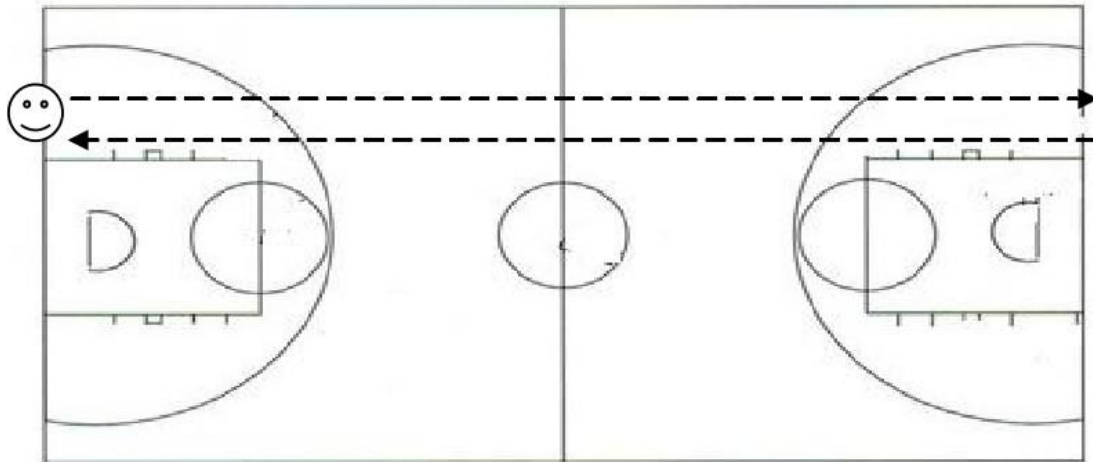
Preparation prior to the experiment includes importing the list of students in the experimental class into the Chaoxing Learning Pass teaching system platform and establishing a QQ study group; sharing teaching videos, PPTs, and teaching plans through the platform to provide students with instructional materials; and utilizing the platform's features for online pre-class and post-class Q&A sessions, as well as for monitoring online learning. After each online learning session, questions will be designed based on the relevant rules and technical movements of basketball content, as well as the key and challenging points, and assignments and discussions will be arranged accordingly.

### **3.3.6 Experimental Test Methods and Evaluation**

The samples chosen have not received professional basketball training before. According to Zhang Yanchong's paper "Research on the Small Group Teaching Model in Basketball Course Teaching," fixed-point shooting and dribbling are used, combined with the characteristics of flipped classrooms. Therefore, it is decided to test dribbling and shooting using the most basic basketball techniques. First, the experimental testing method

1. Full-court straight-line dribbling back and forth Test method: Students start with the ball behind the end line, and upon hearing "start" (while the stopwatch starts), dribble quickly back and forth across the full court 4 times (2 round trips), stopping the clock when returning to the original starting point for the last time. Test rules and requirements:
  - 1) No walking violations allowed, with a 10-point deduction for each occurrence.
  - 2) Must touch the end line with a foot before returning. If the ball is lost, pick it up and return to the original spot to continue dribbling, with the stopwatch continuing.

**Figure 3-6:  
Test regulations and requirements**

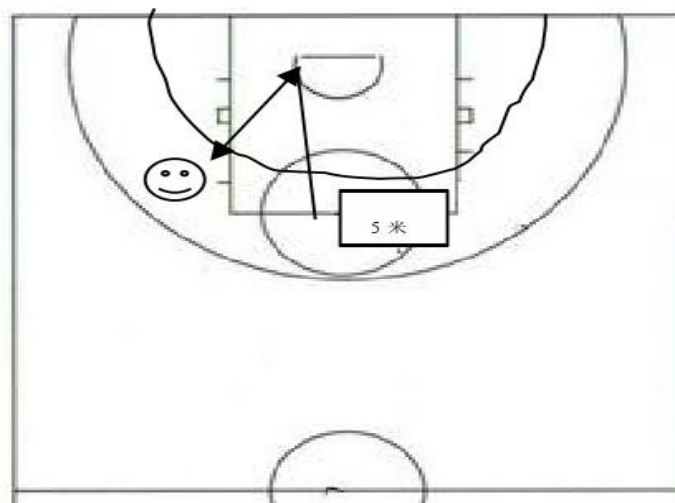


2. Set shooting: Test method: Using the midpoint of the end line as the center and a radius of 5 meters to draw an arc, students take 10 shots from any point outside the line, counting the number of successful shots. Each person is tested twice, taking the best result. Test rules and requirements:

- 1) No restriction on shooting posture.
- 2) As long as one foot does not touch the boundary line or enter the arc before the ball is shot, and if a foot touches the boundary line after the shot, it is not pursued.
- 3) No time limit for shooting.
- 4) No more than 2 trial shots allowed, or none, as specified by the tester in advance.

Second, the experimental evaluation method According to Bloom's Taxonomy, teachers can design learning tasks and assessment methods according to teaching objectives. In flipped classrooms, the pre-class self-study phase provides students with the necessary knowledge, skills, and resources, while class time is used for practical operations, interactive discussions, and individual guidance, to better achieve cognitive, skill, and emotional objectives. This design effectively promotes comprehensive development in basketball courses for students.

**Figure 3-7:  
Assessment Methods**



**Table 3-3:  
Evaluation of Flipped Classroom Teaching in the Experimental Class**

Evaluation Type	Evaluation Method
Formative Evaluation	Evaluating students' attendance rate, video viewing rate, theme discussion, chapter quiz, post-class homework, group discussion, group cooperative practice, and practical operations.
Summative Evaluation	Testing of theoretical knowledge and skills at the end of the semester.
Comprehensive Evaluation	Comprehensive evaluation of teaching effectiveness through formative and summative evaluations at the end of the semester.

Experimental Class Flipped Classroom Teaching Model The flipped classroom teaching model adopted by the experimental class consists of three parts: before class, during class, and after class. Before the experiment, students in the experimental class are randomly divided into groups of five, with a group leader selected to facilitate teacher management and discussion among group members, with no changes to group membership allowed until the end of the semester. The specific teaching process is as shown in Table 4.

**Table 3-4:  
Flipped Classroom Teaching Model Process in the Experimental Class**

Course Part	Teaching Strategy
Before Class (Memory, Understanding)	<ol style="list-style-type: none"> <li>1. Distribute videos and reading materials through the teaching platform, requiring students to familiarize themselves with basic basketball rules, skills, and movements, and explain the importance of these skills and movements.</li> <li>2. Conduct online group exchanges and discussions to answer students' questions and clarify concepts.</li> </ol>
During Class (Application, Analysis)	<ol style="list-style-type: none"> <li>1. Based on pre-class self-study, students individually or in groups demonstrate passing, dribbling, and shooting skills, with teachers addressing issues and providing feedback.</li> <li>2. Teachers provide guidance and demonstrations, then organize group cooperative practice for actual passing, dribbling, and shooting exercises, with teachers circulating for guidance and supervision; organize group presentations and competitions, ensuring students fully grasp the learned movements, with teachers summarizing and providing feedback.</li> </ol>
After Class (Evaluation, Creation)	Complete post-class homework exercises to strengthen skill practice. By repeatedly watching videos online and combining them with in-class practice, students can evaluate themselves and their teammates, with teachers providing timely feedback online.

### 3.4 Interview Question Design

#### 3.4.1 Question Design and Set

To complement our qualitative data collection, a structured interview question list has been developed to systematically gather students' feedback on various aspects of the flipped classroom experience. The interview is designed to probe into students' preparation for pre-class materials, their in-class experiences, the effectiveness of self-paced learning, the dynamics of collaboration and group work, technical challenges, engagement levels, assessment and feedback mechanisms, time management strategies, comparisons with traditional teaching methods, suggestions for improvement, learning autonomy, support and resources, impact on retention and understanding, and overall satisfaction. (From Appendix 1) The interview questions consist of both open-ended and structured items, facilitating comprehensive qualitative feedback. Open-ended questions aim to capture detailed insights into students' personal experiences and suggestions. The questions are administered online to ensure accessibility and to encourage participation.

## 3.5 Data Analysis Procedures

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### 3.5.1 Explanation of Study Methods

Data Analysis Methods in the construction of a flipped classroom for college basketball courses can be used as a critical step to evaluate teaching effectiveness and optimize instructional strategies. The research design of the current study, applied to flipped classes in a college basketball course, is qualitative and was conducted through numerous detailed procedures and steps outlined in Chapter 3, tailored to provide the most comprehensive assessment of the impact of this instructional model. By using Bloom's Taxonomy as the operational framework, this study aims to address various aspects of the flipped classroom that influence student performance, participation, and satisfaction. The section below presents the implementation of this stage in the data analysis process, which ultimately leads to conclusions for verification.

### 3.5.2 Steps of Data Analysis Methods Procedures

**Table 3-5:  
Steps of Data Analysis Methods Procedures**

Step Number	Description
1	Data Preparation and Organization: Organize and digitize data, anonymize participant information, and code the data.
2	Literature Review Integration: Use existing literature to inform the analytical framework.
3	Coding and Categorization: Conduct initial coding based on Bloom's Taxonomy and emergent themes using software.
4	Thematic Analysis: Examine data for recurring themes to understand the impact on student learning and engagement.
5	Descriptive Analysis: Provide an overview of classroom dynamics, student participation rates, and engagement levels.
6	Integrative Analysis: Combine findings from various data sources to construct a holistic view of the flipped classroom's effectiveness.
7	Reliability and Validity Checks: Perform triangulation, member checking, and peer debriefing to ensure accuracy.
8	Reporting Findings: Synthesize the analysis into a report detailing the flipped classroom model's impact.

#### Step 1: Data processing and sorting

Organizing and sorting all the collected data, including interview transcriptions, observation notes, and classroom performance reports, constitutes the first step in the analysis process. Physical files are converted into digital formats when necessary. A consistent format is maintained to ensure that the information is presented in an analyzable form. At this stage, participants' personal information is removed and encrypted with codes to facilitate secure data retrieval.

#### Step 2: The integration

This stage may involve combining materials from multiple sources to explain a particular concept, aligning various references to support a specific argument, or analyzing the use of different sources on a single issue to substantiate the study's conclusions. This research begins with an extensive review of studies related to flipped classroom models and Bloom's Taxonomy, followed by the presentation of the analytical framework. The literature review also provides prior insights into the outcomes of the flipped classroom model, thereby offering a foundation for identifying relevant themes and trends in relation to previous studies.

#### Step 3: Using Emails and Texts for Communication

The initial coding of the data is conducted using qualitative data analysis software (e.g., NVivo or ATLAS.ti). Codes are derived from predetermined themes based on Bloom's Taxonomy, the agreed objectives of the flipped classroom guidelines, and patterns emerging directly from the data. This process is cyclical in nature and facilitates the identification of recurring patterns, similarities, and differences within the dataset.

#### Step 4: Thematic Analysis

Through a rigorous thematic analysis, the results are examined to identify themes that contribute to understanding students' experiences, perceptions, and outcomes associated with the implementation of the flipped classroom model. By focusing on recurring aspects identified in the study, a comprehensive understanding is developed regarding how the flipped classroom influences student learning and engagement.

#### Step 5: Descriptive Analysis

A factual description of the data provides a clear depiction of classroom events, participation rates of learners, and levels of inclusion. Similarly, the survey emphasizes numerical data, such as the frequency of specific feedback and the prevalence of particular types of behavior during in-class activities.

#### Step 6: Integrative Analysis

An integrative analysis seeks to synthesize findings from face-to-face interviews, direct observations, and presentation evaluation results to obtain a holistic understanding of the effectiveness of the flipped classroom model. This step involves establishing connections among different types of data for validation purposes, while also considering the complexity of teaching and learning processes within flipped classroom settings.

#### Step 7: Links to Research and Assessment Tools

To ensure the reliability and validity of the analysis, several strategies are employed: Triangulation: The findings are cross-verified using multiple data sources (interviews, observations, and PDA data) to ensure consistency. Member checking: The credibility of the research process is enhanced by allowing selected participants to verify the accuracy and relevance of the findings in relation to their experiences. Peer debriefing: Collaboration with fellow researchers is conducted to review the analysis process and evaluate the emerging findings, thereby providing additional quality control for the research.

#### Step 8: Reporting Findings

The final step involves constructing the case study by integrating all analyses and presenting the findings in a coherent and systematic manner. The report emphasizes how the implementation of the flipped classroom model resulted in improved outcomes, increased participation, and higher levels of learner satisfaction, supported by student quotations, relevant statistics, and thematic interpretations. This report also examines the implications of these findings for policy, practice, and future research.

### **3.5.3 Summary of Chapter**

This scrupulous and meticulous modus operandi enables the study to provide a comprehensive evaluation of the theoretical scope of the college basketball course and the robustness of the flipped classroom model. The research seeks to systematically organize, categorize, and interpret the data within the framework of Bloom's Taxonomy in order to generate meaningful findings by illustrating the pedagogical benefits and drawbacks associated with implementing the flipped classroom approach in sports education.

### **3.6 Pilot Test and Instrument Validation**

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Before the actual implementation of this study, a pilot test was conducted to ensure the credibility and validity of the college basketball course delivered through the flipped classroom teaching method. The pilot test occurred at Qilu Institute of Technology with a sample of students from the 2022 basketball class. This environment allowed for the determination of the feasibility and effectiveness of the proposed flipped classroom model, as well as the testing of the instruments used in the training process. The pilot test aimed to achieve several objectives: to make precise modifications to the activities conducted under the flipped classroom concept, to examine the relevance and effectiveness of the instructional content used in the project, and to ascertain the reliability and validity of the assessment tools developed for the project activities. The process was initiated with a critical review and revision of all instructional materials, including videos, textbooks, PowerPoint presentations, and related resources. These materials were intended for practicing basketball fundamentals, regulations, and strategies to guarantee students' ability to effectively learn independently before class.

From the above development of the instruments, the first process of validation entailed gaining expert reviews. Concerning the development of assessments and teaching materials, teachers specializing in education, as well as professional basketball coaches, were involved. It would not have been possible to identify the weaknesses and areas for improvement independently without their feedback. For example, they proposed improvements to the organization and elaboration of the instructional videos and greater incorporation of interactive activities into the PowerPoint slides. Following the expert reviews, the next step involved implementing the revised materials with a small-scale sample of the target population. This set of students engaged in a series of pre-class, in-class, and post-class activities structured according to the flipped classroom model. The pre-class activities

involved DVD lectures and reading assignments, while during the in-class activities, respondents participated in basketball drills and exercises, general discussions, and problem-solving tasks. To reinforce what had been taught, post-class reflection and feedback sessions were conducted in the form of group discussions.

The pilot test in the study employed different techniques for data collection such as observation checklists, questionnaires, and students' and instructors' feedback. Subject Matter Expert Reviewers (SMERs) focused on students' interactions with one another and with the instructional materials, their academic engagement, and the teaching approaches employed. Self-completed questionnaires were used to determine students' perceptions of the flipped classroom approach, specifically the extent to which students found the pre-class materials convenient, comprehensible, and valuable, their satisfaction with the quantity and quality of in-class activities, and their overall satisfaction. To ensure the validity of the developed instruments, a mixed-methods research approach was undertaken to collect both qualitative and quantitative data. In regard to collecting and analyzing the data, the approach involved thematic analysis of purposeful qualitative feedback from students and systematic observation of instructors' teaching practices to identify patterns and recurring themes. These findings not only enabled an analysis of students' experiences but also helped identify specific aspects requiring enhancement in the instructional design. For instance, some of the students watched the videos and complained that they could not follow the technicality of some of the basketball skills correctly, which prompted the addition of more detailed explanations and slow-motion segments in the final video clips. The reliability and validity of the assessment instruments administered in the surveys were statistically established. Internal consistency of the survey items was established using Cronbach's alpha coefficients, ensuring that only items providing reliable measures of the intended constructs were retained.

An exploratory factor analysis was undertaken to assess the construct validity of the survey instruments to confirm that the different dimensions of engagement and learning outcomes were appropriately measured. The results of the pilot test proved that the instruments developed for the study demonstrated high reliability and validity. Findings established that students' attentiveness and comprehension of basketball skills improved as a result of the structured pre-class activities and the in-class interactions. The feedback also addressed such aspects as clarity of the instructions and their adequacy for independent learning, which were deemed very important. Thus, in the pilot test conducted at Qilu Institute of Technology, we successfully piloted and comprehensively validated the flipped classroom instruments. Through expert review of the teaching and assessment materials and

small-scale implementation, the effectiveness and reliability of the instructional materials and instruments for the full-scale study were significantly enhanced. These findings provide a strong foundation for the practical application of this teaching strategy, particularly in college basketball classes, with a positive impact on students' learning outcomes.

CHAPTER 4:

# RESULT ANALYSIS

## 4.1 Experiment Process

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This chapter examines the effectiveness of the flipped classroom approach in enhancing students' learning outcomes in college basketball, with a focus on the one-handed shoulder shot. The findings indicate that the flipped classroom model positively impacts skill acquisition, student engagement, and autonomous learning by integrating pre-class video resources, in-class activities, and peer interactions. Through thematic analysis, key patterns emerged, including improved technical proficiency, enhanced collaborative skills, and strengthened self-regulated learning, indicating that the model effectively supports skill development and active participation in a sports education setting. One experiment conducted involved using a flipped classroom approach to teach students the one-handed shoulder shot currently employed in basketball. The main objective of the activity was to enable students to identify and distinguish the most important principles of practicing this skill and, after analyzing the results of continuous practice and receiving critical feedback from teachers and peers, evaluate their proficiency. This approach was intended to allow students to review the skills in detail to enhance and master both knowledge and practical abilities, thereby achieving the goal of integrating and comprehensively applying knowledge and skills.

As part of the pre-class activities, students were given a set of assignments and strategies to review the material before class. They were grouped to observe a presentation on basketball shooting form via the Chao Xing learning platform and a PowerPoint presentation. Furthermore, they were required to watch a teaching video on the same platform and browse pictures illustrating the breakdown of basketball shooting actions posted in a QQ group. To facilitate students' effective use of these materials, specific questions and prompts were provided to encourage deeper thinking and reflection. These

questions included: constructing a sequence of positions describing the basic flow of the basketball shot in place; identifying errors and misconceptions by differentiating the most frequently occurring mistakes; outlining basic technical positions in both offense and defense; and proposing effective methods of error prevention. Students were also required to demonstrate the basketball shooting technique, respond to questions regarding their mistakes, and, for the fifth task, deliver a comprehensive five-minute classroom presentation as if they were basketball teachers, explaining how they would teach the technique and assess their students. To evaluate students' prior knowledge before class, a preliminary test was administered through the Super Star learning platform in the form of a short quiz. As a form of pre-assessment, this activity examined students' familiarity with the correct basketball shooting form. Additionally, students were expected to perform the technical movements, record videos of their practice sessions, and upload them to the classroom platform for review by teachers and peers. They were also required to prepare a five-minute PowerPoint presentation to be delivered in subsequent classes.

During the in-class activities, the session began with a brief review of the main ideas from the assigned material to assess students' understanding. Questions were posted on the Chao Xing learning platform for students to answer, and individuals were selected to present either randomly through roll call or voluntarily. The teacher demonstrated the proper performance technique to help students develop correct movement patterns; consequently, most students were able to perform the basic movements of the skill. Students were then grouped for discussion to avoid confusion, with each group assigned specific topics related to basketball shooting techniques. The objective of these discussions was to identify key weaknesses in technique and develop appropriate measures and strategies to address these issues. During the group discussions, the teacher facilitated the process to ensure active participation from all members. To assess students' ability to apply the concepts introduced in the pre-class materials, application-based exercises were designed. These activities included practicing shooting drills, with the teacher moving from one group to another to provide guidance. Based on individual differences and needs, focused facilitation and corrective feedback were provided. Practice activities included shooting in various simulated game situations, role-playing scenarios, basic shooting drills, and shooting with varying levels of force. During these exercises, peers were encouraged to pay close attention to their classmates' performance and offer constructive suggestions for improvement. Another important component of the in-class activities was peer teaching. Students took turns

presenting key concepts learned in class and demonstrating shooting techniques. This instructional method facilitated clearer understanding and reinforced learning through teaching. The teacher therefore guided discussions, conducted oral reviews of the material, clarified concepts, and ensured that students had sufficient opportunities to practice and refine their skills.

Post-lecture activities included encouraging students to share their thoughts and opinions regarding the implementation of the flipped classroom model. Participants were required to discuss aspects they found beneficial in the flipped classroom, potential drawbacks, and how skill proficiency was evaluated. After completing both the flipped classroom and traditional lecture sessions, students compared their learning experiences and interest in the topic and assessed their current level of basketball proficiency. Additional resources were provided for students who wished to further expand their knowledge of the subject. These resources included supplementary videos and images related to classroom practice, as well as video clips of NBA players that students could integrate into their practice. Knowledge assessments in the form of quizzes, assignments, and group discussions were conducted at the end of selected activities to evaluate students' understanding of the concepts presented. Practical assignments included shooting drills both with and without the ball, during which students were required to record and submit videos as part of their coursework. Students were also required to describe their execution of the identified basketball shooting technique and outline how they planned to refine or advance their skills in the future. The effectiveness of the flipped classroom implementation and students' feedback were collected through classroom observations, follow-up interviews, and data from the Super Star learning platform. This feedback was instrumental in refining future iterations of the classroom activities to further enhance student learning. These feedback mechanisms provided valuable insights into students' learning progress, any difficulties encountered, and their suggestions, thereby supporting the continued optimization of the flipped classroom model.

## 4.2 Descriptive Analysis

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### Thematic Analysis Process

Thematic analysis is a widely used method for analyzing qualitative research, focusing on identifying patterns (themes) within the collected data. It categorizes and interprets the data at its most basic level while simultaneously providing a comprehensive account. This approach goes beyond merely counting words or phrases in a text, allowing for the identification of both latent and manifest ideas within the data. Theme development is the primary activity in generating themes from raw data by identifying significant instances and coding them before interpreting the actual implications of the themes. Thematic analysis in this study was conducted using Braun and Clarke's (2006) six-phase framework, which is commonly employed in qualitative research. The six phases include the following steps: familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report.

1. Familiarization with the Data

The first step in the data analysis process is to familiarize the analyst with the content of the data. In this study, this was achieved by having the first and second authors read through the interview transcripts and observation notes multiple times to gain both an overall and detailed understanding of the data. This process also involved repeatedly playing back the audio recordings while taking detailed notes on all statements. It is essential to become fully immersed in the data to begin identifying initial patterns or significant points that warrant attention. Therefore, the familiarization phase can be considered preparatory and foundational, as it lays the groundwork for the subsequent phases of data analysis.

2. Generating Initial Codes

In the second phase, the researcher engaged in coding the data in a more systematic manner. Coding refers to the process of categorizing data into meaningful units, which is critical in thematic analysis. In brief, codes are more specific than themes and form the foundation of the analytical process. In this study, initial codes were developed through lists of points, phrases, or ideas related to the two research questions. For example, specific codes highlighted student participation, the teaching approach used, and methods of providing feedback. This phase was iterative, with the researcher continually moving between the data and emerging codes to ensure all relevant information was captured.

### 3. Searching for Themes

The third stage of data analysis involved categorizing all coded data extracts into potential themes or subthemes and integrating them into coherent thematic groupings. This phase resembles organizing the data into broader categories beyond the initial patterns. Potential themes such as “Student involvement,” “Issues arising from the self-organized learning approach,” and “The effects of the model on skills development” were identified for this research. These themes were derived from meaningful and coherent patterns that shaped the coded data, with larger themes later refined to ensure focus.

### 4. Reviewing Themes

The fourth phase involved reassessing the previously developed themes before proceeding with further analysis. This phase is crucial as it tests the validity and reliability of the themes, ensuring they represent distinct and meaningful data segments. The review process is two-tiered: the first level involves revisiting each coded data extract to confirm it contributes to a coherent pattern, while the second level assesses whether the thematic map accurately represents the overall data set. In this study, this phase included refining themes to enhance clarity and avoid overlap, particularly in areas such as cognitive and emotional engagement.

### 5. Defining and Naming Themes

In the fifth phase, themes were more precisely defined and delineated. This step clarified what each theme represented within the data and involved selecting concise names for each theme. The researcher worked to develop specific definitions and names that captured the essence of the data. For instance, a selected theme was “The influence of the flipped classroom approach on the acquisition of related practical basketball skills: the one-handed shoulder shot.” This phase also involved refining the organizational structure of themes, articulating the narrative each theme conveys, and relating them to the research questions.

### 6. Producing the Report

The final stage of thematic analysis involves writing a report that presents a coherent account of the themes derived from the data, directly addressing the research questions. In this phase, the researcher offers a clear, coherent, and persuasive argument while accommodating the richness of the data. Simply summarizing the data is insufficient; the report should also include argumentation connected to the research questions. The final write-up included statements for each common theme,

supported by quotes and illustrative examples from the data. This phase also integrated findings with the theoretical framework of the study, including constructivism and theories of autonomous learning, to enhance understanding of the data (Chen, 2022; Feng, 2020).

#### Using of Thematic Analysis in this Research

Thematic analysis was particularly suitable for addressing the complexities of the flipped classroom model in teaching basketball. It enabled the examination of students' learning experiences in relation to individual components of the model. For instance, the Fat Liberation Project's theme of "student engagement" included behavioral, emotional, and cognitive engagement, each of which was analyzed in the context of various flipped classroom activities, such as watching videos prior to class and participating in in-class discussions. Furthermore, thematic analysis allowed the study to elucidate issues related to the use of the flipped classroom model, including challenges in self-directed learning and the need for additional support for some students. The results align with previous studies highlighting the importance of facilitation and support in flipped classroom settings (Guo, 2023). By applying a thematic lens to the collected data, the study provided a comprehensive review of the flipped classroom's effectiveness in developing basketball skills and enhancing student interest in learning.

#### Descriptive Analysis

Exploring the flipped classroom model as the teaching strategy for college basketball classes, the present research work was designed and executed to establish a student-experience-based investigation combined with an assessment of the impact of this approach in higher education. The method explained in Chapter 3 was followed in this research to identify, collect, and analyze the data. As a methodological approach, the research design was chosen as Grounded Theory, while Bloom's Taxonomy served as the framework for the flipped classroom approach. This model was carefully planned and divided into pre-class, in-class, and post-class phases to maintain the purposive 'teacher-led, student-centered' approach. Surveys and interviews were also used in this study as the primary sources of data collection, in addition to experimental observation, as the study collected extensive data on students' engagement and skills, their satisfaction levels, and more.

Pre-class preparation involved ensuring that students were ready to learn through the curation of materials. Across the topic areas, students were encouraged to review videos,

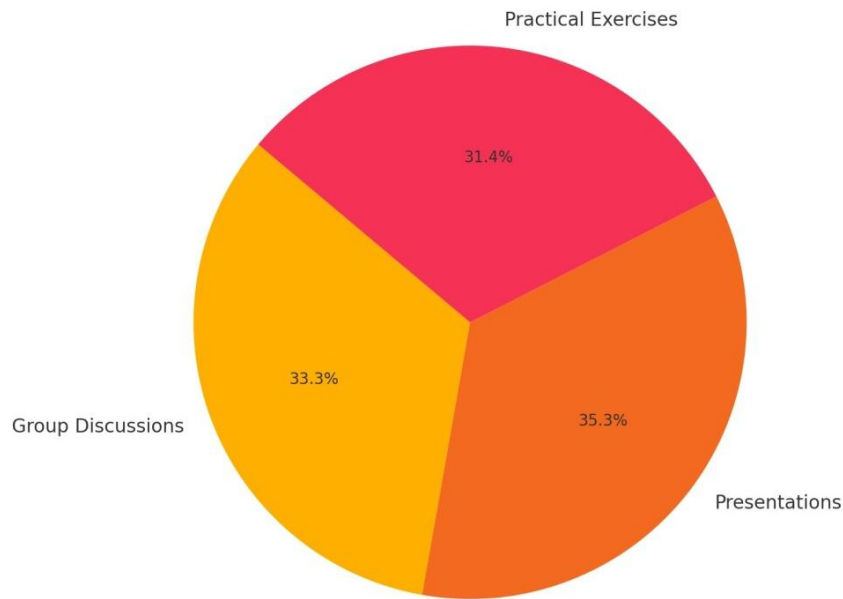
readings, and PPT presentations posted on the Chao Xing learning platform. These resources covered the basic concepts of basketball skills, with a focus on teaching the one-handed shoulder shot technique. Despite the limitations of using objective-type questions, guiding questions were provided to foster critical analysis and synthesis of the information considered by students. Formative assessments, such as quizzes and assignments, were administered before the topic was taught to determine the students' baseline knowledge and preparedness.

Particularly during the in-class phase, an extroverted and active approach to knowledge acquisition predominated. The tutor summarized key points from the pre-class materials and addressed any questions from the students. They utilized classroom activities such as discussions, practical exercises, demonstrations, and role-playing exercises. In these learning activities, students were expected to apply what they had learned, while the teacher provided continuous support and feedback. This stage aimed to reinforce academic content knowledge through practice and enhance both students' understanding and pedagogical development.

After class, learners participated in group reflection activities while practicing the material covered. These activities aimed to fully satisfy students' learning experience in the classroom, including recording shooting techniques and posting online comments among other assignments. Supplementary material, such as advanced videos and case studies, was also provided to support their learning. Information from these activities was incorporated into feedback on the teaching and learning approaches to address any problem areas.

Appropriate data collection techniques were employed to monitor students' learning behavior and achievements during teaching sessions using the flipped classroom model. In doing so, these observations highlighted various areas, including knowledge acquisition and recall, skills development, motivation and participation, collaboration, self-directed learning, time management, organizational skills, and psychological endurance. The behaviors and interactions of students in the classroom were closely documented to track their progress. The students' observation records included detailed accounts of their behaviors and classroom interactions.

**Figure 4-1:  
Student Engagement in Different Activities**



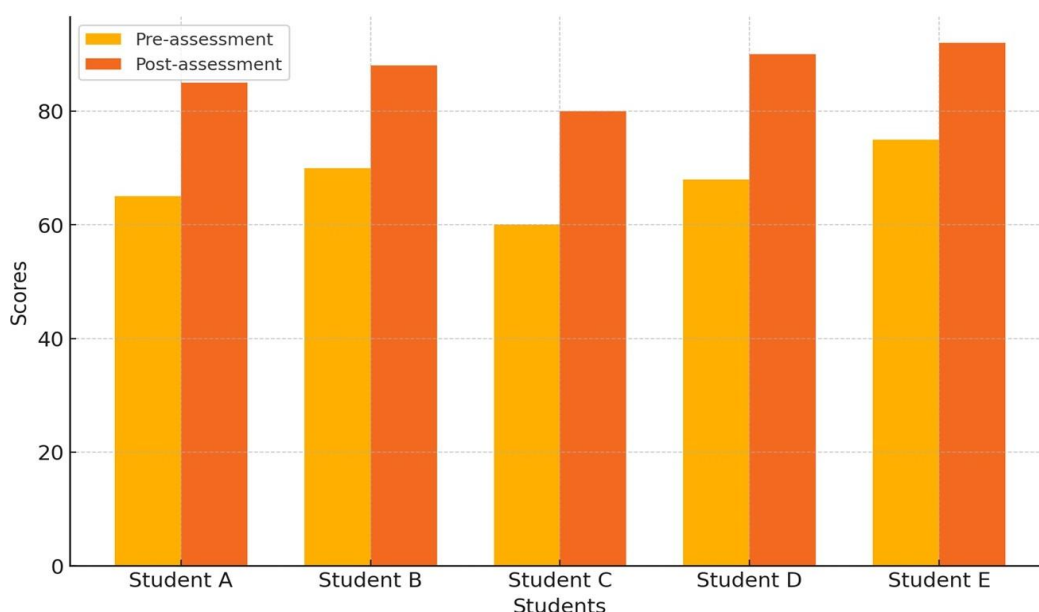
Sep classifiers were used in interviews with selected students in order to get qualitative data that elaborates on their experiences with the flipped classroom model. These interviews focused on students' prior knowledge preparation, in-class experiences, and post-class individual reflections. The students were able to offer feedback on different facets of teaching and learning aids, inter-student and teacher-student relationships, and their impact on basketball performance and academic achievement.

On a more practical level, in order to systematically assess the flipped classroom model, the analysis was based on a structured experimental procedure. The study hypothesized that the groups in the experimental class, organized for division activities, would help students grasp concepts more effectively by engaging them in specific tasks. The concepts used during the classroom activities were aimed at promoting collaboration and active participation in group exercises. Formative and summative assessments were collected to determine the extent of success achieved using the flipped classroom approach; the observations captured included overall attendance, video view counts, participation rates in discussions, and performance metrics from practical assessments.

Several facts were identified during the analysis: Regarding students' perceptions of engagement and motivation, the results indicated higher engagement and motivation compared to traditional face-to-face, lecture-based methods. The flipped classroom model's interactive nature contributed significantly to its engaging quality. Ensuring students possess

prerequisite knowledge before a lesson through preparatory materials or warm-ups can enhance learning outcomes by establishing clear and logical connections to the content, in this case, basketball techniques. Significantly, there was an observed improvement in students' competencies, including better shooting accuracy and dribbling performance. Several interviews suggested that students demonstrated more positive attitudes toward the autonomy and flexibility offered by the flipped classroom model. They appreciated the opportunity to engage with the material independently at their own pace and to revisit specific topics multiple times.

**Figure 4-2:**  
**Pre-assessment and Post-assessment Scores**



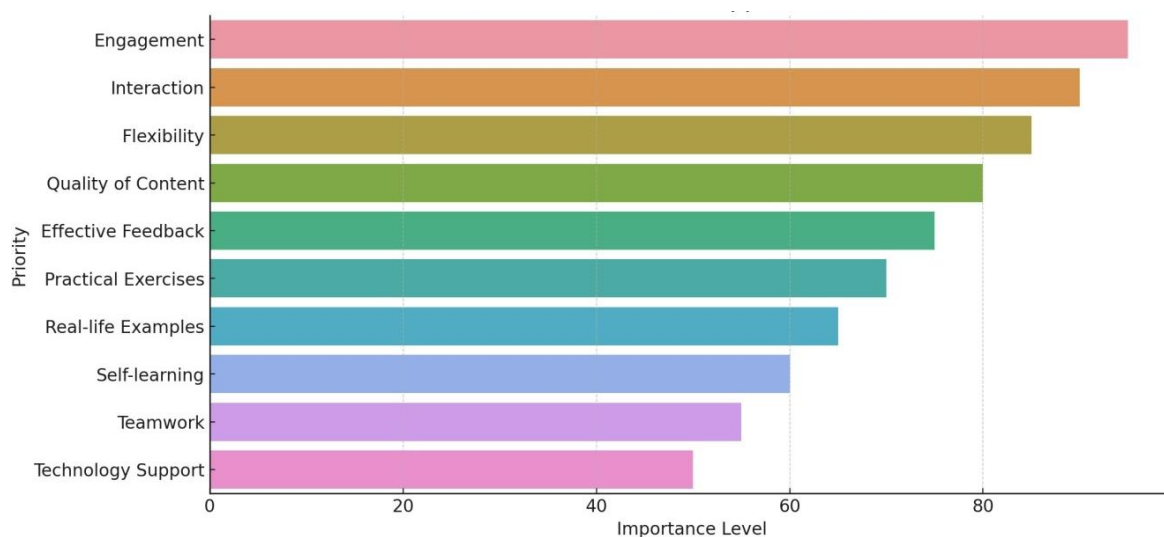
There were proposals to include more scenarios and cases in the learning material, in order to make it more viable and pragmatic. They also suggested that the tutor should allocate more time for in-class discussions and group work, so that students could benefit more from the program. According to the study, by solving problems and sharing insights among themselves, as well as following the sequence of traditional classroom learning, the students' and coaches' engagement, skills development, and level of satisfaction were high when the college basketball courses were conducted using the flipped classroom model. There is no doubt that the implementation of Bloom's Taxonomy and a structured pre-class, in-class, and post-class design provided a strong and effective foundation for this type of learning. Despite the fact that the outcomes could be considered superior in many aspects, it also highlights the importance of integrating students' feedback and continuously refining

the approach to ensure even more beneficial outcomes from the application of the flipped classroom concept in the future.

### 4.3 Observation Result Analysis

Learned findings related to the flipped classroom model used to teach the one-handed shoulder shot in place in basketball include the following: Firstly, the flipped classroom model provided valuable insights into the application of the one-handed shoulder shot in basketball. This analysis incorporates records of observed activities, breaking them down into seven distinct domains, namely: knowledge and understanding gained by students during their learning process; technical and vocational skills acquired throughout their education; student interest and engagement; students' abilities and skills in group work and interpersonal interactions; the capacity for independent learning and adaptability; disciplinary measures and behavior exhibited by students; and, finally, the emotional stability of students undergoing the educational process.

**Figure 4-3:  
Pre-assessment and Post-assessment Scores**



#### Knowledge Acquisition

The findings portrayed a good mastery of fundamental theoretical content knowledge of basketball, especially concerning the tenets and biomechanical details of the one-handed shoulder shot. This was as per the instances we had discussed their outcomes during their preparations and as we strolled through the class discussing the entire movement flow where they were able to point out some of the mistakes commonly made. These included the distribution of videos and guided questions that precede a class, which I found to be valuable

in developing this knowledge base. Furthermore, the pre-assessment quizzes and chapter tests provided students with a means to come to class prepared before the onset of the main content of the lesson. Based on the literature, this resonates with theories of pre-class interaction that pointed out at improving students' attitudes and engagement in classroom (Chen 2022; Feng 2020).

#### Technical Skill Development

Here, most of the students demonstrated good advancement in the usage of fundamental elements of the one-handed shoulder shot. The repetitive practice and the interactions received from both the teacher and peers were beneficial when it came to ironing out mistakes and enhancing proper techniques. Direct demonstrations by teachers facilitated a clear model for emulation, especially in class practice lessons, and individualized guidance when students were practicing lessons on their own. Such an appraisal-reappraisal cycle is in tandem with the flipped classroom model that encourages students to engage in practical exercises and achieve an enhanced mastery of concepts and processes whereby instructional activities are evidenced to foster active learning (Demir et al. , 2023).

#### Interest and Engagement

It was evident that majority of the students actively participated and had a lot of interests in the things that were discussed during the flipped classroom activities. First and foremost, students were walking and talking, asking questions, and appearing more curious about how the knowledge they acquire will be used at one point or another. The sessions were interactive in that they kept their interest and motivation levels up throughout the sessions' duration. This positive feedback accords with Jia, et al., (2023) who stressed that there is sufficient interactive possibility to create effective engagement. Nonetheless, several students commented that extending the number of sessions also the time spent on these sessions would enhance the levels of engagement as well as the amount of knowledge acquired.

#### Teamwork and Social Skills

The model of organization where teachers explain the content before the class and students do the content after the class was efficient in developing teamwork and social skills among students. Use of group discussions and group exercises helped enhance social interaction skills specific with aiming at communicating and learning with others as well as

leadership skills. Brad split his group into two groups; the first was the design team and the second was the build team: Students' worked together by giving constructive feedback and helping their group members to solve any problems they were facing. In addition to this, a cordial cooperative learning environment facilitated the mastering of basketball while at the same time building participants' team spirit is essential for learning and working in any institution or workplace (Guo, 2023).

#### Self-Learning and Adaptability

Students demonstrated a good level of various types of knowledge and a desire to develop and improve their work based on the results of the feedback received from them. They incorporated themselves well within the pre-class materials and encouraged peer evaluation by writing out and watching each other's technical motions. Peer unknown in the creation of knowledge This notion of student-provided instruction is one of the cornerstones of the flipped classroom approach and appears to emphasize self-education and personal responsibility. They mentioned, though, that some of the learners lacked self-control over their learning and it called for extra interventions to check on these forms of learners so that they can learn How to manage themselves better. Clear schedules or disseminating the duration of time that clients would be required to spend on the course and frequent follow-ups could improve their self-learning features (Guo, 2023).

#### Discipline and Behavior

Some of the issues pointed out included reduced levels of discipline and courtesy in the classrooms. Students ensured that they were on time with classes, followed all the set class etiquettes and respected fellow mates and instructors. This positive behavior is beneficial for learning environment and points out the effectiveness of using strategies of classroom management within the framework of the turning system of classrooms. To ensure the child behaves in a similar manner next time or to sustain the positive conduct witnessed in the classroom, it is advised to reinforce such behaviours further.

#### Emotional Resilience

The qualitative aspect revealed social awareness as students remain humble whenever they succeed or when they fail in their endeavors. Employer responses were a good handling of stress and embracing of constructive feedback. Both of these students learned effective coping skills in their classroom to build confidence and abilities and to have



or difficult to understand. This view is in line with Chen (2022) who noted that by encouraging active learning the flipped classroom model served as an efficient approach in improving students' participation and performance. This educational approach encourages personal and personalized approach of education as the students are the ones who take the responsibility into decision-making concerning the learning activities in the classroom and as a result comprehension and knowledge retention are deeply enhanced (Chen, 2022).

Moreover, the students noted that the situations which took part in pre-class preparations were helpful due to the presence of various video pieces and other study materials. Such materials gave them a chance to preview and get a sneak peek into what subject area they are going to learn in class, thus it was a key tool for diminishing pre-class stress and boosting confidence. Regarding this, one learner noted, "I always like to preview the videos before our lectures, this helps me know what to look out for in class." The preparatory phase not only created student perceptions of preparedness but also perceptions of interest during actual class sessions. Because they could compile the materials and study them whenever they wished, they were able to attend classes having a broad understanding of the topics that would be covered during the day, allowing them to engage effectively during activities.

This preparatory approach is echoing the notion of 'pre-class activities' as defined by Feng in 2020 in his contribution to the subject stating that giving the students access to the necessary learning material prior to class indeed enhances the class interest and participation. Feng (2020) explicates that the key implementation of the flipped classroom approach entails pre-class learning engagement; the rationale is that when students are provided with the options and/or means to facilitate their preparations well, they tend to become more involved, active, and proactive in the actual classroom sessions. Extending knowledge which implies that students are capable of managing the physical environment and timing of their learning is in harmony with the idea of autonomous learning and has been considered to have a positive impact on students' learning process. Apart from increasing comprehensiveness and attentiveness, the readings also prepared the participants to be more responsible and manage their time effectively. As it was mentioned earlier, it was possible for the students to establish their study timetable with regard to the content that has to be reviewed prior to the class, and this helped to enhance the ownership of learning. This change to an active learning role is necessary for post-secondary education because there is usually a general expectation of personal responsibility and self-initiation among other standard student responsibilities. Flipping classrooms consequently enhances timely academic achievement,

which is fundamental in students' performance and empowers them with sustainable modes of future conduct.

In general, the students' positive reactions and improvements in being flexible, having operator control, and increasing outcomes resulting from flipped classrooms indicate that applying this kind of classroom is effective in creating higher engagement. This pattern revealed that with the support of the model students felt en able to study in a way they preferred hence improving on their academic performance. The correlation of these findings with the existing research records, including those of Chen (2022) and Feng (2020), is the main strength of the paper in pushing for the adoption of the flipped classroom technique across diverse educational environments. Such studies have shown that the flipped classroom model not only increases students' interest but also fosters better academic achievement as it turns the classroom setup into one that promotes active participation and problem-solving ability rather than passive lectures (Chen, 2022; Feng, 2020). The designed flipped classroom model and concepts of operation are compatible with active learning and collaborative learning, which are revolutionary in the educational field and transparent education systems, enhancing students' learning outcomes and students' satisfaction rates. This approach ensures mastery of the content in question since students are able to learn about it beforehand through readings and then practice it actively in class through the instructor's warm-up activity. This is different with traditional modes of teaching practices or models that typically features lectures whereby the students in most instances are recipients of knowledge with limited chances of interactionively or even practically applying what they are taught. Due to the nature by which the flipped classroom model was designed, learning is happening constantly and the student is placed in the driver's seat to drive his learning experience, leading to an effective model of learning.

The students described what had occurred in their classroom with regard to activities and a majority had something positive to say. They all mentioned that in-class activities and discussions as well as the flexibility to interactively engage with students and other teachers were highly regarded. Some of the changes that were forthcoming include:

*One student said, “The in-class discussions are very engaging. I get more to do and in addition, I find myself wanting to learn more” (Student B, 2023).*

Similar to this, the literature supports this form of implementation arguing that the flipped classroom model makes the learning setting more participative and constructive where learners not only comprehend more but also retain more of the content offered (Demir et al., 2023). These interactions do not only assist learners in attaining greater meaning and

improved perspectives but also in picking up from the other team, which in turn sharpens the interpersonal and analytical skills. Furthermore, the communicative teaching methodology that is used in the course invites participation in the form of discussions and other activities that allow for instant feedback from teachers and fellow students, a factor that is essential for the learning process. It is also as an advantage that students can easily correct any misunderstandings they might have and enhance their knowledge as they engage in these interactions. This direct feedback and continuous learning are other benefits of the flipped classroom method because it enables the students to be on the right track concerning what they know. The positive experiences highlighted by the students support the key focus of determining an effective and rich interaction in the classroom which is highlighted by the flipped classroom approach.

Regarding self-directed learning and collaboration engagement, the students offered a mixed response. While some students said that the self-learning environment was challenging particularly in note-taking and time management, other students found it liberating as it made them grow up and take independent responsibility.

*Another student observed that 'I do feel more empowered with knowledge...I can take time to revisit the info that is taught if I didn't grasp it the first time' (2023, Student C).*

One of the advantages of this kind of flipped classroom is that it enables the students to be the masters of their own learning timetables and they can go over the concepts that they have not fully understood until they can grasp them fully. One of the significant advantages when it comes to reviewing classes and sections many times is that it suits different learning styles and speeds exceptionally well, especially when it comes to learning in-depth information. While some preferred the freedom of choice for the organization of the learning and time management, several others reported difficulties in exercising self-discipline necessary for effective self-motivated learning, indicating the need for support and direction. Student D, 2023 stated, "It's difficult to remain focused without the usual structures associated with normal lessons". This view supports the conclusion of Guo (2023) who concluded that while the flipped classroom model encourages individual learning it also exercises or prescribes self-regulation skills in students as a requirement (Guo, 2023). One of the benefits of the flipped classroom learning method is that students promote their discipline: While there are possibilities of achieving full control in terms of organizing a personalized learning experience, this type of self-organization may pose a challenge for students who lack discipline and motivation to self-study.

To cater for these challenges, another arrangement of support regimes could be daily

follow-up, programmatic timetables, as well as assistance from trainers can be put in place. It is possible to apply these learning strategies to enhance the students' self-regulation abilities while preserving the LLC's major advantages, like student self-organization and flexibility of the flipped classroom approach. Thus, education can offer the best of both worlds to students – liberty within certain limits which will help the students take charge of their own learning and thus the responsibility for their learning process. In conclusion, flipped classroom plays a lot of positive aspects which are related to the increase the student's interest, activity in classroom, and academic performance. The positive and negative words on self-directed learning and group work suggest that even though the model is suitable for a large number of students, effort may be required for the facilitators to ensure an optimum performance of all students. They also agree that an interactive setting is essential especially during the in-class activities therefore supporting the importance of engaging teaching atmosphere. As the scaled adoption of the flipped classroom model is still ongoing for many educational institutions, it will be important to assess and respond to the demands that stem from the self-regulation aspect to ensure that this approach will yield optimal outcomes for all learners.

Overall, the implementation of group collaboration was well received, and students stated that it helped them to learn from others and enhance their understandings through interacting with their peers. In the interview, one student said, “I think that the idea of having a group to work with helps me to be more aware of what others think, and it is also good practice for my communication” (Student D, 2023). Nevertheless, the current study identified some common issues of learners that can be summarized as a) difficulty in planning and organization of group tasks b) conflict-solving skills reported to be insufficient in certain cases, which suggests that the overall group dynamics need to be improved. This aspect of group work is essential, based on the opinion of Cheng, who underlined the necessity of structuring group tasks, as well as the need to provide a clear set of rules for group work to truly benefit students (Cheng, 2016).

Respondents were most positive when giving feedback regarding technology used in the classroom and / or the effective management of a classroom. According to the gathered students, the technological tools applied in the given model of the flipped classroom were helpful for learning. Student E (2023) also added, “The certain concept of video and online quiz helps to enrich the learning experience.” This correlates with the study conducted by Hinojo Lucena et al. (2020) that revealed that adopting technology therein improves learners' eye contact and transforms the ways concerning learning activities are managed (Hinojo

Lucena et al. , 2020). Students reported a high degree of satisfaction with the implementation of the flipped classroom model claiming that it led to higher students' interest, enhanced usage of different kinds of knowledge, and students' academic performance improvement. This notion was echoed in the interviews as many of the students who were interviewed were able to explain how the application of the flipped classroom was less tiresome and made them grasp the content of the lessons more than they would under a normal lecture system. In the postimplementation interview, one student commented: “I am more satisfied with this learning approach rather than the regular lectures and teaching methodologies that are within nebulars” (Student F, 2023). More engagement is required here, as the level of engagement determines the level of understanding of the contents taught and overall class performance, as proven by Chen (2022), who notes that active learning in flipped classroom increases the level of learning achievement (Chen, 2022). But, there were beneficial idea-addendums from students as well. They suggested to add more realistic examples and cases in the materials to work on the issue of lowering down the practical aspect of presented information. This suggestion reveals the necessity of constant learning or learning in contexts, that is, learning that is tied between the theoretical and the pragmatic. This approach benefits enhances the fun that comes with learning and at the same time helps students understand the relevance of what they are learning in class with that in the real world. This recommendation is in line with Jordan (2023)'s notion that learning should where possible be taught within context and done with examples and case studies to help the students make better understanding of the content being taught. Jordan has found out that when students are able to see the application of what is taught in classrooms in everyday life then they are more likely to participate and forward the whole information to the hard part of their memory.

Also, those attending educational institutions to improve their knowledge recommended extending the duration and frequency of talking and working in groups during classes. These are deemed as most productive components of a particular class because it provides the student the freedom to ask questions or escalate an idea or concept and listen to his fellow classmates.

*One student noted: “Ideally, I would prefer the class to be longer since group discussions and practical sessions are the most interesting sections in the class” (Student G, 2023).*

This is in line with the findings of Jia et al. (2023) who pointed out the recommended strategies in a flipped classroom to that included ample time and frequency of activities that fostered interactivity. The effect of time on group work and discussion on students' learning

experiences in their academic performance as found by Jia et al. (2023) showed that subjects dedicated time for discussion and group work leads to improvement on learning experiences among students. The analysis of the interview data shows that students in general have a positive attitude toward the implementation of the flipped classroom model as they get a flexible environment, interaction, and causally engaging learning process. Another consideration was the capability to gain an uncensored access to learning resources; which proved specifically helpful as students came to class already equipped with knowledge of what they are learning or were going to, and this way they were ready for discussions in addition to other related activities. The preparatory phase that was carried out not only intensified the productivity and usefulness of in-class time, but also contributed to decreasing the level of stress, and increasing the level of confidence amongst the students. These observations when they were preparing for the class as well as working in the class prove the advantages of being able to browse through the relevant material before coming to class and the importance of the interactive and collaborative learning.

Students do express a general level of satisfaction with the flipped classroom model and also include insights that can should be used to build on the model further. Some of the possibilities as to how the course might be further improved to enhance the learning experience are, for instance, including more real-life examples, and extending the time devoted to discussions during classes. I concur with many of the identified insights since they are consistent with the flipped classroom model and shed light on the relationship between the approach and Basketball students' learning outcomes. In relation to this, the integration of multiple teaching strategies and the use of real-life examples and case studies can be an effective way of teaching because would make the concepts easier to understand, as compared to merely teaching and discussing about it in the class. That is why, this approach is valuable in such disciplines as basketball education, since theoretical knowledge shall be backed up with practical mastery of certain skills. It will bring out how it is possible for kids what they are learning in class, actually fits in the real world; thus shows the students the connection between learning and their careers. This not only gives more interest to the students but also enhances the tendency of their accomplishment to comprehend and employ the material and information taught in the course.

Other measures that can lead to a positive shift in learning experience include integrating more extensive and more often in-class debates as well as engaging in more collective activities. Such vertical and horizontal discussions enable students to be proactive in their learning process and gain knowledge from their colleagues and fellows.

This kind of collaborative work enhances content knowledge as well as can be helpful in strengthening critical thinking and communication skills. Yet, it also makes the class more creative and interesting- two essential factors that state that students should be eager to learn more actively. Therefore, based on this interview's analysis, it is possible to conclude for students, flipped classroom model has mostly positive perceptions. They embrace it due to its flexibility, possibility of interactivity, and the way it helps to engage students which all plays a major role in shaping students' learning. They are generally happy with the given model, but they also mentioned some tips, which can be helpful in further development of the model. As for the perceived instructional quality, the respondents view the possibility of providing more real-life examples and extending classroom discussions as helpful in their learning process. These findings accord with previous research works on the neo-expository mode of teaching referred to as the flipped classroom model and paint a broader picture on the general effectiveness of the model in enhancing the performance of students in the domain of basketball education. As a concept derived from the principles that advocate for student engagement and class activity, the flipped classroom model offers a remarkable improvement on traditional learning strategies, which has the potential to enhance learning achievement and increase students' satisfaction with their classes.

# CONCLUSIONS AND SUGGESTIONS

## 5.1 Limitation

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In spite of the numerous benefits observed in the implementation of the flipped classroom model for teaching the one-handed shoulder shot in basketball, several limitations emerged, which merit detailed discussion. While the model promotes student-centered learning and autonomy, it also exposes inherent challenges related to self-regulation, technological dependence, teacher facilitation, collaborative learning, cognitive load, and assessment practices. Understanding these limitations is essential for optimizing pedagogical strategies and ensuring that all students can equally benefit from the model.

One of the most prominent challenges observed was the inconsistency in students' participation and engagement. Some students reported that the flipped classroom increased their motivation and fostered active engagement, enhancing their sense of autonomy and ownership over the learning process. This aligns with the principles of Self-Determination Theory, which emphasize the role of autonomy, competence, and relatedness in fostering intrinsic motivation. However, others perceived the model as overly individualistic, which limited collaborative engagement and peer learning opportunities. Indeed, some students lacked essential skills in self-discipline, time management, and strategic planning, which are critical for completing pre-class tasks effectively.

The disparities in self-regulation resulted in unequal levels of preparation, proactive behavior, and readiness during in-class activities. Some students arrived well-prepared, demonstrating enhanced problem-solving and decision-making abilities, whereas others arrived unprepared, reducing the overall effectiveness of class interactions. These findings indicate that while the flipped classroom fosters independence, it requires scaffolding strategies to support students with lower self-regulation capacities, such as structured schedules, guided reflection, and formative monitoring. Moreover, students' prior experiences and personal attitudes toward autonomous learning influenced their engagement levels. The variability in self-regulation highlights the importance of differentiated

instructional approaches, which can help bridge gaps between highly autonomous learners and those who require more guidance, thereby promoting inclusive learning.

A second critical limitation was the heavy reliance on technology, which is characteristic of the flipped classroom model. The model depends on digital resources such as instructional videos, interactive presentations, and communication platforms like Chao Xing and QQ groups. While these tools provide opportunities for flexible, multimedia learning, they pose challenges for students with limited access to reliable internet connections or appropriate devices. Technical difficulties, including connectivity issues, device malfunctions, and platform accessibility problems, often disrupted learning and caused frustration among students. Furthermore, many students lacked sufficient digital literacy skills, which hindered their ability to navigate pre-class materials and engage in online collaborative tasks effectively. This technological gap may exacerbate educational inequalities and limit the overall efficacy of the flipped classroom model. To address these challenges, educational institutions must provide equitable access to technology, including devices and internet services, alongside structured training for students and teachers to enhance digital literacy. Incorporating blended learning strategies, where online and offline resources complement each other, may also reduce the negative impact of technological barriers

Although the flipped classroom is designed to decentralize the teacher's authority, teachers continue to play a pivotal role in guiding, facilitating, and supporting students' learning processes. The effectiveness of this role is contingent upon the teacher's ability to moderate discussions, provide timely and personalized feedback, and respond adaptively to individual learner needs. Instances were observed where teachers struggled to balance facilitation with content delivery, which sometimes led to reduced student engagement and learning effectiveness. This challenge underscores the importance of professional development programs aimed at equipping teachers with skills in classroom management, scaffolding, and facilitation of autonomous learning environments. Additionally, the teacher's ability to maintain an optimal balance between guiding and allowing student autonomy is critical. Excessive teacher control can undermine independence, whereas insufficient guidance may lead to confusion and disengagement. These findings highlight the complex nature of teacher roles within the flipped classroom and the necessity for strategic planning and continuous professional support.

Group dynamics represent another area of concern within the flipped classroom. Collaborative learning, peer teaching, and group discussions are central to the model, yet

students' experiences varied due to differences in skill levels, attitudes, work habits, and commitment to tasks. Inequalities in group participation often led to conflicts, reduced engagement, and uneven distribution of workload, which negatively affected the learning process. From a theoretical perspective, Vygotsky's Social Constructivist Theory emphasizes the importance of interaction and scaffolding in collaborative learning, suggesting that equitable group participation is essential for meaningful cognitive development. In practice, structured facilitation, clear role assignments, and active monitoring are necessary to ensure that all students contribute and benefit equally from group work. Additionally, developing students' collaborative and conflict-resolution skills can enhance group cohesion and learning outcomes, mitigating the risk of disengagement

High cognitive load emerged as a significant limitation in the flipped classroom model. Students are required to complete extensive pre-class tasks, including watching videos, completing assignments, and preparing presentations. While such preparation aligns with active and self-directed learning principles, it can impose a heavy cognitive burden, particularly for students with limited experience in autonomous learning. Cognitive Load Theory posits that excessive information processing demands can reduce learning efficiency and increase stress. Observations in this study indicated that students sometimes arrived unprepared for class, undermining in-class activities and reducing the overall effectiveness of learning. To mitigate this issue, instructors must carefully calibrate pre-class workload, ensuring that it is challenging yet manageable, and provide additional guidance or support for students struggling with time management or comprehension.

Assessment methods in the flipped classroom also revealed limitations. Traditional knowledge tests and practical evaluations, while useful for measuring content retention, do not adequately capture the learning processes inherent in flipped classroom environments. Comprehensive assessment should include formative and diagnostic tools that evaluate not only knowledge acquisition but also higher-order thinking, collaborative skills, self-regulation, and problem-solving abilities. Aligning assessment practices with the pedagogical principles of the flipped classroom ensures that evaluation reflects both content mastery and the development of essential cognitive and interpersonal skills. Such assessments provide actionable insights for educators, enabling targeted interventions and refinement of instructional strategies to enhance student learning outcomes.

## 5.2 Conclusion

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A positive indication could also be seen from the flipped classroom model implemented to teach one-handed shoulder shots in basketball, through which its effectiveness in improving students' learning outcomes, interest, and experiences was revealed to a large extent. By evaluating the experiment, observation, and interviews, it is possible to conclude that different approaches provide a more meaningful, exciting, and individualized learning experience compared to conventional lectures.

### Experiment Process

The actual experiment proposed was based on the effective teaching experience of basketball skills in a classroom setting using the FCM model. Another important factor before the class was the preparation of materials, such as PowerPoint presentations, teaching videos, and other objects comprising decomposed action pictures. Paraphrasing Proctor, it was essential for students' preparedness and understanding of core concepts and methods to have guiding questions and pre-assessment quizzes in place before the class. The employment of these materials encouraged higher-order thinking skills, which also promoted metacognitive behavior among learners, allowing them to recognize mistakes and understand ways to avoid them.

In the classroom activities, learners engaged in discussions and collaboration, as well as application activities and peer-taught sessions. These activities encouraged the acquisition of content knowledge in a more active manner and ensured that students applied the concepts learned in real-life situations. Distinctive features here included the teacher's proactive instructional guidance, feedback, and correct movement demonstrations, which were essential for improving students' skills. It also allowed for peer feedback as well as student feedback on the end product, creating a more cooperative learning environment. For further learning and reflective practices, follow-up activities such as class discussions, suggestions for other resources, and post-activity affirmations allowed students to stay involved and reflect on previous classes. Integration of technological tools, such as the Super Star learning platform, supported feedback and assessment of academic achievements, enabling students to effectively monitor progress and identify areas needing improvement.

## Observation Result Analysis

A notable outcome observed in this flipped classroom model was its positive impact on students' knowledge, technological skills, interest, engagement, teamwork and social skills, self-learning and adaptability, discipline and behavior, and emotional resilience. This comprehensive development suggests that the flipped classroom can simultaneously target cognitive, psychomotor, and affective domains, consistent with Bloom's taxonomy framework.

## Knowledge Acquisition

From the outcomes of the problems encountered and tackled, students exhibited good mastery of the theoretical content of basketball, particularly the one-handed shoulder shot. Preparatory clips, prior documents, and guiding questions helped lay the groundwork, enabling students to come to class fully prepared and willing to engage. This preparatory work aligns with principles of andragogy (Knowles, 1980), which emphasize the importance of self-directed learning and building on learners' prior experiences. Comparing these results with contemporary literature establishes that precourse activities improve students' preparation and interactions (Chen, 2022; Feng, 2020). These results underscore that intentional scaffolding and pre-class engagement can significantly enhance both participation and learning depth.

## Technical Skill Development

In relation to technical performance, I emphasized practice and feedback as fundamental for developing mastery of movements. Prompts from teacher demonstrations and individual instructions allowed students to adjust their bow positions and improve their aim. This iterative approach demonstrates the effectiveness of deliberate practice (Ericsson et al., 1993) in skill acquisition, where repetitive, targeted exercises paired with immediate feedback optimize performance improvements. Such repeated exercises reflect the practical and frequent practice and feedback essential to the flipped classroom model, with its strong focus on learner engagement through hands-on practice (Demir et al., 2023). The integration of reflection and correction cycles further enhances the development of both fine motor skills and cognitive understanding of movement mechanics.

### Interest and Engagement

It is worth noting the very high participation and interest reported by students, reflected in their discussions and eagerness to learn. Sustaining students' interest and motivation in the flipped classroom was facilitated through interactive sessions. This is consistent with Self-Determination Theory (Deci & Ryan, 2000), which posits that providing autonomy, competence, and relatedness enhances intrinsic motivation and engagement in learning activities. Further, these findings align with Jia et al., indicating that enhanced interactive opportunities support the strategy. High engagement not only fosters deeper learning but also strengthens students' resilience and willingness to persist through challenging tasks.

### Teamwork and Social Skills

Evidence from group debates and interpersonal exercises demonstrated improvements in students' verbal and written communication, peer relationships, and leadership skills. Rather than focusing on criticism from coaches or negative personal behaviors, positive feedback that fostered collaborative relationships helped students enhance not only basketball skills but also valuable interpersonal skills critical for successful performance in school and work environments (Guo, 2023). This supports the idea that cooperative learning environments, grounded in social constructivism, can promote both cognitive and socio-emotional development.

### Self-Learning and Adaptability

Students demonstrated acceptable engagement with online content and adaptability to feedback. However, some students faced issues with self-discipline, highlighting the importance of supporting structures, such as regular check-ins and structured routines, to foster self-learning (Guo, 2023). These findings suggest that scaffolding, goal-setting, and formative feedback mechanisms are critical to nurturing self-directed learners, especially in physically active contexts.

### Discipline and Behavior

Students' discipline and demeanor were impressive, as they complied with classroom expectations and exhibited courtesy in interactions with teachers and peers. This positive behavior is critical for maintaining an effective learning environment and reflects the effective classroom management within the flipped classroom model. Such structured

environments promote both behavioral regulation and an atmosphere conducive to cognitive and social learning.

### Emotional Resilience

Some students effectively managed success, failure, and stress, as well as constructive criticism. This supportive classroom climate contributed greatly to building confidence and fortitude. For instance, integrating more challenging tasks in learning sessions may further develop students' emotional intelligence, helping them manage complex problems and situations. This is in line with Goleman's (1995) emotional intelligence framework, which emphasizes self-awareness, self-regulation, and social skills as essential components of successful learning and personal development.

### Interview Analysis

Student interviews elicited their perspectives and experiences with the flipped classroom model. Overall, consistent with the quantitative analysis of their attitudes, students' reactions reflected positive sentiment toward the use of FlexTime, highlighting the benefits of flexibility, interactivity, and increased engagement in the learning process. Students particularly appreciated the ability to review materials in advance, which reduced anxiety and increased confidence during class. This demonstrates that pre-class access to learning materials can scaffold cognitive readiness and reduce affective barriers to learning, consistent with Cognitive Load Theory.

Regarding feedback and recommendations, students suggested using real-life examples and case studies to make the material more relatable and practical. They also recommended lengthening and/or increasing the frequency of class discussions and group work, as these were the most engaging aspects of the class. Such feedback aligns with situated learning theory (Lave & Wenger, 1991), suggesting that learning is most meaningful when embedded in authentic, contextualized experiences. These proposals align with the literature on flipped classroom models and can enhance its potential benefits in basketball education.

Finally, the study demonstrated that the flipped classroom approach can effectively increase students' interest, reinforce teaching strategies, and raise performance levels within basketball training lessons. Pre-class preparation, interactive in-class work, and continuous feedback create a dynamic and active learning environment. While the model has proven effective, addressing self-regulation challenges and related difficulties is necessary to

maximize its impact. Incorporating real-life examples, increasing interactive sessions, and achieving a balance between autonomy and guidance can optimize the positive effects of the flipped classroom, providing students with a more effective and engaging learning experience. Overall, the integration of pedagogical theory, technology, and student-centered strategies positions the flipped classroom as a holistic approach capable of enhancing cognitive, social, and emotional dimensions of learning.

The flipped classroom approach, which emphasizes student activity and challenges traditional passive methods, represents a significant innovation in training models. It fosters better learning and satisfaction by allowing students to interact with material prior to class and apply acquired knowledge in in-class activities. This approach also encourages a nuanced understanding of content and promotes a more individualized, self-directed learning process. Schools, colleges, and universities adopting this method should integrate student feedback and adapt to dynamic learning needs to enhance its effectiveness as a teaching strategy.

Based on the flipped classroom teaching model used to teach the one-handed shoulder shot in basketball, it is evident that the approach has the potential to improve students' learning outcomes, interest, and educational literacy. The model enhances learning by adopting a student-centered rather than teacher-centered approach. Pre-class activities help students develop prior knowledge independently, while in-class application allows practical knowledge to be applied effectively. This aligns with Constructivist learning principles, which emphasize active participation and learning from prior experiences.

Based on the results, the flipped classroom model demonstrates higher usability compared to traditional training models due to its relevance and individualized approach. Students' self-evaluations showed increased activity and interest, likely resulting from the model's emphasis on participation and engagement. This is consistent with prior research, which reports improved understanding and knowledge retention in flipped classrooms. Additionally, the model's flexibility allows teachers to differentiate instruction according to students' abilities and interests, which is particularly valuable in Physical Education contexts.

However, the study also highlights the need to consider context and learner characteristics when implementing the flipped classroom model. Although the approach increased engagement and positively impacted learning, challenges remained for students with limited self-regulation or access to ICT tools. This implies that proper support structures are necessary to ensure effective learning for all students. Further, the model enhances

cooperation and social aspects of learning through group work, shared knowledge, and teamwork culture, which are essential in Physical Education.

Educationally, the flipped classroom model has the potential to transform teaching paradigms across disciplines and educational levels, supporting learner-centered practices that promote engagement, autonomy, and 21st-century skills, including critical thinking, problem-solving, and communication. The model repositions teachers as enablers rather than mere conveyors of knowledge, encouraging students to actively engage and grasp concepts more sustainably. Limitations identified in this study suggest the need to address self-regulation, ensure equitable access to technology, and design assessment markers that reflect intended skills and competencies. Through ongoing feedback and model refinement, educators can provide the most inclusive and effective learning environment.

Therefore, the model of adjusting traditional class hours can benefit both teachers and students by enhancing engagement, deep learning, and essential skills for the modern world. By incorporating real-life problems, promoting group work, and facilitating self-directed projects, the flipped classroom offers a rich, engaging curriculum that prepares students for academic and life challenges. When implemented effectively, it is a powerful tool for delivering more effective education aligned with the goals outlined in this study.

### **5.3 Suggestions**

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In order to complement the success of the one-handed shoulder shot step in basketball and therefore improve the flipped classroom approach applied in teaching the technique, the following recommendations can be made from the findings of this study: The following suggestions are intended to address the difficulties outlined above, enhance the proactivity of the flipped classroom model, and provide broader and more engaging classes for all students. The main problematic area that has to be addressed is the issue of references to real-life experiences and companies in the flipped classroom approach. Students showed a good tendency of preferring learning activities that related to their own experiences and incorporating real-life examples helps a lot in making subjects more interesting and easy to learn. For instance, incorporating real basketball game scenes will assist the students to have practical impacts of the manner in which the techniques are being taught. By relating sport concepts to real practice scenarios, instructors provide additional stimulation to the content, making it easier to comprehend and more impactful.

Besides the use of real-world scenarios in lecture capture, it is necessary to improve the organization and depth of group discussions and collaborative work within the context of the flipped classroom. Students have found these elements to be among the benefits of learning through this method, since it enhances students' interpersonal communication, problem-solving, and analytical skills. To that end, the time spent on group work should be increased and students should be encouraged to have more discussions within their groups so that they can improve their teamwork and communication skills for university and other organizations. However, teachers may find that student grouping presents certain issues, and they should develop operational procedures to address them (student organization/participation inequality). Educators may adopt strategies such as group rotation or assigning each member a specific role to prevent participation inequity.

A second important area of development relates to the extent of students' discipline and motivation in the process of autonomous learning. This underscores the understanding that the flexibility provided by the flipped classroom model entails relatively higher levels of self-organization and responsibility, which can be demanding for some learners. In order to meet the needs of these students, additional organization in the form of clearer daily and weekly structures or tracking systems may be useful. For instance, defining strict time limits for completing particular pre-class activities and developing frequent check-ins should help students enhance their time management and motivation levels. Moreover, elements of gamification, including the ability to earn points or badges for completed work, will contribute to students' willingness to remain engaged in the learning process and assume responsibility for their outcomes.

Another area of optimization in the flipped classroom model is the technology used to support the delivery of education. Although technology is central to delivering pre-class content and encouraging interactivity, it presents barriers, as some students may not be sufficiently proficient in using devices or may have limited or no access to the internet. Thus, educators must provide clear guidance on how to use the specific technologies adopted and ensure full inclusiveness of all learners. Also, the use of innovative technological approaches, such as virtual simulations or augmented reality, can enhance learning processes and better align with learners' aptitudes. It is also important to note that class management plays a crucial role in the implementation of the flipped classroom model. In order to encourage students' participation, it is necessary to foster a supportive classroom atmosphere in which learners are not afraid to express their opinions and suggestions. Teachers should encourage students to take on leadership roles by helping lead discussions or assisting peers, so they

can build confidence and reinforce their knowledge. Recognizing and appreciating both collective and individual achievements also contributes to building a strong student community and enhancing individual motivation to work effectively.

Last but not least, feedback and reflective practice are two elements that must be continuously emphasized in the flipped classroom approach. It should become common practice to ask students which aspects of the teaching approach are suitable and what improvements can be made. Simple activities such as maintaining a learning journal or engaging in group reflections can foster self-analysis and increase students' engagement in the overall learning process. Out of all these components, one of the largest areas in need of improvement is the utilization of real-world references and case studies. Several students indicated that such elements generate significant interest and that more practical applications of knowledge should be incorporated. The use of authentic basketball game scenarios, demonstrations of how players apply learned techniques, and the integration of real-life cases enhance understanding compared to merely introducing new methods and concepts. This approach not only enriches the content, making it more engaging and relevant, but also enhances students' real-time perception of their practical competence. For instance, by explaining the fundamental mechanics of a shot performed by a leading NBA player during a decisive game moment, the teacher can demonstrate that the material studied in class has real competitive relevance and inspire students to strive for maximum efficiency.

Another essential recommendation concerns the duration and frequency of discussions and group work conducted during class. These have been described by students as some of the most effective facets of their learning experience. Group discussions are highly beneficial, and increasing the time allocated for collaborative discussions and problem-solving would significantly enhance understanding of specific topics, as well as the development of skills needed to manage practical situations. While attending such classes, students should be encouraged to actively engage in discussions, using questions and answers to clarify and verify the understanding of their peers. Beyond reinforcing communication skills, this practice also fosters critical thinking and problem-solving abilities within the learning environment. Similarly, periodically reshuffling group members can broaden perspectives and improve teamwork skills among students.

It is also crucial to address the issue of self-discipline in the context of self-directed learning. The flexibility provided by the flipped classroom model, along with the autonomy granted to students, implies that while this system is effective, some students may struggle to manage their time efficiently or maintain motivation. These students require structured

schedules and timely monitoring from educators. The use of a timetable highlighting specific days and weeks allocated for pre-class preparation can substantially help address this challenge. Furthermore, applying gamification principles to tasks—for example, assigning points or badges for daily preparation and active class participation—can increase motivation. Implementing a peer accountability system, in which students monitor each other's progress and ensure that everyone remains on track, can also promote group cohesion and sustained engagement.

Another focus is improving the utilization of technology in general and refining its application within the flipped classroom model. There is still potential to further leverage technological tools to improve student outcomes, as reflected in students' positive responses to instructional videos and NSS online quizzes. Incorporating technologies such as interactive feedback mechanisms, simulations, and augmented reality into learning environments can sustain students' attention and create unique learning experiences. For example, virtual shooting drills conducted through simulated game environments can effectively replicate real practice conditions while ensuring safety. Furthermore, optimizing data analytics to track student performance and provide individualized feedback can help tailor instruction to each learner's needs and provide an appropriate level of challenge. Class management remains an essential determinant of the flipped classroom's effectiveness, as it directly influences student interaction. Both peer and instructor feedback empower students, and constructive criticism is highly valuable. Encouraging students to teach others—for instance, by explaining a topic or demonstrating a specific skill—helps consolidate their learning and build confidence. By creating an environment in which students can openly share challenges and support one another, they are more likely to overcome difficulties and celebrate achievements. Recognizing collaborative efforts and progress, along with providing regular incentives, can further enhance productivity and engagement.

Another compelling aspect related to the flipped classroom model is students' emotional resilience. Activities that occasionally place students in controlled high-pressure situations can help them develop effective coping mechanisms. For example, competitive drills, high-pressure simulations, or demonstrations of skills in front of peers can help students manage performance-related stress. Recommendation 1: Establish a Criticism-Free Zone. It is important to provide a learning environment in which failure can be experienced and overcome without ridicule. Educators should model the value of perseverance and frame challenges as positive learning opportunities while fostering appropriate mindsets. Finally, feedback and reflection should remain continuous processes, as the flipped classroom model

must evolve over time. Gathering student feedback on learning experiences, challenges encountered, and suggested improvements can inform instructional design. Both students and teachers should engage in reflective practices, such as maintaining journals or participating in structured discussions on best practices and potential improvements. One of the key strengths of the flipped classroom model lies in its iterative process of feedback and refinement, enabling continuous adaptation to students' evolving needs.

In conclusion, the elements of the flipped classroom model have significant potential to enhance basketball students' engagement, participation, and satisfaction with their learning experience. To maximize the benefits of this technology-enhanced teaching methodology, educators should incorporate more real-life scenarios, increase group activities, promote self-discipline, advance technological integration, strengthen collaboration, empower students to manage emotional challenges, and continuously seek feedback. These recommendations provide clear guidance for redesigning and refining the flipped classroom approach to meet individual student needs, strengthen their knowledge and skill base, and prepare them for both academic success and future life challenges.

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## Appendix 1: Interview Question Design

Category	Question
Preparation for Pre-Class Materials	How do you typically prepare for the pre-class materials (e.g., video lectures or readings)?
Preparation for Pre-Class Materials	Do you find the materials engaging and easy to access?
In-Class Experience	What do you like or dislike about the in-class activities and discussions?
In-Class Experience	How does the in-class experience differ from a traditional lecture?
Independent Learning and Self-Pacing	How well do you manage self-paced learning and independent study?
Independent Learning and Self-Pacing	What challenges have you encountered in completing pre-class assignments on your own?
Collaboration and Group Work	How do group activities and collaborative learning enhance your understanding of the material?
Collaboration and Group Work	What are the benefits and challenges of working with peers in the flipped classroom?
Use of Technology	Are there any technical issues or barriers you've encountered when accessing pre-class materials or using technology in the classroom?
Engagement and Motivation	Has the flipped classroom approach increased your motivation to learn and participate actively in class?
Engagement and Motivation	What aspects of the flipped classroom contribute to your engagement or disengagement?
Assessment and Feedback	How is your understanding of the material assessed in the flipped classroom?
Assessment and Feedback	Do you feel that you receive prompt and constructive feedback on your work?
Time Management	How do you manage your time to balance pre-class preparation with other coursework?
Time Management	Have you found it challenging to meet deadlines for pre-class assignments?
Comparison with Traditional Teaching	In your opinion, how does the flipped classroom compare to traditional lectures in terms of learning outcomes and engagement?
Suggestions for Improvement	Are there any changes or improvements you would recommend to enhance the flipped classroom experience?
Learning Autonomy	How has the flipped classroom contributed to your sense of ownership and control over your learning?
Support and Resources	Do you feel adequately supported in the flipped classroom, both in terms of resources and instructor assistance?
Impact on Retention and Understanding	Do you believe that the flipped classroom approach has improved your retention of course material and deepened your understanding?
Overall Satisfaction	On a scale of 1 to 10, how satisfied are you with the flipped classroom experience, and why?
Effectiveness in Achieving Learning Objectives	How well do you think the flipped classroom approach aligns with the course's learning objectives and outcomes?

## Appendix 2: Flipped Class Observation Table

**Flipped Class Observation Table**

Flipped Class Observation Table			
Observation Time		<u>Observation</u> Location	
Observer Class		Teacher	
Observation content			
Observation Intention			
Observation Focusing	After Flipped Class Performance		
Observation Area	Observation Records	Observation record	Remark
Knowledge	Basic theoretical knowledge of basketball		
Technical Skills	Mastery of technical movements		
Interest and Engagement	Participation in discussions, eagerness to learn, and curiosity.		
Teamwork and Social Skills	Communication with peers, cooperation <u>during group activities, and</u> leadership qualities.		
Self-learning and Adaptability	Ability to learn from online content, adapt to feedback, and self-assess performance.		
Discipline and Behavior	Punctuality, adherence to class rules, and respect towards instructors and peers.		
Emotional Resilience	Handling of success and failure, stress management, and response to challenges.		
Additional Suggestions			
Improvement Advices			

### Appendix 3: Flipped Classroom Activity Template

**Title of Activity:** One-handed shoulder shot in place

**Objective:** Students are able to explain and identify the basic principles of skills, and through long-term practice and feedback from teachers and peers, evaluate and test their skill level to help students master skills in depth, so as to achieve the purpose of consolidating and comprehensively applying knowledge and skills.

Pre-Class Preparation:	Materials/method	Note
<p><b>1. Assigned Material:</b></p> <p>Students will be provided with [specify the material, e.g., videos, readings, podcasts] to review before the class session.</p>	<ol style="list-style-type: none"> <li>1. Watch the PPT presentation of basketball shoot techniques on the Chao Xing learning platform.</li> <li>2. Watch the teaching video of basketball shoot technique on Chao Xing learning platform.</li> <li>3. View the picture of the decomposition action basketball shoot skills shared in the QQ group.</li> </ol>	
<p><b>2. Guiding Questions:</b></p> <p>Provide students with specific questions or prompts to guide their engagement with the assigned material. These questions should encourage critical thinking and reflection.</p>	<ol style="list-style-type: none"> <li>1. Describe the basic movement flow of basketball shoot in place, and point out the common mistakes and misunderstandings in practice. How to effectively avoid these mistakes and misunderstandings?</li> <li>2. Imitate the basketball shoot technique and identify the mistakes you are prone to.</li> <li>3. If you are a basketball teacher, design a 5-minute classroom presentation that describes how to teach the basketball shoot technique, and think about how to practice and evaluate the students' shooting results.</li> </ol>	
<p><b>3. Pre-Assessment:</b></p> <p>Consider including a short pre-assessment quiz or survey to gauge students' understanding before the class session.</p>	<ol style="list-style-type: none"> <li>1. Through the chapter test on the Super Star learning platform, test the students' mastery of the basketball shoot technique.</li> <li>2. Students imitate technical movements and record videos and upload them to test the mastery of technical movements according to the evaluation of teachers and peers.</li> <li>3. Please get ready for the upcoming 5-minute class presentation.</li> </ol>	

## Appendix 4: In-Class Activity

In-Class Activity:	Materials/method	Note
<p><b>1. Introduction:</b></p> <p>Briefly recap the key points of the assigned material to ensure all students are on the same page.</p>	<ol style="list-style-type: none"> <li>1. Answer questions on the Chao Xing Learning platform and provide answers for students.</li> <li>2. Select students for class presentation by roll call or voluntarily.</li> <li>3. Teachers demonstrate correct movements to help students form correct movement patterns and ensure that most students can basically master skill movements.</li> </ol>	
<p><b>2. Group Discussion:</b></p> <p>Divide students into small groups and assign them specific discussion topics related to the assigned material. Encourage active participation and collaboration among group members.</p>	<ol style="list-style-type: none"> <li>1. Divide the students into four groups for group discussion and report the results. The teacher will give guidance.</li> <li>2. Discussion topic: Which parts of the basketball shoot technique are the most difficult to master? What are the strategies and methods to solve it?</li> </ol>	
<p><b>3. Application Exercises:</b></p> <p>Design activities or exercises that require students to apply the concepts learned from the pre-class material. These activities could include case studies, problem-solving tasks, or simulations.</p>	<ol style="list-style-type: none"> <li>1. Design activity exercises: <u>organise</u> students to <u>practise</u> basketball shooting techniques with the teacher's roving guidance.</li> <li>2. According to individual differences, provide targeted guidance and error correction, and give timely feedback. Activity design: simulated basketball shooting scenarios, role-playing, basic shooting, shooting with adjusted strength, etc. When <u>practising</u>, peers should observe and give feedback carefully and closely.</li> </ol>	
<p><b>4. Peer Teaching: Allow</b></p> <p>Students to take turns presenting key concepts or findings from the assigned material to their peers. This promotes deeper understanding and reinforces learning through teaching.</p>	<ol style="list-style-type: none"> <li>1. Students take turns to show their basketball shooting skills and movements to their peers in the group, and the peers provide feedback and suggestions to promote deeper learning and understanding.</li> <li>2. The teacher summarized the class and gave feedback.</li> </ol>	

## Appendix 5: Post-Class Follow-Up

Post-Class Follow-Up:	Materials/method	Note
<p><b>1. Reflection:</b></p> <p>Encourage students to reflect on their learning experience during the flipped classroom activity. What did they find most valuable? What challenges did they encounter?</p>	<p>Topic discussion through the Learning platform:</p> <ol style="list-style-type: none"> <li>1. In the classroom practice, what activities made you more memorable?</li> <li>2. How was your understanding of the skills you learned assessed in a flipped classroom?</li> <li>3. In your opinion, how does the flipped classroom compare to traditional lectures in terms of learning outcomes and engagement?</li> <li>4. Please rate your current level of basketball?</li> </ol>	
<p><b>2. Additional Resources:</b></p> <p>Provide supplementary resources or materials for students who wish to delve deeper into the topic covered in the flipped classroom activity.</p>	<p>Provide additional videos and pictures, as well as video links to highlight moments from NBA stars, which students combine with classroom practice.</p>	
<p><b>3. Assessment:</b></p> <p>Consider incorporating post-activity assessments such as quizzes, assignments, or class discussions to evaluate students' understanding and mastery of the material.</p>	<p>Post homework exercises and discussions after class on the Learning platform. The students' performance was observed through homework to assess their understanding and mastery of the basketball shooting technique. Assignment: Shooting practice without the ball and with the ball. Record video and upload. Discuss:</p> <ol style="list-style-type: none"> <li>1. How do you rate your performance basketball shooting technique?</li> <li>2. What are your plans or goals for improving or enhancing this skill in the future?</li> </ol>	
<p><b>4. Feedback:</b></p> <p>Gather feedback from students on their experience with the flipped classroom activity. Use this feedback to refine future iterations of the activity and improve student engagement and learning outcomes.</p>	<ol style="list-style-type: none"> <li>1. Understand their learning progress, difficulties and suggestions through regular observations and discussions.</li> <li>2. Collect students' feedback through discussions on the Super Star learning platform.</li> </ol>	

## **Appendix 6: Interview Script**

May 27 \_2.wav

00:05

Good morning, class. First of all, thank you very much for participating in today's interview. In the early stage, we also published an invitation to the interview through the learning platform, and asked for everyone's consent.

00:27

In the process of invitation, we also introduced the topic of this research to you. We will record the whole interview. In order to protect your privacy, this interview will be kept confidential by anonymous means, so it will not cause any adverse impact on you.

01:04

Also, during the whole interview, we can terminate or quit the interview. Ok, today we start our interview content, I hope you in the interview process to be realistic, let's a more cheerful cheerful atmosphere, let's have a mutual exchange today. In this way, first of all, each of our students will briefly introduce themselves. My name is Li Xinze, a sophomore majoring in nursing, and I am from Tangshan City, Hebei Province. My next classmate is Zhang Huanbin, a sophomore majoring in automation, from Zibo City, Shandong Province. My name is Dou Shengji, a junior majoring in the College of Arts, I come from Jinan City, Shandong Province. My major is pharmacy, and I am from Binzhou, Shandong Province.

02:14

Hello, teacher. My name is Li Min, majoring in Accounting in Grade 23. I come from Yantai, Shandong Province.

02:20

OK, so you can see that all the students are also from different cities, in different cities have different regions, different regions, I am sure that the whole sports including basketball love and love and so on all aspects must be different, according to their own hobbies, so that you usually in the next sports activities or sports, Everybody like basketball this sport, I like basketball this sport, I also like Lanxiang this sport, because it is full of I do not particularly

like basketball this sport, I also like basketball, I also like basketball, this student why do you like basketball?

03:11

Because he is full of confrontation and passion.

03:15

So why don't you like basketball? Maybe it's because of my skills. I can't make baskets. Then I lost some interest in sports.

03:29

So we can then let the students recall, in your primary school, junior high school or early some high school and so on physical education courses, or basketball lessons, our basketball lessons are how to teach, how to do? Let's discuss with each other.

03:53

When I was a kid, elementary school and junior high school basketball, including high school, basically the teacher took us to practice and told us about it, the teacher took us practice, and then let us practice on our own. I remember when I was in high school, and then I just started to contact basketball, and then I remember at that time because maybe it was because of the pressure of learning, and basically the teacher gave us a ball, and then they played with it, and then they didn't let us play by ourselves. right. In my impression, when I was in primary school, the teacher only taught us some basketball rules, and then started to organize us to play some games.

04:37

Then, after middle school and high school, we played basketball in PE class, and then basically didn't play much. This classmate. From primary school to high school, my basketball class is basically the teacher with a brief talk about the technology, and then began to let free activities.

04:58

Later through this question, we are also different in the previous basketball class teaching, so through our basketball class this semester, we all think in the basketball class, that is to say, before the class I released some videos, including some materials, including some pictures, how do you feel about watching these videos or materials outside the class? I feel very good, you can let me know in advance.

05:37

And the content of this lesson can allow me to have a study at any time in the dormitory and preview in advance. I think learning is more like a kind of entertainment, so I can study at any time, it is not restricted by this time and place. In my opinion, the combination of theoretical knowledge and practical application makes the learning process full of fun. Then I think by watching the video materials before class, I have a clearer direction and goal for what I want to do in this class.

06:23

When you prepare the pre-class material before class, when you prepare the pre-class material, you usually prepare the pre-class material in what form, including whether you use video or notes to watch the Li Luo, including reading or skill demonstration and so on.

06:49

According to your own preparation, you can make a brief introduction. I mainly watch this video, and then after watching to understand some of his technical moves, and then prepare. I also do it by watching the video, and then before the class, and then familiarizing myself with some of his maneuvers and techniques. I do this by watching some lectures and then discussing a subject with my classmates after the lecture.

07:28

I simulated basketball by myself based on this video, such as one of his shooting movements. At the same time, I also knew some contents of basketball in this theory, such as its origin and development. I didn't know that I learned a lot by watching the video, but I usually read the reading materials sent by the teacher first. Then I would find out what I was interested in based on these materials, and then I would find some videos to watch according to what I was interested in, and then our group would watch the videos together.

08:02

Our next question is, what do you think of the quizzes, discussions, and some homework that the teacher gave you before class?

08:20

I think through the pre-class quizzes issued by the teacher, let me know more about my weaknesses, so that I can focus on my weaknesses in the course of class and then improve, and at the same time, through the pre-class discussion, and then solve some of my doubts. Now I don't have one. I think this pre-class quiz is not positive for me in class. It is not that I can't say that class is not positive, that is to say, people who are not positive about things, I feel very good for me and have a role in promoting.

09:04

I think the pre-class quiz is very good because it allows me to better learn some of the content of the class. I think this pre-class quiz found out some of my shortcomings for me, and then increased my interest and participation in this class. Of course, the sixth question before class, before class, are we all satisfied with our basketball level? I am right because I have a certain basis for basketball learning before, but I feel that I am not satisfied with myself, because I want to improve myself more.

10:01

I think my basketball skill level is average, and then I still need to learn some better skills. What are some aspects of basketball skills that you feel you are worst at? For example, my feet move very slowly, and my shooting is not particularly accurate, and I am not very skilled in dribbling. I am not particularly satisfied with my basketball skill level. What skills do you think are weak or dissatisfied with your basketball skill level?

10:43

I think my dribbling is not very satisfied, and then I carry the ball easy to lose the ball, so want to practice, I am not satisfied with the level of their basketball skills before this class, mainly for example, my point shot, and always shot wrong, I am not very satisfied with their basketball level, you feel their basketball level is not satisfied with what?

11:15

I think I like to shoot, but I always can not shoot. 11:18 OK, let's move on to the next question, do you think the class activities and discussions this semester, in our practice class teaching process, do you feel that the class activities and discussions meet the needs of everyone? I really like our class activities, we have a discussion during the class activities, I also like, and then our class activities and discussion this part, I think I also like this kind of group discussion way to learn, increase my interest in this class.

12:06

I also liked the class discussion and some discussion in this semester, and because we were in groups at that time, through the discussion in this group, I provided some different viewpoints, which made my knowledge of basketball more extensive.

12:27

OK, I prefer the skill development side of the training, I am not very interested in the theoretical discussion side. Ok, let's move on. What was your presentation like? That is to say, in class, maybe before class we will release some learning, in the class activities will let you learn a simple demonstration of the technical movement, to the students or the teacher to do a demonstration of the movement, what do you have about this demonstration?

13:10

In the class activities? Because I think my personality is relatively introverted, so I will be very nervous in front of classmates and teachers, so I can not play some of my real skills in the process of presentation. Since we had sent out some homework and videos before class, we had watched them once, so I was more confident when I presented in class, I was relatively satisfied with my presentation, and because I prepared in advance, my presentation was better than my usual.

13:53

Do you think you were successful in your basketball class? I think it was quite successful, because I learned some things that I had not learned before, and it also increased my confidence in basketball.

14:10

I think my presentation was a gradual improvement process for me. At first, I was afraid to speak in front of everyone, but gradually I became a little more confident, and then I was able to show myself in front of everyone. I still felt that I performed better in my presentation, because the teacher would send such videos to us every time before class, and then we would study together in the group. So I feel that my own presentation is still better.

14:43

OK, let's next question, everyone in the whole class activities including pre-class and so on these subjects of these practical activities, our participation situation is how?

15:01

Because I want to improve my skills, so in the process of participation, I am very active to participate in the group process, I am also very active in the participation. What are the key aspects of your active participation? What makes you active to learn and participate? First of all, I feel my lack of skills, and then I can better learn the strengths of others in the team. How about my performance? I think I have improved the value of learning a lot in the study.

15:47

For the policy, I think I actively participated in the discussions in our class and encouraged me all the time to become a better myself. Your active participation is mainly reflected in what aspects, that is, what makes you more active to participate in these activities, because you can practice with the classmates in the team, and this is what I prefer to participate in. Ok, let's move on to some other questions.

16:30

Let's talk about our group learning and cooperative learning in the class activities of the whole semester, especially in the class activities, because when we learn basketball skills, we will learn according to each student's learning situation, master the technical movements, we will carry out some group exercises, including some cooperative exercises. How do you think about group learning and cooperative practice? B: I think the group study and cooperative study can make up for some of my weaknesses.

17:14

I think group learning and cooperative learning are very good. I think in the process of group learning and cooperative learning, we can get different viewpoints through discussion, which I think is very good. I think group learning can help me improve some motor skills, but I still have trouble finding time to participate in this kind of group learning.

17:46

What do you think are the difficulties in group learning and cooperative learning? What was the challenge for you? I think there is still time to coordinate the team, I have such problems in time management or allocation, and these classroom activities of group learning and cooperative learning, how do you improve your understanding and knowledge of the material? I think it is helpful to improve my understanding of the material, in what aspects?

18:36

It is mainly reflected in that it can make me clearly understand the next knowledge to be learned.

18:55

I think group study is very useful for my understanding of the material, and thank you for it will improve my memory and understanding ability. Group study also deepens my memory of this knowledge, and then I can better understand the learning content than before.

19:27

Who is the arbitration committee member? Through this group study and cooperative study, first of all, I can deepen my understanding of the technical movements that I want to learn. Second, through cooperative study, I can see some strengths and advantages of my classmates in this group. Then, I can learn from each other's strengths and make up for each other's face. I think this method can improve my interpretation of this theoretical concept and its application in sports.

20:05

OK, let's move on. What do you think of the performance in the class as a whole? I think it helped me develop a stronger sense of self-study and independence. A: Do you think you are an active learner? Throughout the basketball class? I am a more active Mid-Autumn Festival

students, and then I have developed a better habit of learning, that is to say, in the independent learning has a greater improvement, to urge you to study actively, right.

20:47

I think I can now study independently and independently to study, mainly in what aspects? In the aspect of basketball teaching this semester, including you like you can talk about your homework before class or some homework after class.

21:09

Now I have passed a pre-class study and found my shortcomings. In the process of learning, I can learn independently, which is different from before, and my executive ability is not very high, and then I gradually lose some interest in this sport. Flipped classroom greatly enhances my autonomy. It allowed me to control my own learning process.

21:38

Because I had not been able to control myself very well during the study process, and now I feel able to control my own learning. In the process of free learning, through the classroom activities and theme discussions, I have more control over your learning ability and promote you to learn more actively. Yes.

22:02

Do you think that through our basketball classroom teaching this semester, do you feel that the classroom experience this semester is different from some other projects we have taken before or traditional classes?

22:22

I think the difference of the traditional class is that the interaction is stronger, and then the sense of experience is also stronger, and some things I need to prepare in advance, I think it is better than the previous traditional class experience, because we have more this sense of participation.

22:49

His classroom experience this semester, does it suit your needs? Very suitable. Do you think your basketball study has been successful through the class teaching this semester? A: Yes, very successful. I feel that I am more committed to learning and more responsible for learning every semester. Compared with traditional learning, I think first of all, I think my class this semester is more interesting and more fun.

23:32

And the second is that I think I can be very active and devoted in the class process, and then enter my class process, I feel that this semester's class is more dynamic and more participatory, so through this participation, I can improve my enthusiasm in class.

23:56

In other words, compared with the previous traditional class, the classroom experience of all of us this semester has improved your learning ability, including the ability of independent learning and so on. Including our class, we in the classroom activities, the teacher also designed some games, including some role play and so on. I think what you just said is very effective to make you more active in the classroom activities to learn, feel that the class is more interesting, the atmosphere or the cooperation between peers is more positive, the atmosphere is better.

24:48

Next question in the flipped classroom, just through our teaching this semester, in the flipped classroom, how do you evaluate your understanding of the whole material? In other words, after this class, we upload some technical movements to the teacher after the whole class or before the class, whether it is good or bad for our learning, how do we evaluate ourselves?

25:28

I am in the process of each class, and then the teacher by issuing this assignment, I am in each class will be an evaluation of myself, and this evaluation I feel is a continuous, and then not in the final exam at the last exam to evaluate their next classmates.

25:49

was very good in my evaluation of the material, and then I remembered that this was an interaction between me and the teacher, but also an interaction between me and the students can use the material, I think in this process with the students, and then also between students and students, and then increased my memory of these movement techniques. As opposed to this rote way of learning.

26:30

And then through the flipped classroom, my understanding of the material is not only that the teacher gives me some feedback, but also that my classmates give me some feedback. In terms of our understanding of the materials in class, first, there will be a mutual guidance and evaluation between our groups, and then the teacher will give us a grade after class. After class, the teacher will release the homework, and the students can give you a grade when evaluating the technical movements you learn. The teacher can also give you some feedback through the online form, it is like this.

27:20

And when we are online, because in the course of this semester, the teacher also posted some homework for you, which is also an exercise to strengthen our basketball. People think that after Posting these assignments and Posting these exercises, whether you have achieved positive or constructive feedback from the teacher after completing the assignments and uploading them.

28:05

Well, I also got some feedback from the teacher about my basketball moves. I had a supportive and then more direct interaction with the teacher, which increased my learning experience. And then I did this assignment, and the teacher, he was very timely and gave me a feedback, and it was a procedural development of this move, and gave me a very instructive suggestion.

28:39

Understand that my teacher also gave me good support and feedback. Ok, thanks. Do you feel the feedback has been helpful to you? It was helpful for me to know how I should practice and what problems I still had. Next, let's look at how flipped classroom compared to traditional classroom in terms of learning outcomes and engagement. I think flipped classroom provides a better opportunity to participate and learn more effectively.

29:32

I feel that the development classroom is better than the traditional classroom because it is a little more engaging. I think in the process of divided classes, I feel that everyone is a participant, which further enhances my interest in learning. Yes, I think flipped classroom satisfies a different learning style, and the pace of learning. Another thing I think I appreciate more is that flipped classroom is more attractive than traditional classroom, and it can better combine students' reality, and then improve it in a targeted way.

30:24

Do you think our study on whether the flipped classroom has improved your basketball level has a positive effect? It has indeed improved.

30:36

And then especially in this, my own opinion of some of the weak aspects has been raised a great deal, you agree.

30:43

I feel that the flipped classroom gives us a much more dynamic and engaging learning environment than the traditional classroom.

30:53

Yes, can you talk about how that works? Just like saying that we will have a group study together, so that when we have a group study and discuss, we will explain this movement in more detail. All right, next. Please evaluate your current basketball level through this semester's basketball teaching. I think now I have a great improvement on my previous level. I think if I compare my previous level with my present level, I have made some progress compared with my previous level. In what areas have I improved?

31:47

Do you think, for example, shooting from the spot will be more accurate than before? I feel like I'm dribbling a lot better than I was before the class started. I need to work together, and then I feel like my feet are more flexible than they used to be. A: Anything else? Another one I can now and the students and then a shot together, the action of the shot is more accurate, who opposite the classmates I think I am more stable in the desire, and the percentage of the shot has improved, the percentage of the shot has also improved a lot.

32:30

And what are the main difficulties you encounter in this semester's basketball study? And after meeting these difficulties, will flipped classroom help you solve these problems? How do you solve them? I think the biggest difficulty for me is that I will feel pressure during the demonstration process, and then I can overcome my shortcomings through some demonstrations in each class. I think the main difficulty in the class is that I am not confident at the beginning, but later I will become better and more confident. I think for our difficulties, at the beginning, I wanted to solve a problem in my dribbling, and then through learning, it will be helpful. Then I think the main difficulty is after-class reflection and after-class evaluation, but after the flipped class, the teacher will give me a correction in time. And the online teacher will also give me a guide to my homework and solve it in time. In addition, my difficulties are similar to those of Liu Zhongcui just now. I also mainly evaluate after class. After-class reflection evaluation may sometimes not get a timely feedback, yes, or not get an evaluation between students or teachers, yes. Ok, do you think you get enough support in the flipped classroom? I got a lot of support from the teachers, both in terms of materials, materials, and also in terms of help from the teachers.

34:37

In terms of materials, I also got a great help from the teacher in terms of materials, specific performance in what aspects? For example, we post some homework through the Internet, so that we can finish it in time, which can better improve my movements and skills.

34:58

Who Chen Jian classmate. I feel that I got a lot of support, which is more conducive to the diversification of these learning materials, and then make my progress in learning, which requires more materials and resources to make you especially in the customer, for the customer will support you more deep or difficult to learn some basketball skills, for who I think got the teacher and then a great support and help, In particular, I can have a wide range of resources to visit, as well as some platforms are conducive to my basketball study this semester. I have also received enough support from my teachers, especially in such diverse learning materials.

36:01

Holler, next. How have you managed your time throughout the semester, balancing preparation for class, and getting other assignments done? I find that self-study is a little bit challenging for me, but I've gained a lot so far by creating a schedule for myself and then managing myself.

36:38

At the beginning, I did have some time conflicts with my major courses, but later I solved this problem by adjusting my own time. I managed to balance my schoolwork and basketball by making a strict schedule.

37:00

At the beginning, I thought this time was not enough, but through some homework or some quizzes issued by the teacher before class, I was able to gradually plan and manage my own study, and then improve my time arrangement.

37:24

I mainly made a more detailed plan for this kind of time, and I would make a good plan for what I would do every day. In the course of teaching and learning this semester, do you think you have a big challenge in finishing some of the assignments issued by the teacher?  
Comrade Li Min.

37:52

There is a certain challenge, but can not say great, because I will manage my time well on my own. I find it challenging, but rewarding, to study by myself. In my opinion, this challenge mainly includes browsing some learning materials that the teacher left for me at the beginning, including some resources, and then through learning, I think it also enhances my motivation to start learning.

38:26

OK, let's go to the next one where you think that flipped classroom has improved your memory and understanding of the material, has it deepened your understanding of it, including the teaching method of flipped classroom, has it deepened your understanding of some of the dribbling we've learned this semester, including shooting, and passing, Whether some steps have deepened your learning and understanding of these skills, because I will read some materials published by the teacher before class, and then I will have an understanding of it, and then during the course of the class, and then I will have a discussion with the students and classmates, and then I will evaluate myself in each class. And then I found that my learning goal is to have a very accurate positioning.

39:45

I think it was very helpful for me. Then I got familiar with the homework before class, then I interacted with classmates in class and worked in a team, then I did homework after class, and then I asked the teacher to find out my shortcomings. I got a good improvement.

40:04

I think I found my shortcomings through the pre-test of the whole study. During the study process, I actively discussed with my classmates, which also enhanced my interest in basketball skills. After class, I reset this content and this goal, which also enhanced my motivation for future study.

40:30

So standing here, I think that through a flipped classroom this semester, I greatly improved my interest in basketball lessons, and at the same time deepened my understanding of many technical movements in basketball.

40:49

I think the flipped classroom method in this semester has strengthened my memory and understanding of the pre-class materials. Can you tell me the specific aspects?

41:01

Mainly after class, the teacher can give us a good feedback, and then in class, the teacher will give us a more detailed demonstration of the movements, and then the teacher will give us these materials before class, so that we can see in advance this method of unity before class, can improve my understanding and memory of the materials. Huller, the next question is how well do we think the flipped classroom teaching method fits in with the learning objectives of the course and some learning results? As for whether the flipped classroom teaching method is consistent with the teaching objectives of each class, for yourself, I think it is consistent, and then I also actively promote my active participation, I think it is very coordinated to ensure the effective realization of the goals.

42:11

Can you talk about the specific performance in what? I passed the pre- test, and then I started off by not dribbling very well, and then I learned, and then I met one of my expectations.

42:28

Well, I think it is very much in line with one of my learning goals of this semester, and another learning achievement. First, I passed some task quizzes issued by the teacher before class to deepen my memory and understanding. Then in class, I analyzed the teacher's guidance and application through our group, and then deepened my understanding of movements. At the same time, after class, the teacher and our group students will try their best to give me an assessment and feedback. I think it is consistent with the learning goal. Can you tell me in what way? For yourself? For me, I think the main thing is to facilitate a fuller and more detailed understanding of the material. Ok, so through our flipped classroom teaching this semester, on a scale of 1 to 10, how satisfied do you feel with the flipped classroom experience? How many points do you think you can give to the flipped classroom satisfaction? Very, very satisfied, I am also very satisfied 9, I am also very satisfied 9, very satisfied 10, I am relatively satisfied 8.

43:56

You are still passing the flipped classroom teaching this semester. Do you know about the flipped classroom, and some of the themes of this semester, including group cooperation, including group exercises, and some feedback and guidance from teachers, and independent learning, and so on? Based on your experience, can you give flipped classroom, Including your proposal, put forward some suggestions or opinions for improvement.

44:33

In these videos, I feel that I can add more sports related cases and competitions, because I am more interested in this, and then I wonder if I can add more time for class discussion, because I prefer to work with classmates to spark some ideas. I think we can add more real examples and cases for study, so as to get closer to the real discussion.

45:08

I think we can add some team learning links. In terms of material preparation in class, I think we can release some shorter and more concise material videos of some courses.

45:28

Holler, so today we are here to discuss with you about the flipped classroom this semester, including the traditional classroom in the classroom some of your learning experience and feelings. Thank you again for your participation in today's interview. Later in the interview, I will also anonymously, so you can rest assured, and I will keep this confidential for you and your personal data. Thank you again for attending today's meeting.

May 29 \_1.wav

00:03

Welcome to today's interview. In the early stage, we also sent invitations to students through email and this platform to learn, and asked for everyone's consent to the interview. In the process of today's interview, you can terminate or quit the interview without any reason. Today's interview will be recorded in the whole process, and in the later interview process, you will be anonymous, so that your privacy will be kept secret and will not cause any adverse impact on you.

00:58

Our interview today is expected to have a total of 20, 20 questions for you in about 11 hours. Ok, now let's get started with today's interview. Let's start by making a brief introduction of ourselves. Mr. Li, my name is Chen Liang. I am a sophomore student. My major is International Trade. I am from Weifang, Shandong Province, and my major is Japanese. I am Yang Lei from Class 3 of Broadcasting and hosting in Grade 2022, my hometown is Jinan. I am Liu Xianyi from Class 3 of Secondary Nursing major. I am also a sophomore student, I am also from the school of nursing, and then from Jinan, Shandong, through the introduction of our classmates just now, I see is from our different regions, different cities, in different regions and different cities, we must also have according to the different regions, regardless of sports and other projects, including basketball there are a lot of differences.

02:45

So that we can students can say about themselves, we in the usual sports or sports activities, do you like to play basketball?

02:54

I don't like playing basketball very much. I like playing basketball very much. I am interested in playing basketball. I like to watch basketball games, especially NBA games. I prefer basketball. Why don't you like basketball? Because I am not very familiar with basketball, do not know how to play. Why do you like basketball? Because I think basketball is a collective sport, it can not only exercise my body, but also let me make more friends in sports. <https://fanyi.youdao.com/download>

03:34

So let's next question, you can recall, we in your previous primary school stage or middle school and high school stage, then how do you come to basketball class, or have no contact with some knowledge of basketball class?

04:02

When I was in primary school, I did not learn systematically. In PE class, teachers generally let us have free activities. In high school, we may also have great learning pressure. Although we did, the teachers just taught us a few movements and then let us practice ourselves to play.

04:19

I didn't learn much basketball, especially when I was in primary school and middle school, there was no basketball class. When I was in high school, the teacher gave us a ball to play with and he played with it. I was in high school, and then I saw other students playing very good, and then I also participated in, at that time it was just a simple laziness. What impressed me most was when I was in junior high school, and then I saw many teachers playing basketball on it, and I became interested in it.

04:51

In our physical education class just learned some basic shooting or dribbling basic technology, but some tactics did not learn, so I said I also like basketball, but like playing games these have not the ability, at that time, so I went to college also want to learn a good.

05:15

OK, let's next question, through this semester of our basketball class a class activity or classroom teaching, we all think in the extra- curricular watching videos and learning these materials feel?

05:37

Also includes you like the time before class, because this semester before the basketball class, the teacher also through our online form, or some network platform, to you passed some videos about basketball learning technology, as well as strategies and tactics, how do you feel about learning these videos outside the classroom?

06:01

At least it is a great help to my study in advance. Through the video materials, the teacher distributed this video materials, which is very interesting. You can pause and regressing according to your own learning time, including fast forward to play freely.

06:17

Before we learned basketball in class, only during the class did I know what to learn in this class, but now by watching the video before class, I have a more solid mind, know what to learn in this class, what movement techniques I need to master and so on.

06:35

How did the other students feel? I think this way of learning is really great, because it allows me to see the content I like anytime and anywhere, and then I don't have to be constrained by time and place. I think this can better help me improve my basketball level.

06:52

I think this is a very good way to learn, it is new to me, it is more interesting, it can make me better to learn this thing. Do other students have any other feelings? Ok. I would like to add my idea, this kind of learning in advance of learning after class, I feel that I can understand the content of learning in advance, so that I can learn better in class. In addition, the time before class is relatively free, the teacher did not specify the specific time to give us some time, so the time is relatively flexible, I think it is a better way.

07:36

When the students watched these materials before class, how do we usually prepare the materials before class? Do you use for example do you use notes or do you use some kind of mimicry, that's all right. You talk about how you feel. I usually imitate by watching the videos provided by the teacher, and then the teacher will prepare some relevant instructions for the movement, and this helps me to better imitate the movement, I feel the effect is very good.

08:23

For other students, I usually watch the videos distributed by the teacher on the platform to conduct a simulation exercise, and also start to make some notes to record what I lack and what I master. For other students, I am similar to the previous two students, I also watch this video, and then I do an imitation in advance, and then there are no problems. I repeatedly went to see this video in the end how to do this action, how to come, that's it.

08:57

I was a little different from them, because there were two students in our dormitory who chose Mr. Li's class. We generally understood the learning materials through group discussion, and then asked our friends to go to the basketball court to practice shooting, dribbling and so on.

09:23

Hello, next, we think the teacher posted some quizzes before class, including discussion how do you feel? I think it's very important to go through these quizzes and discussions, and I can really see that there are a lot of things that I'm not particularly good at, and it helps me to learn this knowledge in class.

09:51

There are other students, my views are the same as those of the students just now, but I have one difference is that when we have a discussion among students, there will be a lot of disagreement issues, and then we also practice the discussion and disagreement and keep honing and runing.

10:08

Other students I think quizzes are very necessary. The most outstanding point is that he gave me a quiz, which means that he gave me a certain small difficulty, so that I can strengthen a kind of exploration, to learn such a desire, I feel that I can learn some real technology in this class, right? Did the quizzes or discussions posted by the teacher meet the needs of the students? I think it does. I think it helps me a lot. Ok, let's continue on the next page.

10:46

Before class, do we all feel that we are satisfied with our basketball level before teaching basketball lessons this semester? No, I am not very satisfied, I am not very satisfied, I feel. Is not satisfied with the level of basketball technology, is it specific performance in what technology, or what areas are not very good at, or is the action is not very skilled?

11:25

I myself I am not good at basketball, and then the teacher in the pre- class issued some videos, and then a look at their pre-class practice when found the gap is particularly large, and then feel more and more dissatisfied with basketball technology.

11:41

I was not particularly good at basketball skills before, I am now difficult to run the ball, the previous study for my basketball is not very helpful. I rarely learned basketball before, so I would only shoot the ball or something. For example, the tactics we learn in basketball, or some of the footwork it develops, involve very little. Other students I am not satisfied with is the overall technical level is not good, although the basic shooting and dribbling, but it is difficult to apply to the basketball game, in the basketball game I feel that I still need great improvement.

12:30

Good, we also through this semester our classroom activities you also know, in our basketball class activities, the teacher also designed some classroom activities and discussions, including our students to show, as well as game roles and so on, let's design these classroom activities, we feel that in this semester's learning, What do you think of the classroom activities and the discussion published by the teacher?

13:07

Does it meet some of your own needs and needs?

13:11

The discussion atmosphere in our class is very warm. The heated discussion makes me particularly interested in basketball. In the process of discussion, I feel that my friends and I can solve some difficult problems that we think, and I feel that my basketball skills have been improved to some extent.

13:32

Other students made me feel more relaxed, it was the teacher who correctly guided us how to discuss and how to practice in a group, and then let us interact with each other better, and then express our own opinions actively. Then the whole discussion was relaxed and interesting, anyway, I liked it more. At the same time, it made me more and more brave to express my own views.

14:04

I like this kind of discussion, which I never had before when I was in high school. In the past, students were taught by quiet teachers in the classroom, and this kind of discussion made me become the protagonist of the class. I could play with the teacher and classmates and solve difficulties together. If there are any other students, let me also say that the form of discussion in class is much richer than when I was in high school.

14:35

Because in class, the teacher gave us some better tour guidance. During the tour guidance, we also gave some guidance on the technical movements that could target students.

14:55

Another, when the practice for a period of time, the teacher also put us together again to carry out a concentrated mistake of the kind of guidance, so I feel that the learning effect is better, let us progress quickly.

15:12

In the next class activity, how do you feel when you show your actions? During the demonstration, I felt that when I was showing basketball shooting, I felt very good in this movement, but when I was showing other movements, I was a little nervous, maybe a little uncoordinated, I felt very proud, because the teacher would select the students in each group who were shooting or had better movements to show. At the same time, when I finished the demonstration, the teacher could give me feedback in time, pointing out which movements of my movement technique were not standard, and then I could timely modify them, so I think the demonstration was quite successful.

16:14

I like to show off dribbling with my classmates, so that I can express myself more and realize my self-worth through dribbling. Are there any other students who feel that in the basketball class, do you feel that you have succeeded? Did you make you feel successful in learning this basketball? I think I can learn a lot of knowledge through the basketball class. In the early stage, I watched the video to imitate it, and then we discussed and demonstrated in the class, including the teacher's guidance, which I think is very helpful.

16:54

Other students also feel that I am quite successful, because I have learned a lot of knowledge and technology in the basketball class that I have not learned before. After learning, I feel very successful and proud.

17:06

I said that I felt I learned in the basketball class is not so successful, because I like to learn to better use some skills in the basketball class, and so far have not been able to better use in the basketball game. Are there any other students? B: I think it was quite successful. My movement technique is getting better and better.

17:41

Next question, do you think in the whole class activity, the whole semester of our basketball class, how do you participate in the participation? I feel that I have been very active in participating in other students.

18:04

Through the study of basketball class, I not only actively participate in class, I will also participate in basketball activities with my friends after class. I will refer to the flipped classroom used in our basketball class, which greatly increases my motivation to learn and the enthusiasm to participate in this kind of basketball learning, so that I am more active in basketball learning. Then by reversing the classroom learning, I can also have a deeper understanding of some basketball materials. thank you.

18:47

My participation was quite active, because the teacher gave me some tasks before class, and then made me fully prepared before class, which made me more confident and willing to participate in class, and then I was willing to participate in discussions with classmates, and then I was more active to practice some movements.

19:08

Holler, you can talk about, through this semester's canoe class, learning canoe class, this new teaching mode to learn basketball class, everyone talk about, in the classroom activities of our group learning and cooperative learning, or whether it has brought you some help? The

first is to increase the cooperation and discussion between me and my classmates, as well as some of the performance of these links. The second is to make better use of the class time to practice, to exchange some of our own ideas, but also to ask more questions, to show my own understanding and a deeper understanding of knowledge. I feel that group study is very helpful to me. Through group study, I feel that I can put forward my own ideas. Then the students in the group will give me good answers to my questions, which makes me more confident and successful in my study.

20:21

Since I came into contact with the group learning and cooperative learning, I have deeply fallen in love with this kind of class mode. I no longer adhere to the thinking of others, but create my own thinking and share my own ideas with classmates, so that we can get more and broader thoughts.

20:44

I think the advantages of this group cooperative learning mode are different. Students can have different understandings of the same problem, which can promote our in-depth thinking about basketball learning and find a correct way to solve the problem.

21:03

Of course, the bad thing is that this way, we often waste our time to discuss. Sometimes when we discuss, some students are not active enough and can participate together. I still hope that we can find a more effective way to discuss in the future, and then have a higher quality discussion to promote our learning.

21:35

What do you know about the group learning and cooperative learning class activities? What difficulties and challenges do you feel are brought to you? In my opinion, the biggest problem in group study is that there may be differences between us, so we are not sure that we have not got the final answer to deal with differences. I think the biggest challenge may be the study schedule arranged with my partners, and the study time is a great challenge.

22:12

In my opinion, at the beginning of a group study discussion, we may not grasp the evidence that the teacher wants to get and the key points that we want to teach, which may waste some time for us. With the deepening of our discussion, we may gradually get on the right track.

22:29

Through our teaching this semester, the students also know that some group learning or cooperative learning is given to the teacher. It is normal to have disagreements and problems between groups when discussing group exercises or group exercises.

22:52

Because in the later class activities, the teacher will also give you to correct, to guide you to have wrong differences, in the end what is right. In this way, you can talk about your performance in class this semester, and whether you feel that you are an active learner in class?

23:22

I think I am an active learner, because through the class, and then through the teacher to learn, can greatly enhance my own awareness of independent learning, the teacher used to constantly fill us with knowledge, let us cram to learn, but now it can help me to control my own learning control process, I can also control my own learning time and reasonably plan my own learning process.

23:50

Other students can talk about their feelings. I think I am very satisfied with my performance in class, because I always take the initiative to participate in learning in class. Through the learning of basketball flipped classroom, I have made my learning initiative and independence better, and also formed a better learning habit.

24:28

For other students, I became more willing to participate in every activity in the class, especially the performance in the class. I felt the students' praise for me, which made me more interested in this course and more fond of this course. Whether other students have passed the class or not, especially in group cooperation or discussion in the class, I think it

has improved my ability to take the initiative to learn. Especially when the teacher gives me some positive feedback or the classmates make corrections, I think it can promote me to take the initiative to learn these technologies.

25:08

Are there any other students? Because I like this kind of flipped class and group study and discussion very much, I have made great progress in technology this semester, which makes me more confident. When I communicate with my classmates, everyone is very happy. Is there anything else?

25:31

OK, let's move on. How do you think your classroom experience this semester is different from the traditional classroom experience? For example, let's say that this semester is the classroom experience, is the basketball class class experience, you have the traditional classroom, including you used to take physical education, or some other theoretical knowledge courses in the past, what do you feel different about your feelings. I feel very different from the previous course, I also took two classes before, but through the current course, I feel that our current course is more interactive, and we need to prepare a lot of learning materials and learning things, so that we become more independent. Well, other students, I think it is different from the previous class, which is more interactive and effective for me. First of all, in the group cooperation with my classmates, including the preparation before class, we can deepen the communication between our classmates, and we can exchange skills with each other. Then flipped classroom for me, my learning style is more effective, can provide me with more improvement in my grades, and it can motivate me to participate in and understand this course more deeply.

27:02

Other students also gave me the biggest difference, that is, I feel a different sense of participation.

27:08

In the traditional courses I took in the past, I felt that I was forced to learn, but through the investigation of this semester, I feel that this semester's learning is in my own hands, both in terms of technology and knowledge.

27:25

And this is not only reflected in this class, I take the initiative to learn these things, after class, I will also take the initiative to learn these things, I think compared with the traditional traditional classroom, the traditional classroom is a person's thoughts, that is, the teacher's thoughts, and we also acquire knowledge from books. However, the flipped class and our big discussions in this semester make the content we get not limited to the textbook, but more knowledge points, like explosive knowledge points, so that we can get more ideas.

28:03

Teacher, I also talk about my opinion, I think the biggest difference between our inversion class and the traditional class is that we release more time to learn skills in our class, because the inversion class we discuss some preview content has done a lot of preliminary work before class, so let us have more time to learn skills. In this way, to avoid the traditional classroom teachers talk more, students listen to more, but the actual practice is less, so this semester, my skills basketball skills have also made great progress.

28:49

Also through the discussion and chat with you just now, it should be that everyone's experience of this semester's classroom flipped classroom is very suitable for everyone's speech, and it can be seen that everyone has a sense of success in basketball class.

29:15

OK, so in the flipped classroom, how do you evaluate and evaluate your understanding of the material during this semester's learning? On some of the technical movements that you have learned, including theoretical knowledge, basketball strategies, etc., how to make your own evaluation, or some other ways to make your own evaluation.

29:51

The way I adopt, for example, after learning a skill well, we will have a group match, and then we will have a mutual evaluation or correction, which is to conduct an evaluation and evaluation within the group, and then finally, for example, we will send the video of our game to the teacher and ask the teacher to give us some suggestions. Insights to give us some evaluation.

30:18

Other students we are constantly evaluating, every move we learn, every process we learn, we will evaluate ourselves, not just through the final exam to evaluate basketball.

30:33

For the other students, before class, I would compare myself with the videos given by the teacher. During class, I would also show them to the students or the teacher for the students or the teacher to evaluate me. The teacher would also organize some unit tests for us to evaluate and evaluate on a regular basis.

31:00

When we choose the group leader of our group, we choose the group leader with good skills. When our group team is training, he can often lead us to describe these technical actions in his terms, which is easier and easier to understand and learn, so that we can get better progress inside the group. Other students. Ok, let me also talk about our assessment of the material, in addition to this kind of quiz by the teacher in class or in our group, we mainly do an assessment after class by submitting some homework in the form of homework, through the study.

31:56

In addition, after class, we then mutual feedback with the teacher, feedback between classmates, to learn more about some of the shortcomings in class learning, we further deepen learning, evaluation. When we understand the evaluation and evaluation of the material, whether we get timely and constructive feedback opinions, including between students, between teachers, and some of the teacher's opinions, whether the feedback to you is timely, I think it is very timely, as long as I consult the teacher can first come to us to answer, I also think it is very timely, And it helped me to correct the technical mistakes of the independent vibration.

32:54

I think our teacher is very patient, although I have taught me many times to correct the movement, but I still made a mistake, after making a mistake, the teacher still patiently continue to give me changes, other students have? Ok, the next question is, in your opinion, in terms of your learning outcomes and participation, that is, in terms of learning outcomes

and participation this semester, flipped classroom compared with the traditional classroom, how do you talk about your feelings? I think flipped classroom makes us more active in learning, we have higher participation, a stronger sense of experience, and students are more interested. I agree with what the classmate said just now, and I also feel that my participation is getting higher and higher. At the same time, I have a lot of practice time in class, so that I have enough time to practice basketball dribbling and passing, shooting and other skills, and in class, I can be active in the form of group cooperation with classmates. To carry out each of our lessons.

34:07

Do other students disagree? I also support the views of the first two students, and I think that through this learning method, I am more solid in the study of skills, more profound in the knowledge point theory knowledge point impression, not easy to forget. Compared with traditional classes, I think I can get more opportunities to participate in them. So through our practice this semester, I feel that I have made great progress in my basketball learning. You can evaluate, according to the study of this semester, how do you feel about your current basketball level?

34:52

I used to shoot 10 balls, I can not throw, to tell the truth, but now through this semester, I also actively practice after class, when the teacher issued some homework before class, often take time, or go to the basketball court at night to practice, and then I found that my basketball level has been greatly improved, Now I can shoot at least three, basketball level I feel I have a great improvement, because before only to go to the basketball court to take a ball, go down to shoot, but now after learning those skills, often with partners can also organize to play some games, not to say more intense games, at least play games to learn some techniques and tactics can be used. I think my basketball movement has also been greatly improved, for example, before shooting, I mainly push my arm to shoot. Since learning from the teacher, I have learned to use my wrist and fingers to move the ball in detail when shooting, I think my goal rate has improved, and other students think I have also made rapid progress. So that my basic skills are more solid. Also used to learn things in the basketball game can not use, now also more and more put some basic technical movements can be applied to my basketball game.

36:22

I feel that our current basketball level has been greatly improved, I have mastered a lot of basketball skills, I even can participate in basketball games. What do you feel are some of the biggest difficulties you have encountered in learning basketball through this semester? I think the biggest difficulty I have had in learning to play basketball is that it is hard for me to know what I am doing. The main difficulty I met with other classmates. At the beginning, I did not understand many aspects of learning knowledge and skills. It was just a simple mechanical learning. Is flipped classroom helpful for you to solve these problems?

37:09

Yes, I feel a lot of help, especially through the discussion between the groups, because I did not understand at the beginning, through the group discussion and some guidance from the teacher helped me to solve these problems. Did other students have different opinions?

37:28

The difficulty I encountered was that at the beginning of this semester, I was not willing to calm down to practice the basic skills, and I was always thinking of dissolving and playing games. However, later, through flipped classroom and other students' learning and discussion with each other, it helped me a lot. Now I can calm down to discuss and learn with my friends. In this way, my basic skills have been greatly improved. Also, do you think that I have received enough support in the flipped classroom, whether it is in terms of resources or help from teachers, including some basketball knowledge through the Internet or online, whether it has reached enough help and support? I think I have received great support.

38:26

The teacher would post a lot of materials and videos on the Internet about basketball learning.

38:34

In class, I also got a lot of help through group discussion and cooperation, and the teacher would often guide us in the study and work of our group. Other students, I think I got a lot of help from the teacher, especially after class, when I had some questions about some techniques or had some problems. In general, I can get some timely solutions from the teachers, and I feel a great support. Whether it is in the pre-class online, the teachers provide

some rich materials. At the same time, if I have any questions, I can ask the teachers in time online, and the teachers can also give timely feedback. Even when I was in some presentations, the teacher could also put forward some valuable opinions to me. When we meet difficulties in group discussion and group practice, the teacher will appear in time to help us solve the difficulties and correct the movements. Then the teacher was very attentive to each group. I think I got a lot of support from online resources before class. At the same time, some guidance and explanation from the teachers also helped me a lot in the class, but in general, I think the teacher explained the whole group more. I hope to get more one-on-one guidance.

40:10

In addition, I also hope to have the opportunity to participate in additional tutoring for students with higher level, because I want to get better help, and then let my students with higher level of physical exercise have better improvement. Do other students have any different opinions?

40:41

In the whole teaching process of flipped classroom, how do we manage our own time and balance the pre-class homework and other homework in this kind of time management and allocation?

40:59

To be honest, at the beginning, I think this time arrangement is really challenging, but when the teacher will hand out homework, or some pre- class preparation, he will give us a week in advance at this time, and then through a period of adjustment and planning, my time can also be fully used. Then there are a lot of gains, still need to discipline problems, or need to be more standardized and reasonable arrangement. For other students, I prefer a structured schedule, and then make a reasonable schedule to manage myself, but it is a challenge for me. I need to better implement the schedule. Do you have any different opinions on other students?

41:55

At the beginning of the semester, I felt that there was a conflict between this time and other courses, such as pre-class preview, but later I made some adjustments to the basketball learning time according to my entire course schedule, and now I can make good use of my spare time to study basketball before class. At present, I feel that the time arrangement is OK, and it can meet the needs of learning.

42:35

I will also make a schedule in advance, such as when to preview by myself, to read some pre-class materials, and then when to discuss these things and what kind of technology with the students in the group. Although it may be a bit cumbersome to do so, I feel that it is a great harvest. Through the preparation work before class, I already knew psychologically what problems to raise and what difficulties to solve in the next study and discussion of the group, which made me more adept in class. Now I have developed a good habit of studying and preview to balance the preparation before class and other assignments.

43:29

Did you find the completed assignment challenging? Sometimes other teachers assign too much homework, which may cause trouble to me. Also, do you think that a method of flipped classroom teaching has improved people's memory and understanding of basketball theories and strategies, including techniques, techniques and tactics? What are the specific aspects? This method improves my memory and understanding of one of the materials, makes the learning process more effective, and plays a key role in promoting our learning methods in terms of technology.

44:21

First of all, before class, I can clearly know what we are going to learn in this class from the materials distributed by the teacher. What are the important and difficult points I need to pay attention to? I need to know where the mistakes are. In class, the teacher will deepen the impression of the technique, including the explanation of the technique, so that I can have a deeper understanding of this movement. After class, the teacher will also hand out some homework, which will further consolidate my grasp of this movement and technique including theory.

44:55

For other students, I think the flipped classroom has consolidated my understanding of the material. First of all, because I need to prepare for the class content in the early stage, I need to understand the class content, and I have to actively prepare and study through the videos and materials distributed by the teacher, so that I can have a certain understanding of the technical movements. In class, our group discussions, the cooperation between classmates, and the teacher's feedback on my problems enable me to have a deeper understanding of the current content that I need to learn. Through flipped classroom group discussion, we have more communication and ask questions and answers to each other more frequently, which makes our senses more stimulated and our memory more profound. I also think that the development of class has improved my memory of this material. For example, in group cooperation, I can discuss with my peers and express my own opinions, so that I can feel that I have truly participated in the learning process of the class.

46:10

Then, when I was demonstrating, the teacher or classmates would come to correct mistakes for me, which could fully deepen my understanding of the technology, and then help me learn better.

46:23

Everyone believes that the flipped classroom teaching method and the learning goals and results of the course, according to whether you have reached the learning goals, whether it is effective to achieve consistency and effectiveness.

46:42

Let me first talk about it. I think flipped classroom is a good match for the learning goal of the course and promotes a comprehensive understanding of the learning materials. It can successfully achieve our skill learning and theoretical knowledge, and promote a dual goal of this kind. In this way, it can improve the team, for example, improve the cohesion of the team and the execution of tactics, and for example, it can directly translate into better performance on the court. Through a deep understanding of the materials, it can also improve the execution of some basketball tactics. You are keen, right?

47:42

and the use of basketball learning skills, other students have? I think this way fits my learning style very well. So learning this learning mode, I think it matches my learning goals well, let me have a more clear direction in the learning process, know what I want to do, and in the learning tasks, and then promote me to actively and independently to complete the learning tasks, I feel very helpful to my own learning. Do other students have different opinions to agree with the previous classmate's view? So of course the last question is how satisfied you are with the flipped classroom, the flipped classroom experience this semester, if you were to rate it, on a scale of 1 to 10, how would you rate it?

48:42

I think I can give him 9 points, I think he can reach the full 7 points, other students 9 points 10 points, I think I can score 9.5 points, in general, I have a very full sense of flipped classroom experience, it can make our learning more attractive and interactive.

49:04

Student, why do you feel that this patient may be able to score so high? I think flipped classroom is very helpful to me, let me learn to study, at the same time, let me in the study of the technical level has been greatly improved, so I think it is very suitable for me.

49:28

Flipped classroom is one of the learning methods that I have been exposed to so far, and it makes me learn in a happy way, so I give it full marks.

The reason why I didn't get full marks of 9.5 in

49:37

is that I feel there are still some shortcomings that need to be improved. For example, I suggest that we can add some videos after class, so that we can have a better improvement on the basis of preview video learning before class. In this way, through the flipped classroom teaching this semester, and through the flipped classroom teaching mode, I hope you can also put forward your own suggestions, so that in the future teaching process, we can make better use of the flipped classroom pedagogy of this relationship, you can give some of your own opinions and suggestions, need to improve. I think more high-quality and high-level videos can be provided to us after class, so that we can improve ourselves on the basis

of learning. Because I also like basketball player Kobe Bryant, I hope the teacher can combine more sports-related case studies or examples, including some sports stars with positive energy, to add them to our flipped classroom, which can increase the relevance of sports. Do you have any other students?

51:10

I think it can be developed in the future. I think the time for class discussion can be increased slightly, because in the discussion, the discussion time is the time for you to really participate in the class. If this time is increased, I think it will be of great help to the overall learning of the class.

51:34

OK, any other students? Ok, thanks to the students. Through flipped classroom this semester, I also put forward some of my own ideas or feelings for flipped classroom. I hope we can make better use of flipped classroom in the future teaching, and better bring students a more pleasant and cheerful classroom atmosphere. So let's finish this interview today, thank you again, OK. Goodbye, teacher. Goodbye, Miss Li.